CSABE/ASABE Annual International Meeting
Toronto, July 13-16, 2025
TECHNICAL SESSION SCHEDULE

Listed below are all of the technical sessions and presentations scheduled at 2025 AIM, ordered by day and time.

Poster Sessions = Presenters will be at their printed poster in the common area ready to discuss their work individually or in small groups. A great opportunity to connect with the authors.
Oral Sessions = Standard 12-minute talk time with 2- to 3-minute question and answer period.
Hybrid Sessions = a mix of guest speaker and submitted abstract oral talks.
Lightning Talks = 7-minute lightning oral presentations and Q&A. *Lightning Panel* will have a 7-minute break after every fourth speaker to enable group discussion. *Lightning Session* will be 7-minute lightning oral presentations with Q&A. No scheduled breaks during the session for discussion.

This document will be updated again to include presenters and times for each session.
Updated on 6/24/2025-Subject to change.

Monday, July 14 - 9:30am-12:00pm

ASE - Applied Science & Engineering

101 Biomass Preprocessing and Logistics for Biofuels and Bioproducts

Monday, 9:30am - 12:00pm
Location: Willow West
Technical Community: ASE - Applied Science & Engineering
Session Type: Oral Technical Session
Description: Updates and research on use of tools and equipment to scale up and automate components of biomass processing.
Organizer: Ashish Manandhar, manandhar.5@osu.edu
Sponsoring Committee: ASE-12 Forest Engineering; **Co-Sponsors:** MS-23/7/2 Forage & Biomass Engineering, PRS-280 Bioconversion and Bioprocesses
Moderators: David Lanning

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500818	*Upcycling of Agri-food Resources into Packaging Material and Vegan Leather using Fungal Mycelium: A Flexible Biomanufacturing Platform* - Presented By: **Malvika Sharma**, University of Guelph, Guelph, Ontario, Canada; Malvika Sharma, Sophie Robertson, Lonng-Tak Lim, Guneet Kaur
9:50am	2501347	*Optimizing Hydrothermal Liquefaction of Oat Hulls: Product Characterization, and Process water Reutilization* - Presented By: **Manpreet Singh**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Manpreet Singh, Falguni Pattnaik, Ajay Dalai
10:05am	2501703	*butanol from electro-fermentation of coffee waste* - Presented By: **Beenish Saba**, Depa cultural and Biological Engineering, The Ohio State University, Columbus, Ohio, USA; Ann Christy, Katrina Cornish
10:20am	2501172	*Turning cannabis waste into high-value products: Chemical treatment and characterization of recreational cannabis stems* - Presented By: **Pabitra Chandra Das**, Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Pabitra Chandra Das, Ravi Patel, Amin Babaei-Ghazvini, Bishnu Acharya, Oon-Doo Baik, Lope G. Tabil
10:35am		*BREAK*
10:45am	2500283	*Canola meal extract as a potential feedstock for microbial bioprocessing* - Presented By: **Nirpesh Dhakal**, Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Nirpesh Dhakal, Bishnu Acharys
11:00am	2501470	*Evaluating Grinding Laws for Predicting the Specific Grinding Energy of Forest Residue Tissue Fractions* - Presented By: **Osayuwamen Orbih**, University of Georgia, Athens, GA, USA; Sudhagar Mani

NO SHOW

11:15am	2501159	*Optimization and Characterization of Lignin Extraction from Flax Straw Using Soda Pulping* - Presented By: **Asutosh Dalai**, Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Asutosh Dalai, Bishnu Acharya

CBS - Circular Bioeconomy Systems

102 Advancing Circular Bioeconomy Systems (CBS): Opportunities and Challenges-HYBRID

Monday, 9:30am - 12:00pm

Location: Birchwood Ballroom

Technical Community: CBS - Circular Bioeconomy Systems

Session Type: Hybrid Session-submitted abstracts and guest speakers

Description: This session includes identification/description of opportunities and challenges, as well as progress toward taking advantage of opportunities and advancing solutions to challenges about various aspects of CBS, for example, technical, regulatory, financial, environmental, infrastructure, multi-disciplinary collaboration, and public perception and support.

Organizer: Erin Webb, webbeg@ornl.gov

Sponsoring Committee: CBSI; **Co-Sponsors:** MS-03/2 Farm Materials Handling and Transport, MS-49 Crop Production Systems, Machinery, and Logistics, NRES-26 Sustainable Land Resources, NRES-27 Ag Byproducts & Animal Mortality Systems, PRS-280 Bioconversion and Bioprocesses, PRS-702 Crop & Feed Proce

Moderators: Erin Webb, John Reid

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	Guest Speaker	*TBD* - Presented By: **Bishnu Acharya**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada
10:00am	2501116	*Food Waste Diversion and Anaerobic Digestion as Pillars in Creating a Circular Bioeconomy* - Presented By: **Adel Shirmohammadi**, University of Maryland, College Park, Maryland, USA; Stephanie Lansing, Rachele Franceschi, Daniela Ochoa Gonzalez, Maureen N. Nabulime, Christopher Hernandez Molina, Emily L. McCoy, Xueyao Zhang, Yebo Li, Zhiwu Wang, Amro Hassanein, Adel Shirmohammadi
10:15am	2501564	*An Agent-based Model to Support Household Food Waste Estimations: Unpacking Shopping and Household Behavioral Patterns* - Presented By: **Helen Haase**, University of Florida, Gainesville, Floirda, USA; Helen Haase, Ziynet Boz, Drew Streckwald, Gregory Kiker, Catherine Campbell
10:30am	2500670	*A geography-adjusted approach to circular bioeconomy: Modeling tailored upcycling pathways for pulse starches* - Presented By: **Raphael Aidoo**, McGill University, Montreal, Quebec, Canada;
10:45am	*BREAK*	
10:50am	Guest Speaker	*TBD* - Presented By: **Shahab Sokhansanj**, University of British Columbia, Vancouver, British Columbia, Canada;
11:15am	2500945	*Human-centric and non-extractive approaches to Circular Bioeconomy Systems* - Presented By: **Jennifer Keshwani**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Deepak Keshwani, Marybeth Lima, Jennifer Keshwani
11:30am	2500777	*Recycling polymers to make greenhouses* - Presented By: **Claudiane Ouellet-Plamondon**, École de technologie supérieure - Université du Québec, ; Patrick Brisebois, Lucas Ohmer, Simon Joncas, Claudiane Ouellet-Plamondon
11:45am	2501686	*Case Study: Recycling Dairy Manure Solids into Pelletized Products* - Presented By: **Tyler Barzee**, University of Kentucky, Lexington, Kentucky, USA; Abdolhossein Edalati, Tyler Barzee, Ian Nielsen, Allan Chio, Yike Chen, Hamed El-Mashad, Ruihong Zhang

EOPD - Education, Outreach, & Professional Development

104Engineering Ethics across Cultures-RAP SESSION

Monday, 9:30am - 12:00pm

Location: Civic Ballroom North

Technical Community: EOPD - Education, Outreach, & Professional Development

Session Type: Rap Session

Description: This RAP session will explore how ethical decision making is impacted by global and cultural differences. Participants will be introduced to an ethical decision-making framework and engage in small-group discussions to apply the framework to example scenarios where these differences could impact engineering ethics.

Organizer: Deepak Keshwani, dkeshwani2@unl.edu

Sponsoring Committee: EOPD-412 Professional Ethics; **Co-Sponsors:** E-2050 Global Engagement, EOPD-203 Undergraduate & Graduate Instruction, E-03 IDEA

Moderators: Deepak Keshwani, Bob Gustafson

ES - Energy Systems

105 Advances in Biomass Preprocessing, Pretreatment, and Conversion

Monday, 9:30am - 12:00pm

Location: Willow East

Technical Community: ES - Energy Systems

Session Type: Oral Technical Session

Description: Mechanical preprocessing. Biomass fractionation. Chemical, biological and thermal pretreatments of biomass to improve physical, chemical, and thermal properties for biochemical and thermochemical conversions.

Organizer: Mi Li, mli47@utk.edu

Sponsoring Committee: ES-220 Bio-based Energy, Fuels and Products

Moderators: Mi Li

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500531	*Full-scale implementation of thermal hydrolysis pretreatment-enhanced anaerobic digestion with nutrient control and recovery during digestate dewatering* - Presented By: **Yitao Li**, Virginia Tech, Centreville, Virginia, USA; Yitao Li, Malcolm Taylor, William Mapes, Chris Moline, Caroline Nguyen, John Novak, Zhiwu Wang
9:50am	2501105	*Biogas-powered cooling system for improved agricultural productivity and food security in the global south* - Presented By: **Cynthia Okoro-Shekwaga**, University of Leeds, Leeds, United Kingdom; Cynthia Kusin Okoro-Shekwaga, Collin Irumba, Vianney Tumwesige, Derrick Njuma, Paul Ssebbowa and Miller Alonso Camargo-Valero
10:05am	2500740	*Carbon capture using a microalgae photobioreactor with hollow fiber membranes* - Presented By: **Jonathan Maisonneuve**, Oakland University, Rochester, Michigan, USA; Foster Caragay, Ryan Younes, Matthew Brauer, Sarah Moussaddy, Sarah Beetham, Dan DelVescovo, Jonathan Maisonneuve
10:20am	2500859	*Scale effects on horizontal frictional pressure losses in forest residue and agricultural biomass slurry flows* - Presented By: **Omex Mohan**, University of Alberta, Edmonton, Alberta, Canada; Omex Mohan, Amit Kumar
10:35am	*BREAK*	
10:45am	2501332	*Hydrophobic Deep Eutectic Solvents for Pulping Applications* - Presented By: **ASM Sayem**, Departme[NO SHOW] Agricultural Engineering, University of Kentucky, Lexington, Kentucky, USA; ASM Sayem, Yuxuan Zhang, Jian Shi
11:00am	2500438	*Development of cellulose-based products for sustainable packaging applications* - Presented By: **Penghui Zhu**, The University of British Columbia, Vancouver, British Columbia, Canada; Penghui Zhu, Yeling Zhu, Feng Jiang
11:15am	2500580	*3D printed wood-fiber reinforced architected cellular composites: A Strategy for realizing sustainable metamaterials* - Presented By: **Hamid Akbarzadeh**, Bioresource Engineering Department, McGill University, Montreal, Quebec, Canada; Ehsan Estakhrian, Armin Mirabolghasemi, Hiuto Ye
11:30am	2501408	*Switchable aqueous PFAS adsorption and desorption using thermoresponsive Poly(N-isopropylacrylamide) functionalized cellulose nanocrystals from forest biomass* - Presented By: **Md Shahadat**

Hossain, SUNY College of Environmental Science and Forestry, Syracuse, New York, USA; Md Shahadat Hossain, Thomas Stuart, Aditi Verma, Robert Cheatham, Bandaru Ramarao, Toufiq Reza, Deepak Kumar

107 ES-Energy Systems POSTER SESSION

Monday, 9:30am - 12:00pm

Location: Exhibit Hall

Technical Community: ES - Energy Systems

Session Type: Poster Technical Session

Description: The ES poster system will provide a venue for showcasing the advances in all the processes, technologies, economics, and policies impacting the energy production, distribution, and consumption with a particular focus on renewable energy technologies and agricultural and food processing sectors. Early-stage high impactful research, scale-up, and field deployment studies are encouraged. Students are especially encouraged to present their research in the highly interactive ES poster session.

Organizer: Mi Li, mli47@utk.edu

Sponsoring Committee: ES-220 Bio-based Energy, Fuels and Products

Moderators: Hossein Jahromi

Poster#	Pres. ID	Presentation Title, Presenter, & Authors
1	2500024	*Advancements in Agrivoltaics: Autonomous LiDAR and GPS-Navigated Robotic Mowing for Vegetation Management* - Presented By: **Shaswati Behera**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Shaswati Behera, Santosh Pitla
2	2501282	*Empowering Remote Communities: Sustainable Energy Solutions with the Thermo-Catalytic Reforming (TCR®) Technology* - Presented By: **Neelanjan Bhattacharjee**, University of Alberta, Edmonton, Alberta, Canada; Neelanjan Bhattacharjee, Amit Kumar
3	2500524	NO SHOW *rature Gasification of Animal Wastes for Syngas and Biochar Production* - Presented Carolina State University, Raleigh, North Carolina, USA; Dwi Cahyani, Fan Wu, Mahmoud Sharara, Wayne (Wenqiao Yuan)
4	2501005	*Phosphoric Acid Activation of Biochar for Sustainable Agriculture* - Presented By: **Ozor Tochukwu**, South Dakota State University, Brookings, South Dakota, USA; Ozor Tochukwu, Lin Wei, Anne Cidreira
5	2500947	*Watt a Waste: Utilizing Hurricane Debris with Catalyst Recycling for Lithium-ion Battery Anodes* - Presented By: **Lillian Lower**, North Carolina State University, Raleigh, North Carolina, USA; Lillian Lower, Nate Garland, Ravindra Kumar Bhardwaj, Bertrand Tremolet de Villers, Maria Camila Garcia Vallejo, Sunkyu Park, Xiaowen Chen, William Joe Sagues
6	2500048	*Repurposing of low-value biomass into engineered biocarbon materials for environmental applications* - Presented By: **Yulin Hu**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada;
7	2500197	NO SHOW *ergy efficiency of agricultural producers and small rural businesses through Rural Energy for REAP)* - Presented By: **Jianfeng Zhou**, University of Missouri, Columbia, Missouri, USA;
8	2500203	*Digestate Liquid: Absorption testing and techno-economic analysis for biogas upgrading* - Presented By: **Francis Akyirem**, Penn State, State College, Pennsylvania, USA; Mary Akingbasote, Daniel Ciolkosz Ph.D., P.E
9	2500260	*Modeling and Optimization of Pelleting Processes: Biomass and Biochar Pellet for Energy and Agricultural Applications* - Presented By: **Md Mashiur Rahman**, Department of Agricultural and Biological Engineering, The Pennsylvania State University, State College, Pennsylvania, USA; Mashiur Rahman, Daniel Ciolkosz, Hojae Yi, Michael Jacobson, John Boney
10	2500543	*Microbiome Insights for Improved Stability and Biomethane Production during Anaerobic Digestion of Heterogenous Organic Wastes* - Presented By: **Victoria Holliday**, University of Kentucky, Lexington, Kentucky, USA; Victoria Holliday, Dr. Tyler Barzee, Dr. Minjae Kim
11	2500620	NO SHOW *a Single-Cylinder Compression Ignition Engine using Giant Palm Biodiesel Blends for olutions* - Presented By: **Rasheed Amao Busari**, Kwara State University

Malete, Nigeria, Ilorin, Nigeria; Rasheed Amao. Busari, Kehinde Raheef. Adebayo, Adeshina Fadeyibi, Abdulqadir Tosho. Opobiyi

12 2500651 NO SHOW *erformance Evaluation of an Infrared-Assisted Hot Air Dryer for Improved Quality a in Potato Drying* - Presented By: **Yinka Sikiru**, University of Manitoba, Winnipeg, Manitoba, Canada

13 2500690 *Forage Establishment and Compaction Remediation within a Mid-west Utility-Scale Solar Site* - Presented By: **Elizabeth Hawkins**, Ohio State University, Columbus, Ohio, USA; Braden Campbell, Amanda Douridas, Andrew Klopfenstein, Eric Romich, Christine Gelley, Trevor Corboy, Scott Shearer

14 2501306 *Filtration of Flue Gas from Biomass Combustion Using a Novel Catalyst for Heat and CO_2 Enrichment in Agricultural Greenhouses* - Presented By: **Ali Zabihi**, McGill University, Montreal, Quebec, Canada

15 2501081 *Harnessing Maintenance Energy for Enhanced PHA Production from Food Waste Digestate by Haloferax mediterranei* - Presented By: **Zhiwu Wang**, Virginia Tech, Blacksburg, Virginia, USA; Xueyao Zhang, Jiefu Wang, Amro Hassanein, Zhaohui An, Stephanie Lansing, Zhi-Wu Wang

16 2500785 NO SHOW *groforestry for Bioenergy: Leveraging Symbiosis Between Trees and Crops to Expand P Liquid Hydrocarbon Fuels* - Presented By: **Rachael Sak**, MIchigan State University, East Lansing, Michigan, USA; Rachael Sak, Christopher Saffron

17 2501032 *Adaptive Cooling Strategies for Greenhouses Using Solar-Assisted Adsorption Chillers* - Presented By: **Aidan Ferguson**, University of California, Davis, Davis, California, USA; TM Abir Ahsan, Md Shamim Ahamed

18 2500955 *Characterization of Autotrophic Growth and Polyhydroxyalkanoate Biopolymer Synthesis in Several Hydrogen Oxidizing Bacteria* - Presented By: **Stefan Bardal**, University of Manitoba, Winnipeg, Manitoba, Canada

19 2501340 *Numerical Investigation of Temperature Profiles in Microwave-Assisted Kraft Lignin Depolymerization Using Highly Hydroxylated Copper Oxide/Silica Nanocatalyst* - Presented By: **Dorin Boldor**, Biological and Agricultural Engineering, LSU AgCenter, Baton Rouge, Louisiana, USA; Marwan Y Rezk, Adejoke D Adewumi, Lavrent Khachatryan, Dorin Boldor

20 2501604 *Case Study: Decarbonization of Greenhouse Heating Systems* - Presented By: **Nadia Sabeh**, Dr. Greenhouse, Inc., Sacramento, California, USA; Lydia Miner, Sam Everett

ITSC - Information Technology, Sensors & Control Systems

108 Advanced Machine Learning-I

Monday, 9:30am - 12:00pm

Location: Willow Center

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Oral Technical Session

Description: Focuses on advanced machine learning techniques for plant and animal characteristics and behaviors.

Organizer: Joe Dvorak, joe.dvorak@uky.edu

Sponsoring Committee: ITSC-254 Emerging Information Systems

Moderators: Ben Shacklett

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2501503	*Optimizing Soil Sampling Design in Agriculture through Satellite Remote Sensing and AI Integration* - Presented By: **Vitor Martins**, Mississippi State University, Starkville, Mississippi, USA; Martins, V.S., Ferreira, L.B., Aires, U.R.V, Wijewardane, N., Zhang, X.
9:50am	2501508	*Advancing the field-scale agricultural monitoring with satellite observations: 1. Crop field extraction framework and preliminary results* - Presented By: **Vitor Martins**, Mississippi State University, Starkville, Mississippi, USA; Martins, V.S., Ferreira, L.B., Aires, U.R.V., Zhang, X. Wijewardane, N.

10:05am 2501680 *Advancing Hybrid Aerial Imagery and LiDAR Data Integration for Monitoring Longleaf Pine Ecosystems: Next Steps in Deep Learning and 3D Modelling* - Presented By: **Satyanarayan Dev**, Florida A&M University, Tallahassee, Florida, USA; Satyanarayan Dev, Gopi Ananth KS, Johnny Grace

10:20am 2500521 *Building a Successful Partner Software for Irrigation Water Use Estimation* - Presented By: **Adarsha Neupane**, Clemson University, Clemson, South Carolina, USA; Vidya Samadi, Adarsha Neupane, Krishna Panthi

10:35am *BREAK*

10:45am 2501351 *A Physics-Informed Neural Network for Soil Moisture Modeling and Localized Crop Water Uptake Estimation* - Presented By: **Sandra M. Guzmán**, University of Florida, Fort Pierce, Florida, USA; Gregory Conde, Sandra M. Guzmán

11:00am 2501022 *Advancing Lettuce Growth Modeling in Controlled Environments with Physics-Informed Neural Networks* - Presented By: **Abdul Momin**

11:15am 2500959 *Adaptive Nitrogen Fertilizer Management Strategies using Reinforcement Learning* - Presented By: **Dennis R. Buckmaster**, Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana, USA; Harsh Pathak, Dennis R. Buckmaster, Upinder Kaur, Fabio A. Castiblanco, James V. Krogmeier

11:30am 2500188 *Learn from Foundation Model: Fruits Detection Model without Manual Annotation* - Presented By: **Yanan Wang**, Zhejiang University, Hangzhou, Yuhang, China

11:45am 2500571 *FishNetGAN: A CycleGAN-Based Framework for Zero-Shot Anomaly Detection in Net Cage Aquaculture* - Presented By: **Yuting Yang**, Zhejiang University, Hangzhou, Zhejiang Province, China; Yuting Yang

109 Advanced Machine Vision Systems for Agricultural Applications (Peer-review session)

Monday, 9:30am - 12:00pm

Location: York Room

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Oral Technical Session

Description: Advanced and new machine vision techniques for various agricultural applications. This session encourages author(s) to submit full papers for peer-review by April 1st.

Organizer: Yuzhen Lu, luyuzhen@msu.edu

Sponsoring Committee: ITSC-312 Machine Vision

Moderators: Md Sultan Mahmud

Time Pres. ID Presentation Title, Presenter, & Authors

9:35am 2500215 *Development of a Portable Device for Small-Sized Insect Pests Detection Using CAFE-YOLO* - Presented By: **Pei-Yu Chen**, National Taiwan University, Taiwan, ROC; Pei-Yu Chen, Ta-Te Lin

9:50am 2500623 *Development and Evaluation of A Multispectral Vision-based Automated Sweetpotato Sorting System* - Presented By: **Jiajun Xu**, Michigan State University, East Lansing, Michigan, USA

10:05am 2500169 *MHSC-Seg: A Lightweight Semantic Segmentation Model Specifically Designed for Impurity Segmentation in Machine-Harvested Seed Cotton* - Presented By: **Shicheng Hong**, College of Mechanical and Electrical Engineering, Shihezi University, Shihezi City, Xinjiang Province, China; Xiang Qiu, Sanhui Wang, Mengyun Zhang, Huting Wang

10:20am 2500886 *Novel Cannibalism index of Grouper Juvenile in High-Density Aquaculture using Density Map and Optical Flow* - Presented By: **Ting-En Lin**, National Taiwan University, Taipei City, Taiwan (R. O. C.)

10:35am *BREAK*

10:45am 2501196 *Comparative Analysis of Soil Moisture Estimation Using Histogram Interpolation Across Different Color Spaces in Image Data* - Presented By: **Eunji Jeong**, Pusan National University, Miryang-si, South Korea; Eunji Jeong, Dongseok Kim, Jisu Song, Seokyung Park, Gunhui Park, Jaesung Park

11:00am 2501699 *Tuber Ruler: a mobile application for evaluating image-based potato tuber size* - Presented By: **Sindhuja Sankaran**, Washington State University, Pullman, Washington, USA

11:15am 2501078 *Preliminary development and evaluation of a new multispectral vision-based apple infield grading and sorting system* - Presented By: **yuyuan tian**, Michigan State University, East Lansing, Michigan, USA

11:30am 2501519 *Real-Time Detection of Apple Surface Defects by 3D Imaging for In-Field Sorting* - Presented By: **Jiaming Zhang**, Michigan State University, East Lansing, Michigan, USA

110 Connectivity, Cloud Computing, and Internet of Things in Agriculture and Natural Resources - LIGHTNING PANEL

Monday, 9:30am - 12:00pm

Location: Cedar

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Lightning Oral Technical Session

Description: Focuses on the development and application of internet of things (IoT) and sensing networks for agriculture and natural resources.

Organizer: Hasan Seyyedhasani, seyyedhasani12@vt.edu

Sponsoring Committee: ITSC-254 Emerging Information Systems; **Co-Sponsors:** ITSC-217 Computational Methods, Simulations & Applications

Moderators: Shirin Ghatrehsamani

9:35am 2500498 *Accelerated CAN Bus Data Processing Pipelines in Agricultural Vehicle Systems* - Presented By: **Julia Bowman**, Iowa State University, Ames, Iowa, USA; Dr. Matt J. Darr, Dr. Benjamin C. Smith

9:42am 2500847 *Analysis of influencing factors on cross-regional harvester flows in China based on big trajectory data* - Presented By: **Jiawei Xu**, China Agricultural University, Beijing, China; Jiawei Xu, Cheng Fu, Caicong Wu

9:49am 2500296 *Enhancing Trust in Agriculture: Addressing Data Sharing with Blockchain Technology* - Presented By: **Younghoo Cho**, University of Florida, Gainesville, Floirda, USA; Ziwen Yu, Yiannis Ampatdizis

9:56am 2500564 *INTEGRATING IOT AND SECURE DATA TRANSMISSION IN A CROP MONITO* NO SHOW resented By: **Manish Shrestha**, Department of Agricultural and Biosystems Engineering, South Dakota State University, Brookings, South Dakota, USA; Lin Wei

10:03am *DISCUSSION*

10:10am 2501248 *Mapping and analyzing spatiotemporal dynamics of agricultural drought using remote sensing technologies* - Presented By: **Fatima Imtiaz**, University of Prince Edward Island, Prince Edward Island, Canada; Fatima Imtiaz, Aitazaz A. Farooque, Gurjit S. Randhawa, Seyyed Ebrahim Hashemi Garmdareh, Xiuquan Wang, Travis J. Esau, Bishnu Acharya

10:17am 2500218 *Smart Beehive Health Monitoring and Forecasting Based on Multi-Sensor Data and Machine Learning* - Presented By: **Po-Hsun Cheng**, Department of Biomechatronics Engineering, National Taiwan University, Taiwan; Po-Hsun Cheng, Yi-Lin Liu, Ta-Te Lin

10:24am 2500084 *Evaluation of Smart Hybrid Solar Dryer for Drying Mango (Mangifera indica L.) in Bangladesh* - Presented By: **Chayan Kumer Saha**, Bangladesh Agricultural University, Bangladesh; Chayan Kumer Saha, Jakia Khatun, Md. Rayhanul Karim, Israt Jahan, Taslimun Nahar, Md. Abu Hanif, Surajit Sarker, Poly Karmokar

10:31am 2500089 *Development of a Low-cost Yield Monitor for Tart Cherries* - Presented By: **Anderson Safre**, Utah State University, Logan, Utah, USA

10:38am *DISCUSSION & BREAK*

10:50am 2500782 *A Real-Time Pest Detection System Based on Artificial Intelligence and the Internet of Things* - Presented By: **Nipuna Chamara**, University of Nebraska–Lincoln, Lincoln, Nebraska, USA; Ying Chen, Nipuna Chamara, Tala Awada, Yufeng Ge

10:57am 2501413 *Design of a Wireless Temperature Data Acquisition System for Monitoring Egg Temperatures During Thermal Inactivation of the HPAI Virus* - Presented By: **Samuel Beffa**, University of Wisconsin-Madison, Department of Mechanical Engineering, Madison, Wisconsin, USA; Samuel Beffa, Michael Cheadle, Ethan Burton

11:03am 2500846 *Wireless Communications Requirements for the Connected Farm in Row Crop Agriculture* - Presented By: **Rohit Anand**, The Ohio State University, Columbus, Ohio, USA; Rohit Anand, Andrew A Klopfenstein, Christopher R Dean, Chris Tkach, Alex Parsio, John Fulton, Robert Bench, Scott Shearer

11:10am 2501419 *System design and reliability improvement of wireless sensor network in plant factory scenario* - Presented By: **Jingjin Zhang**, Shanghai Jiao Tong University, Shanghai, China; Wenhao Luo, Yuan Zeng, Ximeng Zheng, Lingyan Zha, Weicheng Cai, Qing Wang, Haolin Wang, Haonan Zhao, Jingjin Zhang

11:17am 2501528 *Automated delineation of coconut rhinoceros beetle with a distributed surveillance system and machine vision tools* - Presented By: **Ghorban Ali Miarkiani**, University of Hawaii, Honolulu, Hawaii, USA; Mohsen Paryavi, Amy Li, Ghorban Ali Miarkiani, Daniel M. Jenkins

11:24am *DISCUSSION*

111 ITSC-Information Technology, Sensors & Control Systems POSTER SESSION A

Monday, 9:30am - 12:00pm
Location: Exhibit Hall
Technical Community: ITSC - Information Technology, Sensors & Control Systems
Session Type: Poster Technical Session
Description: Poster session for submissions to the ITSC division.
Organizer: Long He, luh378@psu.edu
Sponsoring Committee: ITSC-01 POSTER SESSION
Moderators: Long He

Poster# Pres. ID Presentation Title, Presenter, & Authors

21 2500443 *Methodological Approach to Ventilation Measurement for Estimating Air Pollutant Emission Factors from Open Livestock Housing* - Presented By: **Han Kim**, Kongju National University, Chungcheongnam-do, Republic of Korea; Rack-Woo Kim, Seung-Hun Lee, Chan-Min Kim, Hee-Woong Seok, Su-Been Ahn, Sun-Hyoung Lee, Ji-Eun Kang, Yun-Jeong Lee, Kyoung-Won Min, Yoon-Kyu Hur

22 2500599 *...of Bi-directional Rapidly Exploring Random Tree Algorithm for Path Planning of Agricul...* NO SHOW Presented By: **Sisi Liu**, School of Agriculture Engineering, Jiangsu University, Zhenjiang, Jiangsu, China; Sisi Liu, Zhan Zhao, Qianqian Zhou

23 2500735 *Path Planning and Controller Development for UGVs* - Presented By: **Sulaymon Eshkabilov**, Ag & Biosystems Engineering, North Dakota State University, Fargo, North Dakota, USA; Mohammad Aftabi Talami, Shafi Md. Istiak, Rafat Safayet, James Y. Kim, Sulaymon Eshkabilov

24 2500074 *PANDA: Palmer Amaranth Natural Dataset Archive* - Presented By: **Amlan Balabantaray**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Amlan Balabantaray, Amit Jhala, Santosh Pitla

25 2500159 *...ermal biosensors for soil nutrient determination* - Presented By: **Riley Lawson**, North Car... NO SHOW ..., Raleigh, North Carolina, USA; Riley Lawson, Amy Grunden, Chadi Sayde

26 2500504 *Development of Orchard Robot Control System Using ROS 2* - Presented By: **Duke Bulanon**, Northwest Nazarene University, Nampa, Idaho, USA; Connor Ruybalid, Christian Salisbury, Allison Verner, Duke M Bulanon

27 2500200 *...rawberry Yield Estimation: Self-Supervised Completion of Partial 3D Fruit Models fo... Prediction* - Presented By: **Kai Shen**, University of Florida, Gainesville, Floirda, USA; Kai Shen, Xu Wang, Vance Whitaker

28 2500213 *Leveraging Generative AI to Interpret Key Factors of Data Rights and Ethics in Agricultural Contracts for Technology Adoption* - Presented By: **Ziwen Yu**, University of Florida, Gainesville, Floirda, USA; Songzi Wu, Ziwen Yu

29 2500217 *...t learning modeling for pump operation decision-making in drainage station* - Presented... NO SHOW ...Chonnam University, Gwangju, South Korea; Gyuhoon Choi, Seung-Hwan Yoo, Tae-gon Kim, Dong-Hyuk Joo, Ra Na, Jae-Hyuk Lee

30 2500225 *Three-Dimensional Image Reconstruction of RGB and Chlorophyll Fluorescence Point Cloud for Plant Phenotyping Using a Gantry Robot System* - Presented By: **Jiun-Wei Yi**, National Taiwan University, Taipei, Taiwan; Cheng-Hao Lin, Hsiao-Mei Wu

31 2500282 *...ing-powered activatable NIR-II fluorescent nanosensor for in vivo monitoring of plant st...* NO SHOW ...nted By: **Hong Hu**, Zhejiang University, Hangzhou, Zhejiang, China

32 2500696 *Fringe Projection Profilometry for 3D Soybean Root Phenotyping* - Presented By: **Li Beiwen**, University of Georgia, Athens, Georgia, USA; Victoria Macdans, Jiaqiong Li, Zenglu Li, Beiwen Li

33 2500288 *Development of A Real-Time Missing Plant Recognition System Using Deep Learning and GPS Integration* - Presented By: **Jae-Seo Hwang**, Department of Smart Bio-Industrial Mechanical Engineering, Kyungpook National University, Daegu, Republic of Korea; Hyeon-Seo Yun, Wan-Soo Kim

34 2500336 *Rapid Detection of Antimicrobial Resistance Using Phenotypic Characteristics* - Presented By: **Evangelyn C. Alocilja**, Nano-Biosensors Lab, Department of Biosystems and Agricultural Engineering, Michigan State University, East Lansing, Michigan, USA; Ladees Al Hafi

35 2500292 *Comparative Study on Ammonia Measurement Methods in Livestock Facilities and Estimation of Correction Factors* - Presented By: **Kyoung-Won Min**, Department of Smart Farm Engineering, Kongju National University, Chungcheongnam-do, Republic of Korea; Rack-Woo Kim, Seung-Hun Lee, Chan-Min Kim, Hee-Woong Seok, Su-Been Ahn, Sun-Hyoung Lee, Ji-Eun Kang, Han Kim, Yun-Jeong Lee, Yoon-Kyu Hur

36 2500958 *Evaluation of Lettuce Cultivars' Vulnerability to Stress and Its Observation Using Multispectral Imaging* - Presented By: **Ahmad Zamzami**, The Pennsylvania State University, State College, Pennsylvania, USA; Francesco Di Gioia, Shirin Ghatrehsamani

37 2501001 *A Framework for AI-based Crop Yield Prediction Modeling Using Satellite Images and Tractor Data* - Presented By: **Anjin Chang**, Tennessee State University, Nashville, Tennessee, USA; Anjin Chang, Bahadir Bilgin

38 2500415 *Development of AI-driven Crop Management System Through Computer Vision-based Soil Moisture Prediction* - Presented By: **SuHyun Lee**, Seoul National University, Seoul, Korea; Suhyun Lee, Kyo Suh

39 2500347 *AI-Driven Plant Tracking and Segmentation for Precise Canopy Estimation in Strawberry Field* - Presented By: **Won Suk Lee**, University of Florida, Gainesville, Floirda, USA; Zijing Huang, Won Suk Lee, Minh Đạt Lê

40 2500547 *PlantSAM: Towards Real-Time Plant Segmentation with Efficient Vision-Language Foundation Models* - Presented By: **Daniel Petti**, University of Florida, Florida, USA; Daniel Petti, Changying Li, Alina Zare

41 2500348 *A Comparative Analysis of Computer Vision Algorithms for the Classification of Goat Behavior* - Presented By: **Andrea Costantino**, Institute of Animal Science and Technology, Universitat Politècnica de València, València, Spain; Daniel Alexander Méndez, Blanca Fajardo Viloria, Eliseo Gil Vidal, Salvador Calvet, Andrea Costantino

42 2500350 *Multimodal Data Integration for Predicting Cattle Behavior Using Transformer-Based Models* - Presented By: **Heinz Bernhardt**, Technical University of Munich, Freising, Bavaria, Germany; Regina Eckhardt, Reza Arablouei, Kieren McCosker, Aaron Ingham, Heinz Bernhardt

43 2500359 *Sensing Analysis Based on Integrated Microfluidic Chips for On-site Detection of Foodbo* NO SHOW ented By: **Yuanyuan Zhu**, Zhejiang University, Hangzhou, Zhejiang, China

44 2501287 *Winter Damage Diagnostic Modeling Based On Synthetic Vegetation Indices From UAV-Based Multispectral Imaging* - Presented By: **Xuechen Li**, University of Minnesota, Saint Paul, Minnesota, USA; Xuechen Li, Alireza Sanaeifar, Nicholas Padilla, Cole Stover, Alec Kowalewski, Eric Watkins, Bryan Runck, Lang Qiao, Ce Yang

45 2500361 *SMART AGRICULTURAL PRODUCTS MANAGEMENT USING QUICK RESPONSE CODE FROM FARM TO PROCESSING COMPLEX* - Presented By: **Seong Min Kim**, Jeonbuk National University, Jeonju-si, Republic of Korea; Jeong Woo Lee, Seong Min Han

46 2500382 *Monocular Non-Rigid Reconstruction of Field Crops via Gaussian Splatting and Tetrahedral Meshes* - Presented By: **Xintong Jiang**, McGill University, Sainte-Anne-de-Bellevue, Quebec, Canada; Yu Tian, Valerio Hoyos-Villegas, Viacheslav Adamchuk, Shangpeng Sun

47 2501263 *AI Tools and Text Embedding for Session Organization at ASABE's Annual International Meeting* - Presented By: **Joseph Dvorak**, University of Kentucky, Lexington, Kentucky, USA

48 2501291 *Automatic ASABE AIM Session Creation using Machine Learning and Generative AI* - Presented By: **Joseph Dvorak**, University of Kentucky, Lexington, Kentucky, USA

49 2501711 *Detection of Downy Mildew in Arugula Using Spectral Analysis and Machine Learning* - Presented By: **Bennett Morris**, California Polytechnic State University San Luis Obispo, San Luis Obispo, California, USA; Bennett Morris, Jenna Keller, Bo Liu, Shunping Ding

50 2501179 *Attention-LSTM-Based Emulation of Expert Climate Control in Strawberry Greenhouses* - Presented By: **Yu-Jin Jeon**, Kyung Hee University, Yongin, Republic of Korea; Yu-Jin Jeon, Hyein Lee, So Jin Park, Dongkyu Lee, Dae-Hyun Jung

51 2500586 *Deep Learning-Based Monitoring System for Analyzing the Impact of Honeybee Colony Structure on Foraging Behavior* - Presented By: **Chao-Hung Jeng**, Department of Biomechatronics Engineering, National Taiwan University, Taipei, Taiwan; Hsin-Yu Hsieh, Chao-Hung Jeng, Cheng-Ying Chou

52 2500577 *Multi-Camera Surveillance and Mapping for Precision Cattle Behavior Monitoring* - Presented NO SHOW Jeonbuk National University, South Korea; Alvaro Fuentes, Shujie Han, Jiaqi Liu, Hyun Choi, Sook Yoon, Dong Sun Park

53 2500566 *Optimizing irrigation management using Digital Twin and Image-based 3D reconstruction of plant* - Pres NO SHOW ang, Zhejiang University, Ningbo, Zhejiang, China; Jiahong Yang, Jiamei Liu, Xinyi Jie, Fangle Changa, Longhua Ma, Hongye Su

54 2500567 *Moisture Regain Detection of Seed Cotton using Information Fusion* - Presented By: **Yifu Qian**, Shihezi University, Shihezi City, Xinjiang Province, China; Yifu Qian, Mengyun Zhang, Liang Fang, Hongwei Duan, Ruoyu Zhang

55 2500824 *High Quality Dataset for Learning Models* - Presented By: **Zachary Steigauf**, North Dakota State University, Fargo, North Dakota, USA; Zachary J. Steigauf, Shubham Thapa, Umamaheswara Rao Tida, James Y. Kim

56 2500569 *Optimizing irrigation scheduling using Deep Reinforcement Learning and crop growth model* - Presented By: **Jiamei Liu**, NingboTech University, China; Jiahong Yang, Xinyi Jie, Fangle Chang, Longhua Ma, Hongye Su

57 2500575 *Detection of Dead Embryos Using Multispectral Imaging and Deep Learning Algorithm* - Presented NO SHOW man, Department of Agricultural and Biological Engineering, University of Illinois Urbana–Champaign, Urbana, Illinois, USA; Alin Khaliduzzaman, Jason Lee Emmert, Mohammed Kamruzzaman, Isabella C.F.S. Condotta

58 2500593 *Identifying Wood Species Using Macroscopic Images and Deep Learning* - Presented By: **Pei-Chi Yang**, National Taiwan University, Taiwan (R.O.C.); Pei-Chi Yang, Chin-Mei Lee, Yan-Fu Kuo

59 2500596 *Utilizing Public Data for Annual Crop Yield Prediction: A Possibility Study* - Presented By: **Seokho Kang**, Kyungpook National University, Daegu, South Korea; SEOKHO KANG, HYUNGGYU PARK, JINHO SON, YUJIN HAN, JUHEE LEE, WONYEOL CHOI, YUSHIN HA

60 2500603 *Utilizing Machine Learning and Thermal Imaging for Evaluating Water Levels in Field-Grown Sweet Potatoes* - Presented By: **Jiwon Choi**, Gyeongsang National University, Gyeongsangnam-do, Republic of Korea; Jiwon Choi, Soobeen Cho, Soleh Hidayat, Woosik Jeong, Woon-Ha Hwang, Young-son Cho, Geonwoo Kim

61 2500224 *Comparison of Preprocessing Methods in Estimating Total Nitrogen in Soils using PLSR based on Diffuse Reflectance Spectroscopy* - Presented By: **JeongJu Chae**, Jeonbuk National University, Jeonju, Republic of Korea; JeongJu Chae, In Seop Jang, Dae-Cheol Kim, Yongjin Cho

62 2500585 *Evaluation of Interpolation Accuracy of Soil Properties in Paddy Fields According to Variogram Models* - Presented By: **Sun-Bin Min**, Jeonbuk National University, Jeonju, Republic of Korea; Sun-Bin Min, June-Young Han, Dae-Cheol Kim, Yongjin Cho

63 2500464 *Ecosystem Carbon Phenology Prediction in Salt Marsh using RGB-D Imaging and Vision Foun* NO SHOW nted By: **Yin Bao**, University of Delaware, Department of Plant and Soil Sciences, Department of Mechanical Engineering, Newark, Delaware, USA; Yin Bao, Puranjit Singh, Rodrigo Vargas

64 2501073 *Viewing Angle and Field of View on Deep Learning-based Counting of Early-Stage Pine Seedli* NO SHOW *ry Inventory* - Presented By: **Yin Bao**, University of Delaware, Department of Plant and Soil Sciences, Department of Mechanical Engineering, Newark, Delaware, USA; Yin Bao, Ashish Reddy Mulaka, Rafael Bidese

65 2501285 *Visualization & Machine Learning to Assess the Impacts Weather data on Ohio's Wir* NO SHOW *ds* - Presented By: **Sharnelle Coicous**, Central State University, Wilberforce, Ohio, USA; Sharnelle Coicous, Rajveer Dhillon

112 Spectroscopic Sensing and Imaging for Agriculture and Food Systems

Monday, 9:30am - 12:00pm
Location: Linden
Technical Community: ITSC - Information Technology, Sensors & Control Systems
Session Type: Oral Technical Session
Description: Development and applications of spectroscopic sensing and imaging technologies for agrifood uses.
Organizer: Micah Lewis, micah.lewis@usda.gov
Sponsoring Committee: ITSC-348 Electromagnetics & Spectroscopy
Moderators: Mohammed Kamruzzaman

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500117	*Residual Mulching Film Detection in Seed Cotton using Optical Scattering Properties* - Presented By: **Mengyun Zhang**, Shihezi University, Shihezi City, Xinjiang Province, China; Zhenxuan Zhao, Mengyun Zhang, Xiang Liu, Pu Wang, Sanhui Wang, Ruoyu Zhang
9:50am	2500611	*Development of a Deep Learning-Based Recommendation System for Coffee Blending Ratios Optimization* - Presented By: **Chih-Yun Tsai**, National Taiwan University, Taipei, Taiwan; Chih-Yun Tsai, Yu-Tang Chang, Shu-Ping Hung, Chun-Ming Lu, Chia-Hung Peng, Shih Fang Chen
10:05am	2501185	*enerating a variable rate fertilizer prescription map based on unmanned aerial vehicle rem* NO SHOW *er pivot irrigation system* - Presented By: **Weixia Zhao**, China Institute of Water Resources and Hydropower Research, Beijing, China; Minne Zhang, Weixia Zhao, Jiusheng Li
10:20am	2501141	*In-field Monitoring of Moisture Variability in Kernza Wheatgrass Using UAV-Based Hyperspectral Sensing* - Presented By: **Alireza Sanaeifar**, University of Minnesota, Saint Paul, Minnesota, USA; Alireza Sanaeifar, Lang Qiao, Joshua Gamble, Jessica Gutknecht, Jacob Jungers, Ce Yang
10:35am		*BREAK*
10:45am	2500052	*Hyperspectral imaging to identify aflatoxin-associated metabolites in corn inoculated with Aspergillus parasiticus mutant and wild-type strains* - Presented By: **Maryam Mohammadi-Aragh**, Mississippi State University, Mississippi State, Mississippi, USA; Maryam Mohammadi-Aragh, Zuzana Hruska, Russell Kincaid, Kanniah Rajasekaran, Haibo Yao, J. Alex Thomasson
11:00am	2500278	*SOLUBLE SOLIDS CONTENT THROUGH HYPERSPECTRAL IMAGES OF GRAPE* NO SHOW *ted By:* **Haoling Liu**, Northwest A&F University, Shaanxi Province, China; Haoling Liu, Shijie Tian, Jin Hu

MS - Machinery Systems

113 Advances in Cotton Engineering

Monday, 9:30am - 12:00pm
Location: Dufferin
Technical Community: MS - Machinery Systems
Session Type: Oral Technical Session
Description: The Advances in Cotton Engineering Session invites presentations focused on engineering research advancing cotton production, processing, and ginning.
Organizer: Sean Donohoe, sean.donohoe@usda.gov
Sponsoring Committee: MS-23/7/3 Cotton Engineering
Moderators: Sean Donohoe

Time	Pres. ID	Presentation Title, Presenter, & Authors

9:35am	2500792	*Multi-Boll Robotic Cotton Harvester with Dual End-Effectors* - Presented By: **Shekhar Thapa**, University of Georgia, Tifton, Georgia, USA; Canicius Mwitta, Glen C Rains
9:50am	2500919	*Spray Performance and Effectiveness of Cotton Harvest Aid Applications with Unmanned Aerial Application Systems (Spray Drones)* - Presented By: **Simerjeet Virk**, Auburn University, Auburn, Alabama, USA; Simerjeet Virk, Jacob Sizemore, Ravi Meena, Lavesta Hand, Ed Barnes
10:05am	2501531	*Preliminary Modeling of Moisture Movement in Cotton Modules* - Presented By: **Caleb Riehl**, Texas A&M University, College Station, Texas, USA; Dr. Robert Hardin, Dr. J. Alex Thomasson, Dr. Green
10:20am	2500145	*Ginning Performance of a Hybrid Cotton* - Presented By: **Paul Funk**, Retired, USDA-ARS Southwestern Cotton Ginning Research Laboratory, Las Cruces, New Mexico, USA; Derek Whitelock, Jaya Shankar Tumuluru
10:35am	*BREAK*	
10:45am	2501348	*CFD Applications in Cottonseed Storage* - Presented By: **Elijah Porter**, Clemson University, Clemson, South Carolina, USA; Elijah Porter, Aaron Turner, Kendall Kirk, Bulent Koc, Ed Barnes
11:00am	2500165	*AFIS properties of pneumatic fractionated saw and roller ginned Upland cotton at the optimized conditions in comparison to industry standard lint cleaner* - Presented By: **Paul Funk**, USDA-ARS, Southwestern Cotton Ginning Research Laboratory, Las Cruces, New Mexico, USA; Jaya Shankar Tumuluru, Derek P. Whitelock, Carlos B. Armijo, Paul A Funk
11:15am	2500821	*Evaluation of Sensor- and Soil-Based Approaches for Variable Rate Nitrogen Application in Cotton Production* - Presented By: **Tommy Stephenson**, North Carolina State University, Raleigh, North Carolina, USA; Tommy Stephenson, Jason Ward, Gary Roberson
11:30am	2501447	*Enhancing Post-Harvest Cotton Traceability Using RFID to Link Lint Quality with Pre-Ginning Data* - Presented By: **Max Hooks**, North Carolina State University, North Carolina, USA; Max Hooks, Jason Ward, Ed Barnes
11:45am	2501451	*Enhancing Cotton Crop Management with Palmer Amaranth Classification Models* - Presented By: **Luke Fuhrer**, The University of Georgia, Tifton, Georgia, USA
12:00pm	2501145	*Cotton Mapping Using YOLO Instance Segmentation* - Presented By: **Robert G. Hardin IV**, Texas A&M University, College Station, Texas, USA; Caleb M. Lindhorst, Robert G. Hardin IV, Joshua Peeples

114 Advances in Seeding, Tillage, and Crop Input Placement

Monday, 9:30am - 12:00pm

Location: Simcoe

Technical Community: MS - Machinery Systems

Session Type: Oral Technical Session

Description: This session will be about the placement of seeds, fertilizers, and pesticides in the soils of growing fields. Tillage topics will be encouraged to be included in this session because of the impact tillage practices can have on the placement of these items in the soil.

Organizer: Ed Brokesh, ebrokesh@ksu.edu

Sponsoring Committee: MS-49 Crop Production Systems, Machinery, and Logistics; **Co-Sponsors:** MS-54 Precision Agriculture

Moderators: Ed Brokesh

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500309	*Active Implement Steering Performance for Hitch and Wheeled Steering* - Presented By: **Travis Burgers**, CNH Industrial, Sioux Falls, USA; Travis A. Burgers, Ansh V. Rao, Luke P. Pucket
9:50am	2500514	*Advanced Planting Technologies Allow High-Speed Planting in Row Crop Production Systems* - Presented By: **Michael Mulvaney**, Mississippi State University, Starkville, Mississippi, USA; Michael Mulvaney, Emmanuel Olomitutu, Wes Lowe, Jagman Dhillon, John Wallace, Tucker Hilyer, Grant Shavers, Jacob Meadows
10:05am	2501079	*OPTIMIZATION OF GWL MARGIN TO ENHANCE PLANTER PERFORMANCE* - Presented By: **Simran Dua**, Kansas State University, Manhattan, Kansas, USA; Bhaskar Aryal, Jose Peiretti, Ajay Sharda

10:20am 2500622 *Row Crop Planter Performance Review on Georgia Major Row Crops: Cotton and Peanut* - Presented By: **Marco Torresan**, University of Georgia, Tifton, Georgia, USA; Marco Torresan, Wesley Porter, Cody Mathis, Anthony Black, Luke Fuhrer

10:35am *BREAK*

10:45am 2500370 *Transverse Distribution Accuracy of Agricultural Drones in the Application of a Cover Crop Mixture Compared to a Traditional Cover Crop Spreader* - Presented By: **Christine Stöckel**, Technical University of Munich (TUM), Freising, Germany; Christine Stöckel, Simon Grebner, Heinz Bernhardt

11:00am 2500317 *Research on Key Technology of Maize No-till Seeding under Drip Irrigation Conditions* - Presented By: **Panpan Yuan**, Xinjiang Agricultural University, Urumqi, China; Panpan Yuan

11:15am 2500070 *Measurement and Modelling of Soil Cone Index as Affected by Penetrometer Geometry under Varying Soil Compaction Levels* - Presented By: **Ernest Owusu-Sekyere**, University of Manitoba, Winnipeg, Manitoba, Canada; Ernest Owusu-Sekyere, Zhiwei Zeng, Zack Yarechewski, Kobby Acquah, Ying Chen

115 Innovations in Precision Agriculture and Smart Farming

Monday, 9:30am - 12:00pm

Location: Dominion North

Technical Community: MS - Machinery Systems

Session Type: Oral Technical Session

Description: Precision agriculture is integral to modern production practices. This session features novel research and development in precision agriculture and smart farming.

Organizer: Alex Thomasson, athomasson@abe.msstate.edu

Sponsoring Committee: MS-54 Precision Agriculture

Moderators: Alex Thomasson

Time Pres. ID Presentation Title, Presenter, & Authors

9:35am 2501674 *Enabling precision agriculture at scale: An international standardization strategy for data interoperability* - Presented By: **Rafael Ferreyra**, Syngenta, Murray, Kentucky, USA; Ferreyra, R.A.

9:50am 2500004 *High Clearance Robotic Irrigation Impacts on Soybean and Corn Yield and Nutrient Application* - Presented By: **Andrew Klopfenstein**, The Ohio State University, Columbus, Ohio, USA; J. Koch, K. Arora, D. Anderson, M. Helmers, K. Leibold, A.S. Parsio, C.J. Tkach, C.R. Dean, R. Venkatesh, E.M. Hawkins, J.P. Fulton, S.A. Shearer

10:05am 2500110 *An Irrigation Scheduling Model for Sweet Corn Based on FAO-56* - Presented By: **Emily Bedwell**, University of Idaho, Kimberly, Idaho, USA; Emily Bedwell, Lorena Lacerda, Ted McAvoy, Brenda Ortiz, John Snider, George Vellidis, Ziwen Yu

10:20am 2500281 *Field Evaluation of a Photoelectric Sensor-Based Real-Time Grain Yield Monitoring System* - Presented By: **Avery Jenkins**, Tennessee Tech University, Cookeville, Tennessee, USA; Abdul Momin, Avery Jenkins, James Baier, Braden Wyatt

10:35am *BREAK*

10:45am 2500968 *Open-source site-specific weed control: development, validation and community response to the OpenWeedLocator weed recognition system* - Presented By: **Guy Coleman**, University of Copenhagen, Taastrup, Denmark; Guy RY Coleman, Michael J Walsh, Paul B Neve

11:00am 2501522 *Economic, Environmental, and Human Benefits of GPS-Guided Autosteer in Grain Seeding* - Presented By: **Hannu Haapala**, Jamk University of Applied Sciences, Institute of Bioeconomy, Saarijärvi, Finland; Hannu Haapala, Janne Kalmari, Konsta Sarvela, Petri Linna, Iita Appelgren

NRES - Natural Resources & Environmental Systems

117 NRES Distinguished Lecture Series

Monday, 9:30am - 12:00pm

Location: Civic Ballroom South

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Guest Speaker Session

Organizer: Derek Heeren, derek.heeren@unl.edu
Sponsoring Committee: NRES-04 Program Committee
Moderators: Derek Heeren

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:30am	Guest Speaker	*Welcome and Introduction* - Presented By: **Derek Heeren**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA
9:35am	Guest Speaker	*Ramping up AI in the Classroom, for Student Success, and in Extension* - Presented By: **Carmen Agouridis**, University of Kentucky, Lexington, Kentucky, USA
9:45am	Guest Speaker	*Industry and Academic Perspectives on AI tools* - Presented By: **Debabrata Sahoo**, Clemson University, Clemson, South Carolina, USA
9:55am	Guest Speaker	*AI Tools for International Online Education and Workforce Development* - Presented By: **Derek Heeren**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA
10:05am	Guest Speaker	*Development of AI Tools for Water Management* - Presented By: **Isaya Kisekka**, University of California-Davis, Davis, California, USA
10:15am	Guest Speaker	*Assessing Benefits and Concerns of AI Tools for Student Learning* - Presented By: **Trisha Moore**, Kansas State University, Manhattan, Kansas, USA
10:25am	*Panel Discussion*	
10:40am	*BREAK*	
10:50am	Guest Speaker	*Panel Discussion, Audience Questions*
11:45am	Guest Speaker	*Concluding Remarks* - Presented By: **Derek Heeren**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA

PAFS - Plant, Animal, & Facility Systems

118 Agri-Industrial Facility Design and Operation

Monday, 9:30am - 12:00pm
Location: Kent
Technical Community: PAFS - Plant, Animal, & Facility Systems
Session Type: Oral Technical Session
Description: This session is provided to gather researchers, educators, and industry experts to share experiences and innovations in designing and operating efficient agri-industrial facilities.
Organizer: Craig Smallegan, craig.smallegan@nucor.com
Sponsoring Committee: PAFS-20 Structures Group; **Co-Sponsors:** PRS-701 Physiochemical Properties of Biological Pr, PRS-702 Crop & Feed Processing & Storage, PRS-703 Food Processing
Moderators: Craig Smallegan, Gregory Williams

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500385	*Stored Grain: a New View* - Presented By: **Larry Howlett**, HTMD Engineering, DeKalb, Illinois, USA; Larry Howlett
9:50am	2500371	*On-Farm Processing and Marketing Models for Farmers of Developing Countries* - Presented By: **Sandeep Mann**, Indian Council of Agricultural Research, India; Sandeep Mann, Renu Balakrishnan, Somya Mohapatra, Nachiket Kotwaliwale
10:05am	2500291	*Finite Finite Element Model Updating Procedure for Reconstructing Structural Shape and Estimating Material Properties in Plastic Greenhouses* - Presented By: **Byung-hun Seo**, Department of Landscape Architecture and Rural Systems Engineering, College of Agriculture and Life Sciences, Seoul National University, Seoul, South Korea; Byung-hun Seo, Sangik Lee, Jonghyuk Lee, Dongsu Kim, Yejin Seo, Dongwoo Kim, Yerim Jo, Jimin Shim
10:20am	2501381	*Development and Evaluation of Village Level Low-Cost Storage Structure for Garlic Growers* - Presented By: **Bethany Grace Calixto**, Mariano Marcos State University, City of Batac, Ilocos Norte, Philippines; Cristina D. Valentin, Michael Duldulao, Bethany Grace S. Calixto, Nelson T. Rodillas Jr.
10:35am	*BREAK*	

10:45am 2500094 *Enhancing Postharvest Quality of Spinach Using LED Light Spectra During Storage* - Presented By: **Shafieh Salehinia**, McGill University, Montreal, Quebec, Canada; Shafieh Salehinia, Sarah MacPherson, Mark Lefsrud

11:00am 2500081 *Bulk Grain Storage in Metal Buildings* - Presented By: **Craig Smallegan**, Nucor Buildings Group, Warsaw, Indiana, USA; Craig Smallegan

11:15am 2500161 *Evaluation of Coagulation and Flocculation as a Pretreatment for Low-volume Meat Processors* - Presented By: **Gregory Rouland**, Michigan State University, East Lansing, Michigan, USA; Gregory Rouland, Jeannine Schweihofer, Younsuk Dong, Soni Kumari

119 Animal Response to Environment

Monday, 9:30am - 12:00pm

Location: Provincial South

Technical Community: PAFS - Plant, Animal, & Facility Systems

Session Type: Oral Technical Session

Description: This session invites researchers, students, and industry exports to share research updates on advanced methods to quantify animals responses to their environment, improve current understanding of animal and human interactions, and methods to enhance welfare and productivity.

Organizer: John Linhoss, john.linhoss@auburn.edu

Sponsoring Committee: PAFS-40 Facilities & Systems Group

Moderators: John Linhoss

Time Pres. ID Presentation Title, Presenter, & Authors

9:35am 2500617 *Revisions to the ASABE Livestock Ventilation Standard (EP270)* - Presented By: **Erin Cortus**, University of Minnesota, Saint Paul, Minnesota, USA; Erin Cortus, Kevin Janni, Jessica Drewry, Morgan Hayes, Yi Liang, Mario Mondaca Duarte, Brett Ramirez, Joseph Zulovich

9:50am 2500793 *Impacts of manure management strategy on grow-finish pig indoor environmental conditions* - Presented By: **Suzanne Leonard**, North Carolina State University, Raleigh, North Carolina, USA; Suzanne M. Leonard, Mahmoud A. Sharara

10:05am 2500820 *Air quality benefits of low nitrogen-phosphorus diets for growing pigs: An analysis under one health approach* - Presented By: **Stephane Godbout**, IRDA, Quebec, Canada; S. Godbout, D. Larios, K. R. Aklikokou, I. Lachance, M. P. Letourneau-Montminy

10:20am *BREAK*

10:35am 2500490 *Testing the Efficacy of Positive-Pressure Ventilation Systems (PPTV) for Indoor Calf Housing Using Computational Fluid Dynamics (CFD) Simulations* - Presented By: **Neslihan Akdeniz**, University of Wisconsin-Madison, Madison, Wisconsin, USA; Nilroth Ly, Neslihan Akdeniz, Zhiwei Zeng, Christopher Y. Choi

10:45am 2501452 *Ventilation Design for Calf Hutches Using Computational Fluid Dynamics (CFD) Simulations* - Presented By: **Neslihan Akdeniz**, University of Wisconsin-Madison, Madison, Wisconsin, USA; Li Jiang, Nelihan Akdeniz

11:00am 2500675 *nd outdoor access on the ventilation performance of cage-free hen housing* - Presented B lvania State University, University Park, Pennsylvania, USA; Fabian-Wheeler, E., Hile, M. L., Nguyen, A., Cimbala, J. M.

NO SHOW

11:15am 2501648 *An Automated LED Intervention System for Poultry Piling* - Presented By: **Benjamin Smith**, Michigan State University, East Lansing, Michigan, USA; Benjamin Smith, Yunfei Long, Daniel Morris

PRS - Processing Systems

120 Emerging Techniques for Measuring Properties of Biological Materials

Monday, 9:30am - 12:00pm

Location: Kenora

Technical Community: PRS - Processing Systems

Session Type: Oral Technical Session

Description: Emerging techniques for measuring properties of biological materials addressing the current and modern approaches.

Organizer: Deandrae Smith, smit4870@purdue.edu

Sponsoring Committee: PRS-701 Physiochemical Properties of Biological Pr; **Co-Sponsors:** PRS-03 Processing Systems Standards Oversight

Moderators: Fuji Jian, Ewumbua Monono

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500414	*Optimization of a Stamp-Based Manufacturing Method of Paper-Based Microfluidics Device for Food Safety Analysis* - Presented By: **K.R. Jolvis Pou**, Department of Bioresource Engineering, McGill University, Sainte-Anne-de-Bellevue, Quebec, Canada; K. R. Jolvis Pou, Shervin Foroughi, Dhilippan M. Panneerselvam, Muthukumaran Packirisamy, Vijaya Raghavan
9:50am	2500484	*Inactivation of Salmonella spp. from Stainless Steel Coupons and Raw Chicken Breast using Plasma-Activated Water (PAW)* - Presented By: **Miral Javed**, School of Engineering, University of Guelph, Guelph, Ontario, Canada; Miral Javed, Wei Cao, Kevin Keener
10:05am	2500346	*Evaluating the Efficacy of Dual-Wavelength UV-C and IR for Dry-Sanitation of Salmonella on Stainless-Steel Surfaces* - Presented By: **Arshpreet Kaur Khattra**, Michigan State University, East Lansing, Michigan, USA; Arshpreet Kaur Khattra, Bradley Marks, Saghyup Jeong
10:20am	2500399	*Gravimetric method to monitor coffee moisture in mechanical dryers* - Presented By: **Aida Peñuela**, Federacion Nacional de Cafeteros-Cenicafe, Chinchina-Manizales, Manizales; Willy Rojas-B., Carlos Tibaduiza-V., Alvaro Guerrero-A., Juan Rodrigo Sanz U.
10:35am	*BREAK*	
10:45am	2501477	*Advancement, application, and future of protein-polysaccharide nano complexes for food applications* - Presented By: **Hrishikesh Patil**, School of Engineering, University of Guelph, Canada; Hrishikesh Patil, Manickavasagan Annamalai, Ashutosh Singh
11:00am	2500802	*Prediction of egg albumen content using hyperspectral imaging and machine learning* - Presented By: **Mohammed Kamruzzaman**, The Grainger College of Engineering, College of Agricultural, Consumer and Environmental Sciences, Department of Agricultural and Biological Engineering, University of Illinois Urbana-Champaign, Champaign, Illinois, USA; Md Wadud Ahmed, Jason Lee Emmert, Mohammed Kamruzzaman
11:15am	2500974	*Development and Validation of a Polarimetric Method for Sugar Estimation in Potato Tubers* - Presented By: **Rajpreet kaur Goraya**, Lethbridge Polytechnic, Lethbridge, Alberta, Canada; Rajpreet Kaur Goraya, Chandra B. Singh
11:30am	2501478	*Short Wave-Infra Red (SW-IR) imaging to detect Listeria monocytogenes contamination in Queso fresco* - Presented By: **Meenakshi PL**, University of Guelph, Guelph, Ontario, Canada; Meenakshi P L, Kevin Keener, Sunoj Shajahan, Annamalai Manickavasagan

121 Grain Postharvest Education - Challenges and Opportunities-GUEST SPEAKERS

Monday, 9:30am - 12:00pm

Location: Dominion South

Technical Community: PRS - Processing Systems

Session Type: Guest Speaker Session

Description: Presents opportunities and challenges faced by grain postharvest education with the goal to better postharvest practices, reducing waste and improving food security.

Organizer: Kingsly Ambrose, rambrose@purdue.edu

Sponsoring Committee: PRS-702 Crop & Feed Processing & Storage

Moderators: Marvin Petingco, Ma. Cristine Concepcion Ignacio

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	Guest Speaker	*Educating grain industry professionals* - Presented By: **George Obeng-Akrofi**, Iowa State University, Ames, Iowa, USA
10:00am	Guest Speaker	*Training the next generation of leaders for a transforming grain industry* - Presented By: **Klein Ileleji**, Purdue University, West Lafayette, Indiana, USA

10:25am Guest Speaker *Grain postharvest education in South East Asia* - Presented By: **Arnold Elepaño**, University of the Philippines Los Baños, Los Baños, Laguna, Philippines

10:50am *BREAK*

11:00am Guest Speaker *Training graduate students in particle technology for improved grain handling* - Presented By: **Carl Wassgren**, Purdue University, West Lafayette, Indiana, USA

11:25am Guest Speaker *Grain postharvest education in Canada* - Presented By: **Chandra Singh**, Lethbridge College, Lethbridge, Alberta, Canada

11:50am Guest Speaker *Grain postharvest education in India* - Presented By: **Shyam Narayan Jha**, Indian Council of Agricultural Research, Pusa, New Delhi, India

NRES - Natural Resources & Environmental Systems

122 NRES Community Update and Orientation

Monday, 12:00pm - 1:00pm

Location: Civic Ballroom South

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Guest Speaker Session

Description: All interested in the NRES division are invited to attend.

Organizer: Laurent Ahiablame, lakomah@gmail.com

Sponsoring Committee: NRES-02 Executive Committee

Moderators: Laurent Ahiablame

E-2050 - Global Engagement

103 China Exchange & AOCABFE Business Meeting-PANEL

Monday, 2:30pm - 5:00pm

Location: City Hall

Technical Community: E-2050 - Global Engagement

Session Type: Panel Discussion

Description: Association of Overseas Chinese Agricultural, Biological, and Food Engineers is an independent, non-political, non-profit organization for professionals with Chinese origins in agricultural, biological, and food engineering fields worldwide. This session aims to promote information exchange and networking among agricultural, biological, and food engineers of Chinese origin worldwide, facilitate collaboration in research and educational exchange, and encourage professional development among our community.

Organizer: Yeyin Shi, yshi18@unl.edu

Sponsoring Committee: E-2050 Global Engagement

Moderators: Yin Bao

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	Guest Speaker	*International collaboration and work opportunities in water resources and agricultural engineering at China Agricultural University* - Presented By: **Yunkai Li**, China Agricultural University, Beijing, China
2:50pm	Guest Speaker	*Introducition to International Collaboration at the College of Biosystems Engineering and Food Science, Zhejiang University* - Presented By: **Ying Liu**, Zhejiang University, Zhejiang, China
3:05pm	Guest Speaker	*In Memory of Prof. Maohua Wang* - Presented By: **Yin Bao**, University of Delaware, Newark, Delaware, USA
3:20pm	Panel Discussion: Navigating Challenges and Paths in Scholarly Exchange and Early Career Development	

Panelists Include: Ying Chen, University of Manitoba; Qiang Zhang, University of Manitoba; Jikai Zhao, Kansas State University

ASABE Special Interest

123 Exploring Safety in the Era of Autonomous Agriculture-HYBRID

Monday, 2:30pm - 5:00pm

Location: Birchwood Ballroom

Technical Community: ASABE Special Interest

Session Type: Hybrid Session-submitted abstracts and guest speakers

Description: Autonomous agriculture is expected to change the way we farm our lands. It will help us increase our yields and efficiency while decreasing our inputs and labor. New technology comes with new challenges, safety, and health concerns for farmworkers. This session aims to explore the new challenges and opportunities in agricultural robotic and automation safety.

Organizer: Salah Issa, salah01@illinois.edu

Sponsoring Committee: ASABE; **Co-Sponsors:** ESH-03 Standards, ESH-04 Technology Exchange, MS-03 Machine Systems Standards Oversight, MS-58 Agricultural Equipment Automation

Moderators: Salah Issa, Farzaneh Khorshandi

2:35pm	Guest Speaker	*Exploring Safety in the Era of Autonomous Agriculture* - Presented By: **Rick Weires**, Balanced Engineering, Illinois, USA; Alex Foessel
3:05pm	2501675	*Findings from the SAfety for Emerging Robotics and Autonomous Agriculture (SAFER AG) Workshop 2.0* - Presented By: **Salah Issa**, University of Illinois Urbana-Champaign, Champaign, Illinois, USA; Salah Issa, John Shutske, Jennifer Lincoln, Farzaneh Khorsandi, Serap Gorucu, Trent Johnson, Roger Guy Aby, Todd Howatt, Kelly Sandner, Mark White
3:20pm	2500811	*Situation awareness in autonomous systems: A review* - Presented By: **Makenna Coldwell**, University of Manitoba, Winnipeg, Manitoba, Canada; Makenna L. Coldwell, Danny D. Mann

3:35pm		*BREAK*
3:45pm	2500403	*Usability evaluation of warning cues for remotely supervised autonomous agricultural machines* - Presented By: **Anita Ezeagba**, University of Manitoba, Winnipeg, Manitoba, Canada; Anita Ezeagba, Sebastian Lorenz, Cheryl Glazebrook, Danny Mann
4:00pm	2500510	*Using Low-Cost Inertial Measurement Units for Orientation Monitoring and Supervised Safety Interlocking in Small Agricultural Equipment* - Presented By: **Mason Bradley**, University of Kentucky, Lexington, Kentucky, USA; Mason Bradley, Michael Sama, Wayne Sanderson
4:15pm	2501225	*Data management on Controller Area Network to autonomously build field maps using GNSS* - Presented By: **Oussama Bessaad**, Dalhousie University, Truro, Nova Scotia, Canada; Oussama Bessaad, Ahmad Al-Mallahi, Mozammel Motalab
4:30pm	2501324	*Agricultural Robotics and Safety Rules: A California Case Study* - Presented By: **Farzaneh Khorsandi**, University of California, Davis, Davis, California, USA; Farzaneh Khorsandi
4:45pm	2500275	*Usability assessment of an automation interface for remote supervision of autonomous agricultural machines* - Presented By: **Ebenezer Nunoo**, University of Manitoba, Manitoba, Winnipeg, Canada; Ebenezer Nunoo, Xing liang Zhu, Danny Mann

EOPD - Education, Outreach, & Professional Development

124 Equipping Students for Capstone through Labs and Experiential Learning

Monday, 2:30pm - 5:00pm

Location: Willow West

Technical Community: EOPD - Education, Outreach, & Professional Development

Session Type: Oral Technical Session

Description: Both engineering and technology students benefit greatly from laboratory exercises and other means of providing experiential learning opportunities spread throughout the curriculum. This session will provide a means to share a variety of unique and meaningful ways experiential learning is implemented across curricula including incorporating technologies like generative AI. Examples of laboratory exercises, demonstrations or activities for both engineering and technology students are encouraged.

Organizer: John Long, john.m.long@okstate.edu

Sponsoring Committee: EOPD-205 Engineering Technology & Management Education; **Co-Sponsors:** EOPD-203 Undergraduate & Graduate Instruction

Moderators: Aaron Turner

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2501464	**NO SHOW** *earning Through Academic Community Engagement: A Semester-Long Agricultu roject* - Presented By: **Chad Reynolds**, Sam Houston State University, Huntsville, Texas, USA; Chad A. Reynolds
2:50pm	2501513	*Not My Physics! or Lessons Learned from Creating and Teaching an Applied Agricultural Physics Course and Lab* - Presented By: **Kathryn Boening-Ulman**, The Ohio State University, Columbus, Ohio, USA; Kathryn Boening-Ulman
3:05pm	2501613	*Development and Design of a Grain Entrapment Rescue Training Prop to be Used by Fire and Rescue Teams* - Presented By: **Aaron Turner**
3:20pm	2501617	*Redefining Capstones: The Impact of Internship Models in Agricultural Technology Programs* - Presented By: **Alex McLemore**, Abraham Baldwin Agricultural College, Tifton, Georgia, USA; Alex McLemore, Erin Porter, Andrea McLemore
3:35pm		*BREAK*
3:45pm	2501133	*Building Successful Capstone Design Projects in the McGill University Bioresource Engineering Program* - Presented By: **Chandra Madramootoo**, McGill University, Ste-Anne-de-Bellevue, Quebec, Canada
4:00pm	2501565	*Enhancing Undergraduate Systems Thinking and Collaboration through a Sustainable Development focused Team Project* - Presented By: **Ana Martin-Ryals**, University of Florida, Gainesville, Floirda, USA; Ana Martin-Ryals, Natalie Coers, Laura Greenhaw

4:15pm	2500720	*Enhancing Capstone Courses by Adding a Disability Service Component* - Presented By: **S. Dee Jepsen**, The Ohio State University, Columbus, Ohio, USA; Kathryn Boening-Ulman
4:30pm	2500458	*Up-skilling the next generation in Agricultural Engineering in Europe* - Presented By: **Christina Maria Sebald**, Technical University of Munich, Munich, Bavaria, Germany; Christina Maria Sebald, Simon Grebner, Martin Mayr, Vladana Vidric, Andreas Mandler, Lorenzo Becce, Christina Paulus, Giovanni Carabin, Fabrizio Mazzetto, Heinz Bernhardt

ES - Energy Systems

125 Value-Added Chemicals Products and Materials towards Circular Bioeconomy

Monday, 2:30pm - 5:00pm

Location: Maple East/West

Technical Community: ES - Energy Systems

Session Type: Oral Technical Session

Description: This session will entertain topics related to producing chemicals and materials from agricultural derived sources using both biochemical and thermochemical approaches. Additionally, this session will accept papers that discuss innovative ways to utilize biobased derived materials and chemicals.

Organizer: Mi Li, mli47@utk.edu

Sponsoring Committee: ES-220 Bio-based Energy, Fuels and Products

Moderators: Steve Chmely

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500376	*Strategic Molecular Engineering of Biomass-derived Oligoester Resins for 3D Printing Tissue Scaffolds* - Presented By: **Stephen Chmely**, Penn State University, University Park, Pennsylvania, USA; Syed M. Q. Bokhari, Jensen N. Severing, Jeffrey M. Catchmark, Stephen C. Chmely
2:50pm	2500082	*Evaluation of Freeze-Dried Essential Oil-Loaded Nanoemulsion Stabilized by Soybean Stover-Derived Cellulose Nanocrystals and Nonionic Surfactant* - Presented By: **Lingling Liu**, The University of Georgia, Athens, Georgia, USA; Lingling Liu
3:05pm	2501360	*Subcritical water hydrolysis of lignocellulosic waste from high-cannabinoid hemp* - Presented By: **Catherine Brewer**, New Mexico State University, Las Cruces, New Mexico, USA; Hanah T. Rheay, Catherine E. Brewer, David L. Compton, Michael Jackson, Christopher D. Skory
3:20pm	*BREAK*	
3:35pm	2500276	*Acidogenic fermentation of brewer's spent grain in a solid-state submerged fermenter: Effect of volumetric organic loading and inoculum enrichment* - Presented By: **Ajay Thapa**, Carleton University, Ottawa, Ontario, Canada; Onita D. Basu, Abid Hussain
3:45pm	2501535	*High-efficiency Electro-mechanical Ammonia Recovery as a Sustainable Hydrogen Alternative from High-strength Wastewater* - Presented By: **Carter Monson**, Michigan State University, East Lansing, Michigan, USA; Carter Monson, Dr. Wei Liao, Dr. Benjamin Thomas, Dr. Sibel Uladag-Demirer, Blake Smerigan, Dr. James Dusenbury
4:00pm	2500946	*Watt a Waste: Utilizing Hurricane Debris with Catalyst Recycling for Lithium-ion Battery Anodes* - Presented By: **Lillian Lower**, North Carolina State University, Raleigh, North Carolina, USA; Lillian Lower, Nate Garland, Ravindra Kumar Bhardwaj, Bertrand Tremolet de Villers, Maria Camila Garcia Vallejo, Sunkyu Park, Xiaowen Chen, William Joe Sagues
4:15pm	2501040	*Hyperelastic Hemp Microfiber Aerogels for Personal Thermal Management* - Presented By: **Jianan Yin**, University of British Columbia, Vancouver, British Columbia, Canada; Jianan Yin, Feng Jiang, Marc Massicotte
4:30pm	2501089	*Validating a Low-Cost Bioprocess for Rhamnolipid Production using Burkholderia thailandensis* - Presented By: **Ryan Hay**, University of Manitoba, Winnipeg, Manitoba, Canada; Ryan Hay, Dr. Warren Blunt
4:45pm	2500440	*Sustainable production of lignocellulosic nanomaterials using recyclable solvent* - Presented By: **Xia Sun**, The University of British Columbia, Vancouver, British Columbia, Canada; Xia Sun, Dingyuan Zheng, Feng Jiang

ITSC - Information Technology, Sensors & Control Systems

127 AI-Driven Tools and Technologies for High Throughput Phenotyping

Monday, 2:30pm - 5:00pm

Location: Linden

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Oral Technical Session

Description: Focuses on recent innovations in artificial intelligence-based systems for high throughput phenotyping for crops and animal production systems.

Organizer: Shih-Fang Chen, sfchen@ntu.edu.tw

Sponsoring Committee: ITSC-348 Electromagnetics & Spectroscopy

Moderators: Shih-Fang Chen

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500492	*Early Detection and Diagnosis of Wheat Stripe Rust* - Presented By: **James Cross**, Ohio State University, Columbus, Ohio, USA; James Cross, Nicolas Cobo, Darren Drewry
2:50pm	2500442	*3D Non-Destructive Detection and Quality Prediction of Korla Fragrant Pears Using Hierarchical Point Cloud Registration and XGBoost* - Presented By: **Tianzhen Yin**, China Agricultural University, Beijing, China; Mingjuan Xie,Yankun Peng, Yongyu Li, Tianzhen Yin
3:05pm	2500807	*High-throughput physiological phenotyping of crop evapotranspiration at the plot scale* - Presented By: **Nipuna Chamara**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Geng (Frank) Bai, Burdette Barker, David Scoby, Suat Irmak, Joe Luck, Christopher Neale, James Schnable, Tala Awada, William Kustas, Nipuna Chamara, Yufeng Ge
3:20pm	2501147	*Development of TOMATO: A Deep Learning-Based Temporal Observation and Monitoring system for Automated Tomato phenOmics* - Presented By: **Ssu-Chi Chen**, National Taiwan University, Taipei City, Taiwan (R. O. C.); Ssu-Chi Chen, Zi-Heng Jian, Ya-Ping Lin, Shih-Fang Chen
3:35pm	*BREAK*	
3:45pm	2501569	*Using Unmanned Aerial Systems (UAS) to Evaluate Deficit Irrigation Strategies on Commercial Onion Varieties for Water Conservation* - Presented By: **Juan Enciso**, Texas A&M AgriLife Research Center, Weslaco, Texas, USA; Jose C. Chavez, Ayrton Laredo, Ittipon Khuimphukhieo, Carlos A. Avila, Kranthi K. Mandadi
4:00pm	2500642	*AI-Driven Multimodal Framework for Predicting Strawberry Performance and Insights* - Presented By: **Liyike Ji**, University of Florida, Gainesville, Floirda, USA; Liyike Ji, Xu Wang, Kalara Dissanayake, Shinsuke Agehara, Daeun Choi
4:15pm	2500574	*3D Gaussian Splatting based Soybean Modeling and Phenotyping* - Presented By: **Xianghui Xin**, Seoul National University, Seoul, South Korea; Xianghui Xin, Sungjay Kim, Eungchan Kim, Kyumin Kim, Min-Gyu Baek, Seongmi Sun, Ghiseok Kim

128 Analytical, Computational and Instrumentation Advances for Biosensing

Monday, 2:30pm - 5:00pm

Location: Cedar

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Oral Technical Session

Description: This session provides attendees with the latest information on analytical, computational, and instrumentation advances for biosensor development for food and agriculture.

Organizer: Juhong Chen, jchen@ucr.edu

Sponsoring Committee: ITSC-230 Biosensors

Moderators: Juhong Chen, Saad Sharief

Time	Pres. ID	Presentation Title, Presenter, & Authors

2:35pm 2500610 *Non destructive testing method for lamb shelf life based on multimodal data fusion* - Presented By: **Qi Zhang**, Shihezi University, Shihezi City, Xinjiang Province, China; Qi Zhang, Peilin Jin, Renzhong Niu, Zhigang Li

2:50pm 2500153 *Machine learning-powered activatable NIR-II fluorescent nanosensor for in vivo monitoring of plant stress responses* - Presented By: **Hong Hu**, Zhejiang University, Hangzhou, Zhejiang, China; Hong Hu, Shengchun Sun, Yixian Wang

3:05pm 2501343 *Advanced Model Predictive Control for Optimized Nutrient Management in Closed-Loop Hydroponics* - Presented By: **Md Shamim Ahamed**, University of California Davis, Davis, California, USA; Saeed Karimzadeh, Robert D. Mcallister, Md Shamim Ahamed

3:20pm 2500892 *Development of an Ultrasonic Testing Instrument for Fruit Firmness Evaluation* - Presented By: **Yudhua Putra Arisandy**, Seoul National University, Seoul, Republic of Korea; Yudha Putra Arisandy, Chang-Hyup Lee, Jiwon Ryu, Dong-Heun Sung, Gyumin Kim, Ghiseok Kim

3:35pm *BREAK*

3:45pm 2501702 *Field asymmetric ion mobility spectrometry for early asymptomatic disease detection in peas using volatile biomarkers* - Presented By: **Sindhuja Sankaran**, Washington State University, Pullman, Washington, USA

4:00pm 2500391 *Acceleration Prediction Algorithm for Inertial Measurement Unit (IMU) Sensors on Agricultural Vehicles* - Presented By: **Erin Sobotka**, Iowa State University, Ames, Iowa, USA; Erin Sobotka, Bailey Adams

4:15pm 2500493 *Parsimonious Models of Root Zone Temperature in Soilless Media Through Ensemble Machine Learning* - Presented By: **James Cross**, Ohio State University, Columbus, Ohio, USA; James Cross, James Owen, Jacob Shreckhise, Jeb Fields, Lloyd Nackley, Darren Drewry

129 Machine Vision for Data-Driven Crop Management-LIGHTNING PANEL

Monday, 2:30pm - 5:00pm
Location: York Room
Technical Community: ITSC - Information Technology, Sensors & Control Systems
Session Type: Lightning Oral Technical Session
Description: Focuses on all machine vision innovation and applications in Data-Driven Crop Management.
Organizer: Daeun Choi, dana.choi@ufl.edu
Sponsoring Committee: ITSC-312 Machine Vision
Moderators: Uchechukwu Ilodibe

Time Pres. ID Presentation Title, Presenter, & Authors

2:35pm 2500392 *Exploration of machine learning methods for cotton identification in complex agricultural field imagery* - Presented By: **Lisa Tordai**, Iowa State University, Ames, Iowa, USA; Lisa H. Tordai, Harman Singh Sangha, Matthew J. Darr

2:42pm 2501536 *Grape Powdery Mildew Detection Through Deep Learning and Smartphone Application* - Presented By: **Xuechen Li**, University of Minnesota, Saint Paul, Minnesota, USA; Xuechen Li, Nicholas Padilla, Maiia Gareeva, Soon Li Teh, Ce Yang

2:49pm 2501206 *Growth potential prediction using leaf area of Ice plant* - Presented By: **Eo-Jin Kim**, Department of Biosystems Machinery Engineering, Chungnam National University, Republic of Korea; Eo-Jin Kim, Dae-Hyun Lee

2:56pm 2500584 *[illegible]ltivariable Data for Autonomous Crop Monitoring in Smart Agriculture* - Presented B[illegible]eonbuk National University, South Korea; Alvaro Fuentes, Jiuqing Dong, Jiaqi Liu, Taehyun Kim, Mun Haeng Lee, Sook Yoon, Dong Sun Park

NO SHOW

3:03pm *DISCUSSION*

3:10pm 2500343 *Soybean-PCMAE: Perturbation Consistent Masked Autoencoders for Few-shot Segmentation of 3D Soybean Point Clouds* - Presented By: **Yu Tian**, McGill University, Sainte-Anne-de-Bellevue, Quebec, Canada; Yu Tian, Xintong Jiang, Jan Franklin Adamowski, Shangpeng Sun

3:17pm 2500331 *Enhanced Perception of Green Asparagus Through Knowledge Distillation* - Presented By: **Yuzhen Lu**, Michigan State University, East Lansing, Michigan, USA

3:24pm 2500862 *3D Point Cloud Preprocessing for High-Quality Crop 3D Modeling* - Presented By: **Dokyun Jung**, Jeonbuk National University, Jeonbuk-do, Republic of Korea; Dokyun Jung, Seong-Hwan Lee, Yeong-Jin Kim, Woo-Joo Choi, Ki-Su Park, Myongkyoon Yang

3:31pm 2501219 *Weed-AI: Open and standardised sharing of annotated weed image datasets for weed recognition technology development* - Presented By: **Guy Coleman**, University of Copenhagen, Taastrup, Denmark; Guy RY Coleman, Joel Nothman, Henry Lydecker, Elevn Li, Michael Lynch, Tim White, Michael J Walsh

3:38pm *DISCUSSION & BREAK*

3:50pm 2500993 *AgriTrack: A Robust Framework for Temporal Tracking of Lettuce Plants* - Presented By: **Henry Medeiros**, University of Florida, Gainesville, Floirda, USA; Amir Etefaghi Daryani, Henry Medeiros

3:57pm 2501446 *Enhancing Automatic Runner Detection for Efficient Strawberry Production* - Presented By: **Daeun Choi**, Department of Agricultural and Biological Engineering, Gulf Coast Research and Education Center, IFAS, University of Florida, Wimauma, Florida, USA; Md Didarul Islam, Dana Choi, Xu Wang, Xue Zhou

4:03pm *DISCUSSION*

130 Mechatronics and Actuation in Agricultural Robots

Monday, 2:30pm - 5:00pm
Location: Willow Center
Technical Community: ITSC - Information Technology, Sensors & Control Systems
Session Type: Oral Technical Session
Description: Focuses on the development of mechatronics and actuation components in agricultural robots.
Organizer: Congliang Zhou, congliangzhou@agcenter.lsu.edu
Sponsoring Committee: ITSC-318 Mechatronics & Biorobotics
Moderators: Congliang Zhou, Wenhao Liu

Time Pres. ID Presentation Title, Presenter, & Authors

2:35pm 2500733 *Smart Site-Specific Mechanical Weeding Robot* - Presented By: **Sulaymon Eshkabilov**, Ag & Biosystems Engineering Department, North Dakota State University, Fargo, North Dakota, USA; Shafi Md. Istiak, Mohammad Aftabi Talami, Rafat Safayet, James Y. Kim, Sulaymon Eshkabilov

2:50pm 2500828 *Optimizing Efficiency for Autonomous EV Robot* - Presented By: **Seungyun Baek**, North Dakota State University, Fargo, North Dakota, USA; Seungyun Baek, Mohammad Aftabi-Talami, Sulaymon Eshkabilov, Yongjoo Kim, James Kim

3:05pm 2500499 *Aquabots: Aquacultural Engineering with Automated and Robotic Systems* - Presented By: **Steven Hall**, NCSU Biological and Agricultural Engineering, Raleigh, North Carolina, USA; Steven G. Hall, Celso Castro-Bolinaga, Swarna Chowdhury, Natalie Nelson, John-Paul Ore, Daniel Smith, Sierra Young

3:20pm 2501238 *Adaptive Compliance Policy for Chesapeake Blue Crabs Jumbo Lump Meat Extraction* - Presented By: **Mohamed Ali**, University of Maryland- College Park, College Park, Maryland, USA; Mohamed Ali, Faranguisse Sadrieh, Kunj Golwala, Yang Tao

3:35pm *BREAK*

3:45pm 2501469 *Dual-Laser Imaging and Vision-Based Robotics for Automating Chesapeake Blue Crab Loading* - Presented By: **Faranguisse Sadrieh**, University of Maryland, College Park, Maryland, USA; Mohamed Ali, Kunj Golwala, Yang Tao

4:00pm 2501539 *Multi-Sensor Fusion for Visual Proprioceptive Control of Soft Robotic Manipulators in Orchard Operations* - Presented By: **Ariel Ramos**, , Ithaca, New York, USA; Syed Usama Bin Sabir, Ariel Nicole Ramos

4:15pm 2501660 *Adaptive Vision-Guided Robotic Arm Control for Precision Pruning in Dynamic Agricultural Environments* - Presented By: **Manoj Karkee**, Cornell University, Ithaca, New York, USA; Dawood Ahmed, Basit Muhammad Imran, Martin Churuvija, Manoj Karkee

MS - Machinery Systems

131 Precision Applications of Crop Protection and Fertilizer Products

Monday, 2:30pm - 5:00pm

Location: Simcoe

Technical Community: MS - Machinery Systems

Session Type: Oral Technical Session

Description: Precision application becomes a more important research and technical area as it is a key tool to reduce environmental impact while maximizing the agricultural production. Precision crop protection or fertilizer applications can provide great benefits by optimizing agricultural inputs while maximizing its output. This session accommodates research work in precision crop protection product and fertilizer application to optimize crop protection product or fertilizer use in agriculture.

Organizer: Rex Ruppert, rex.ruppert@cnhind.com

Sponsoring Committee: MS-23/6 Application Sys & US TAG ISO TC23/SC6; **Co-Sponsors:** MS-54 Precision Agriculture

Moderators: Rex Ruppert

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500703	*Continued development of Methods for evaluating Targeted Spray Applications for ASABE X665 Standard* - Presented By: **Ashley Althaus**, Iowa State University, Ames, Iowa, USA; Althaus, Smith, Darr
2:50pm	2501111	*Assessing Performance of a Boom Sprayer for Site-Specific Applications at Varying Ground Speed and Look-Ahead Settings* - Presented By: **Ravi Meena**, University of Georgia, Tifton, Georgia, USA; Ravi Meena, Simerjeet Virk, Glen Rains, Wesley Porter
3:05pm	2501029	*Quantifying Horizontal and Vertical Movement Accuracy in Agricultural Sprayer Booms Using a Distance Quantifier System Integrated with GPS and CAN Networks* - Presented By: **Treman Singh Kaloya**, Kansas State University, Manhattan, Kansas, USA; Treman Singh Kaloya, Ajay Sharda
3:20pm	2500925	*Experimental investigation to optimize angled nozzle spraying for on-the-go spot application schemes* - Presented By: **Humphrey Maambo**, Dalhousie, Truro, Nova Scotia, Canada; Humphrey H. Maambo, Ahmad Al-Mallahi, Madan M. Avulapati, Travis J. Esau, Vignesh K. Dhinasekaran
3:35pm		*BREAK*
3:45pm	2500338	*Overview of the Unmanned Aerial Pesticide Application System Task Force (UAPASTF)* - Presented By: **Sarah Hovinga**, Bayer U.S. Crop Science; Unmanned Aerial Pesticide Application System Task Force (UAPASTF), LLC., Chesterfield, Missouri, USA; Sarah Hovinga, Travis Bui, Nestor Algarin, Rebecca Willis, Raymond Layton, Hector Portillo, Patti Turner, Leslie Garcia
4:00pm	2501441	*Unmanned Aerial Pesticide Application Systems Task Force Update on Off-target Movement Studies Conducted Globally* - Presented By: **Sarah Hovinga**, Bayer US, Chesterfield, Missouri, USA; Rajeev Sinha, Francis Donaldson, Jane Tang, Jason McDonald, Jo Davies, Roberto Barbosa, Tyler Gullen, Frank Carey, Sarah Hovinga, Travis Bui
4:15pm	2501233	*Sensor Fusion for Precise Navigation in Agricultural Applications using Extended Kalman Filter* - Presented By: **Sunny Kumar Sharma**, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India
4:30pm	2500431	*Path Planning and Control Method for Autonomous Tractor Based on High Definition Map* - Presented By: **Xingyu Gao**, China Agricultural University, Haidian District, Beijing, China; Xingyu Gao, Weixin Zhai, Yonghao Liang, Yuhan Jiang, Chenggao Chu, Chentao Wu, Zunyuan Fu, Honggang Deng, Cheng Zhai, Caicong Wu
4:45pm	2500201	*Pollinator friendly drift reducing pesticide adjuvants for drone-based aerial applications* - Presented By: **Rajani Srinivasan**, Tarleton State University, Stephenville, Texas, USA; Narayanan Kannan, Daniel Martin, Rajani Srinivasan, Weiqiang Zhang
5:00pm	2501223	*Assessing In-Swath Deposition and Spray Drift from Unmanned Aerial Application Systems (Spray Drones) equipped with Rotary Atomizers* - Presented By: **Simerjeet Virk**, Auburn University, Auburn, Alabama, USA; Simerjeet Virk, Coleman Byers, Ravi Meena, Glen Rains

132 Robotics and Mechanization for Specialty Crops

Monday, 2:30pm - 5:00pm

Location: Dufferin

Technical Community: MS - Machinery Systems

Session Type: Oral Technical Session

Description: The Robotics and Mechanization for Specialty Crops session will cover all possible robotic and mechanical technology innovations and adoptions for specialty crops including fruits, vegetables, and many other horticultural crops including floriculture.

Organizer: Hao Gan, hgan1@utk.edu

Sponsoring Committee: MS-48 Specialty Crop Engineering; **Co-Sponsors:** MS-54 Precision Agriculture

Moderators: Hao Gan

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500323	*A novel Cutting and Collection System for Selective Harvesting of Green Asparagus* - Presented By: **Yuzhen Lu**, Michigan State University, East Lansing, Michigan, USA
2:50pm	2501601	*Development and Evaluation of a Fruit Handling and Bin-Filling System for Robotic Apple Harvesting* - Presented By: **Kyle Lammers**, Michigan State University, East Lansing, Michigan, USA; Kyle Lammers, Kaixiang Zhang, Keyi Zhu, Renfu Lu, Zhaojian Li
3:05pm	2500672	*Developing an Integrated Solution for Apple Bud Thinning with Computer Vision and Bud Removal Mechanisms* - Presented By: **Kittiphum Pawikhum**, The Pennsylvania State University, University Park, Pennsylvania, USA; Kittiphum Pawikhum , Long He, Paul Heinemann
3:20pm	*BREAK*	
3:35pm	2501148	*Integrating Eye-to-Hand and Eye-in-Hand Cameras for Enhanced Robotic Apple Harvesting* - Presented By: **Kyle Lammers**, Michigan State University, East Lansing, Michigan, USA; Kaixiang Zhang, Keyi Zhu, Kyle Lammers, Zhaojian Li, Renfu Lu
3:45pm	2501400	*Cloud-Enabled Plant Segmentation and Tracking Framework for Ornamental Nursery Inventory Management* - Presented By: **Mohtasim Hadi Rafi**, Auburn University, Auburn, Alabama, USA; Hamid Syed, Faraz Ahmed, Tanzeel U. Rehman
4:00pm	2500938	*Field-Scale Steam Applicator for Controlling Weeds in Vegetable Crops - Design and Evaluation* - Presented By: **Mark Siemens**, University of Arizona, Yuma, Arizona, USA; Mark C. Siemens, Steven A. Fennimore, Peter de Groot, Victor Godinez, Jr.
4:15pm	2500112	*Evaluation of Semi-Mechanized and Assisted Coffee Harvesting Methods in Puerto Rico* - Presented By: **Francisco M. Monroig-Saltar**, University of Puerto Rico at Mayaguez, Mayaguez, Puerto Rico, USA; Francisco M. Monroig-Saltar, Elvin A. Roman-Aponte, Carlos A. Flores-Ortega, Miguel F. Monroig-Inglés
4:30pm	2501384	*Development of A Ground-based Machine Vision System for Blueberry Maturity Assessment and Yield Estimation* - Presented By: **Jiajun Xu**, Michigan State University, East Lansing, Michigan, USA; Xinyang Mu, Yuzhen Lu

NRES - Natural Resources & Environmental Systems

133 Advances in Agrohydrological Sustainability through Modeling: Regenerative Agriculture

Monday, 2:30pm - 5:00pm

Location: Churchill Room

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: In the pursuit of sustainable agricultural practices, the integration of cutting-edge modeling techniques and Unmanned Aerial System (UAS) technologies has emerged as a powerful approach to enhance agrohydrological sustainability. This technical session aims to explore the latest developments, methodologies, and applications that harness the potential of modeling and UAS tools to address critical challenges in agricultural water management under the present and changing future climate. Topics of interest include, but are not limited to:

- Hydrological Modeling: Modeling approaches to simulate hydrology and water quality within agricultural landscapes (fields and watersheds) under a variety of agricultural practices.

- UAS Applications: Utilization of UAS for collecting high-resolution spatial data related to soil and crop health.
- Climate change adaptation: Modeling approaches to simulate effects of climate-smart agricultural practices on crop production and hydrology under changing future climate.
- Data Integration and Analysis: Methodologies for integrating diverse datasets into comprehensive agrohydrological models.
- Decision Support Systems: Advancements in developing decision support tools that integrate modeling and UAS information to assist farmers, water resource managers, and policymakers in optimizing agricultural water management practices.

Organizer: Sayantan Samanta, ssamanta@tamu.edu

Sponsoring Committee: NRES-21 Hydrology Group

Moderators: Sayantan Samanta, Arun Bawa

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500536	*Watershed-Scale Modeling of Regenerative Agricultural Practices in the North Fork Red River Watershed* - Presented By: **Navdeep Saasan**, , Stillwater, Oklahoma, USA; Navdeep Saasan, Ali Mirchi, Afsaneh Kaghazchi, Sara Alian, Kevin Wagner, Srinivasulu Ale
2:50pm	2501006	*Simulated impact of regenerative agricultural practices on streamflow characteristics in the Upper Middle-Brazos-Millers Watershed in Texas* - Presented By: **Srinivasulu Ale**, Texas A&M AgriLife Research, Vernon, Texas, USA; Sayantan Samanta, Srinivasulu Ale, Rene F.S. Mvuyekure, Paul DeLaune, Ali Mirchi, Kevin Wagner, Lucas Gregory
3:05pm	2501596	*Predicting the Impacts of Sustainable Intensification of Forage Cropping Systems on Runoff, Soil, and Nutrient Loss Under Variable Climatic Conditions* - Presented By: **Patricia Smith**
3:20pm	2500115	*XGBest: An Instream Nutrient and Sediment Concentrations Prediction Tool* - Presented By: **Arun Bawa**, Texas A&M AgriLife Research, Temple, Texas, USA; Shubham Jain, Arun Bawa, Katie Mendoza, Raghavan Srinivasan, Rajbir Parmar, Deron Smith, Kurt Wolfe, John M Johnston
3:35pm		*BREAK*
3:45pm	2500325	*Unveiling Biases in Water Sampling: A Bayesian Framework for Precision in Edge-of-Field Monitoring* - Presented By: **Ansley Brown**, Colorado State University, Fort Collins, Colorado, USA; Ansley Brown, Emmanuel Deleon, Jake Ladow, Erik Wardle
4:00pm	2500158	*Evaluation of the Effect of Climate Change in Nova Scotia with Approach of Forecasting Evapotranspiration* - Presented By: **Mona Golabi**, Shahid Chamran University of Ahvaz, Truro, Nova Scotia, Canada; Mona Golabi, Travis Esau
4:15pm	2501011	*Assessing the impacts of regenerative agricultural practices on watershed hydrology and water quality* - Presented By: **Srinivasulu Ale**, Texas A&M AgriLife Research, Vernon, Texas, USA; Rene Francis Simbi Mvuyekure, Srinivasulu Ale, Sayantan Samanta, Terry Gentry, Paul DeLaune, Rabi Mohtar
4:30pm	2501142	*Evaluating the Power Generation Potential and Water Quality Improvements of Floating Photovoltaics on Agricultural Reservoirs using AI models* - Presented By: **SuHyun Lee**, Seoul National University, Seoul, Korea; Suhyun Lee, Yooan Kim, Suh Kyo

134 Advances in Micro-Irrigation and Sprinkler Irrigation Systems

Monday, 2:30pm - 5:00pm

Location: Kent

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: One of the most significant contributions of technology to irrigation management is the development of precision irrigation techniques such as micro, drip, etc. This session will invite presentations on advances in micro-irrigation techniques in terms of development, application in irrigation management.

Organizer: Vivek Sharma, vsharma1@ufl.edu

Sponsoring Committee: NRES-24 Irrigation; **Co-Sponsors:** NRES-245 Microirrigation

Moderators: Sandra Guzman

Time	Pres. ID	Presentation Title, Presenter, & Authors

2:35pm 2500888 *Comparison of conventional drip and microspinkler irrigation in citrus production systems on Florida sandy soils* - Presented By: **Davie Kadyampakeni**, University of Florida, Lake Alfred, Florida, USA; Kondwani Kamsikiri, Alisheikh Atta, Davie M. Kadyampakeni

2:50pm 2500897 *...sm of Automatic Flushing Valve on the Anti-Clogging Performance of Drip Irrigation ... Water* - Presented By: **Hao Li**, China Institute of Water Resources and Hydropower Research, Beijing, China; Yan Mo, Hao Gao, Hao Li, Yanqun Zhang

NO SHOW

3:05pm 2501016 *Optimizing Water Efficiency: A Performance Analysis of Wheel Line Sprinkler Irrigation in Small and Medium Farms* - Presented By: **Burdette Barker**, Utah State University, Logan, Utah, USA; Maziyar Vaez Roudbari, Burdette Barker, Benedict Okorie, Ngoni Mufute, Matt Yost, Ryan Larsen

3:20pm *BREAK*

3:35pm 2501443 *Exploring the Effects of Soil Variability and Deficit Irrigation on Lettuce Production in Southeast Florida and Southern California* - Presented By: **Sandra M. Guzman**, University of Florida, Agricultural and Biological Engineering Department, Indian River Research and Education Center, Fort Pierce, Florida, USA; Sandra M. Guzman, Jairo N. Diaz-Ramirez, Helen Velasquez, German Sandoya

3:45pm 2500043 *Assessing Water Stress Responses in Cantaloupe Using Advanced Sensing Technologies* - Presented By: **Jairo Diaz**, University of California, Holtville, California, USA

4:00pm 2500697 *Seasonal Iceberg Lettuce Evapotranspiration: Comparing Organic vs. Conventional Systems under Subsurface Drip Irrigation Method in Yuma, Arizona* - Presented By: **Ali Mohammed**, University of Arizona, Yuma, Arizona, USA

4:15pm 2501678 *Spatial Rainfall Variability across a Commercial Grain Farm in Australia* - Presented By: **Justine Baillie**, University of Southern Queensland, Toowoomba, Australia; Justine Baillie, Michael Scobie, Sayma Shammi, Corey Plant

4:30pm 2500242 *Evaluation of Agricultural Reservoir Supply Efficiency with Farm Pond-Pipeline Systems* - Presented By: **JunYoung Lee**, Kangwon National University, Chuncheon, Kangwon-do, Republic of Korea; Sangjoon Bak, Yeonji Jeong, Seoro Lee, Jeongho Han, Gwan Jae Lee, Kyoung Jae Lim

135 Hydrological Modeling, Water Resource Management, and Erosion Control Research

Monday, 2:30pm - 5:00pm

Location: Huron

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Sediment (caused by soil erosion) is regarded as the most common pollutant in rivers, streams, lakes and reservoirs in the United States. This session invites presentations related to soil erosion and sediment transport research on agricultural and urban landscapes. Both experimental and modeling studies will be included.

Organizer: Anita Thompson, amthompson2@wisc.edu

Sponsoring Committee: NRES-22 Soil Erosion and Water Quality; **Co-Sponsors:** NRES-223 Erosion Control Research

Moderators: Anita Thompson, Umar Javed

Time Pres. ID Presentation Title, Presenter, & Authors

2:35pm 2500813 *Predicting fine sediment accumulation in gravel streambeds* - Presented By: **Chloe Chiang**, Virginia Tech, Blacksburg, Virginia, USA; Chloe Chiang, Justus Hargett, Reilly Oare, Sarah Leach, Muhammad Alif, Jonathan A. Czuba

2:50pm 2500843 *Maximizing Conservation Practice Efficacy in Inland Pacific Northwest by Targeted Adoption on Erosion Hotspots* - Presented By: **T. Burke Parham**, Washington State University, Pullman, Washington, USA; T. Burke Parham, Joan Q. Wu, Kirti Rajagopalan

3:05pm 2501200 *Evaluation of the effects of Reservoir Tillage practice on Water and Nutrient Management in irrigated Michigan potato fields* - Presented By: **Abraham Rai**, Michigan State University, East Lansing, Michigan, USA; Abraham Rai, Dr. Younsuk Dong, Dr. Kurt Steinke, Dr. Timothy Harrigan

3:20pm 2500060 *Role of Conservation Tillage to Minimize Erosion Risk by Improving Soil Aggregate Stability in Root Zone* - Presented By: **Umar Javed**, Department of Agricultural & Biosystems Engineering, South Dakota State University, Brookings, South Dakota, USA; John McMaine, Kristen Blann, Jeppe Kjaersgaard, Anthony Bly

3:35pm *BREAK*

3:45pm 2500753 *Integrating Machine Learning and Topographic Index Models for Comprehensive Management of Ephemeral Gully Erosion* - Presented By: **Hamid Mohebzadeh**, University of Guelph, Guelph, Ontario, Canada; Hamid Mohebzadeh, Asim Biswas, Ben DeVries, Ramesh Rudra, Prasad Daggupati

4:00pm 2500078 *Sensitivity of hydrological machine learning prediction accuracy to information quantity and quality* - Presented By: **Young Gu Her**, University of Florida, Homestead, Florida, USA

4:15pm 2500605 *Modeling Effects of Conservation Practices on Runoff, Sediment, and Nutrient Loads from an Agricultural Watershed Using ArcAPEX* - Presented By: **Niroj Aryal**, , North Carolina, USA; Arjun Thapa, Niroj Aryal, Michele L. Reba, Tina Gray Teague, Geoffrey Payne, Anna Pieri

4:30pm 2501598 *Water for extreme weather management: implications for agriculture and the environment* - Presented By: **Md Redwan Khan**, Washington State University, Pullman, Washington, USA; Md Redwan Ahmad Khan, Matt Yourek, Kirti Rajagopalan

4:45pm 2500259 *Addressing Groundwater Challenges in the Western United States through Adaptive Crop Production and Irrigation Strategies* - Presented By: **Femeena Pandara Valappil**, Penn State University, University Park, Pennsylvania, USA; Femeena Pandara Valappil, Kathryn Daenzer, Steve Frolking, Danielle Grogan, Jeff Nucciarone, Kate Calvin, Richard B. Lammers, Karen Fisher-Vanden

5:00pm 2500809 *Simulating the Effects of Pasture Cropping on Runoff, Sediment and Nutrient Losses in a North Central Texas Watershed* - Presented By: **Hardev Singh**, Texas A&M University, College Station, Texas, USA; Srinivasulu Ale, JungJin Kim, Sayantan Samanta, Bhupinder Singh, Rabi Mohtar

137 Innovations and Insights in Hydrology: Bridging Theory, Application, and Emerging Trends

Monday, 2:30pm - 5:00pm

Location: Wentworth

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: This session invites the presentation of innovative ideas, results, and applications in both theoretical and applied hydrology. Subjects may include hydrologic and biogeochemical monitoring and modeling, anthropogenic impacts to the hydrologic cycle, innovations in water resources infrastructure, application of remotely-sensed observations, hydrogeologic applications, climate impacts, and more. We also encourage submissions related to surface and groundwater hydrology that may not fit within other sessions, as well as contributions from students, early-career scientists, and those addressing the needs and future directions of the NRES-21 community.

Organizer: Rebecca Muenich, rlogsdo@uark.edu

Sponsoring Committee: NRES-21 Hydrology Group; **Co-Sponsors:** NRES-21 Hydrology Group

Moderators: Rebecca Muenich, Arghajeet Saha

Time Pres. ID Presentation Title, Presenter, & Authors

2:35pm 2500398 *Operationalizing Camera-Based Hydrologic Monitoring with AI and Edge Computing* - Presented By: **Razin Bin Issa**, Utah State University, Logan, Utah, USA; Safran Khan, Sajan Neupane, Jeffery Horsburgh, Sierra Young

2:50pm 2500408 *Advancing Stormwater Management Through Open-Source, Real-Time Control Systems* - Presented By: **Savannah Roth**, North Carolina State University, Raleigh, North Carolina, USA; Savannah Roth

3:05pm 2501488 *Improved precipitation phase partitioning in hydrology models results in less drastic projected climate change impacts* - Presented By: **Supriya Savalkar**, Biological Systems Engineering, Washington State University, Pullman, Washington, USA; Bhupinderjeet Singh, Kirti Rajagopalan

3:20pm 2501489 *Dynamic precipitation phase partitioning reduces model bias for some snow and streamflow metrics across the Northwest US* - Presented By: **Bhupinderjeet Singh**, Washington State University, Pullman, Washington, USA; Bhupinderjeet Singh, Mingliang Liu, John Abatzoglou, Jennifer Adam, Kirti Rajagopalan

3:35pm *BREAK*

3:45pm 2500812 *Unsteady flood hydraulics and the non-uniqueness of the stage-inundation relationship on floodplains* - Presented By: **Sarah Leach**, Virginia Tech, Blacksburg, Virginia, USA; Sarah Leach, Muhammad Alif, Sadia Afrin Khan, Jonathan A. Czuba, Douglas A. Edmonds

4:00pm	2501359	*Plastic Mulch Effects on Hydrological Processes and Fluxes* - Presented By: **Neelnayana Kalita**, University of Florida, Gainesville, Floirda, USA; Sanjay Shukla, Vijay Santikari, Gregory Hendricks, Ismael Ramirez
4:15pm	2501099	*Investigating Soil Moisture Dynamics under a Novel Sprayable Biodegradable Mulch* - Presented By: **Manavjot Singh**, Kansas State University, Manhattan, Kansas, USA; Manavjot Singh, Gerard J. Kluitenberg, Vaishali Sharda

138 Open-Source "pyfao56" Evapotranspiration and Water Balance Tool for Water Management

Monday, 2:30pm - 5:00pm

Location: Willow East

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: This session will explore the development and diverse applications of the open-source "pyfao56" tool, designed for standardized evapotranspiration (ET) and water balance calculations. Built on the widely recognized FAO-56 and ASCE ET methodologies, pyfao56 offers a versatile and customizable platform for irrigation scheduling, crop modeling, and water resource management. Attendees will learn about the tool's implementation in various research and practical settings, including its use in forecasting, soil moisture monitoring, and integration with advanced hydrologic and crop growth models. The session will also highlight ongoing improvements and encourage collaboration among participants to further refine and expand pyfao56's capabilities. Join us to discover how this powerful, accessible tool can revolutionize water management practices and drive innovation in the field.

Organizer: Kendall DeJonge, kendall.dejonge@usda.gov

Sponsoring Committee: NRES-24 Irrigation

Moderators: Kendall DeJonge

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500011	*The "pyfao56" software package for Python: Codifying FAO-56 Evapotranspiration in a Modern Programming Language* - Presented By: **Kelly Thorp**, USDA-ARS, Temple, Texas, USA; Kelly Thorp, Kendall DeJonge, Tyler Pokoski, Josh Brekel, Reagan Ames, Thomas Trout, Meetpal Kukal, Dinesh Gulati, Ahmed Hashem, Fared Farag, Annelie Holzkaemper, Tamara Baumgartner, Gabriel Erismann, and the pyfao56 development community
2:50pm	2500299	*Customizing pyfao56 for Irrigation Scheduling: A Case Study from the Limited Irrigation Research Farm* - Presented By: **Kendall DeJonge**, USDA-ARS, Fort Collins, Colorado, USA; Kendall C. DeJonge, Kelly R. Thorp, Josh Brekel, Tyler Pokoski, Thomas J. Trout
3:05pm	2500012	*The pyfao56 automatic irrigation scheduling algorithm* - Presented By: **Kelly Thorp**, USDA-ARS, Temple, Texas, USA; Kelly Thorp, Kendall DeJonge, Meetpal Kukal
3:20pm	2501268	*The McMullin Area GSA Irrigation Scheduling Toolkit* - Presented By: **Charles Hillyer**, California State University, Fresno, Fresno, California, USA; Shawn Ashkan, Krishna Chaitanya Bhasuru, Athanasios Aris Panagopoulos, Janaki Panneerselvam, Nikhil Teegala
3:35pm	*BREAK*	
3:45pm	2500071	*Optimizing Irrigation Scheduling for Processing Tomatoes Using Eddy Covariance and pyFAO56 in California's Central Valley* - Presented By: **Isaya Kisekka**, University of California Davis, Davis, California, USA
4:00pm	2500646	*Integrating pyfao56 into a lysimeter data processing tool for automated calculations of crop evapotranspiration and coefficients* - Presented By: **Allan Andales**, Colorado State University, Fort Collins, Colorado, USA; Allan A. Andales, Ansley J. Brown
4:15pm	2500284	*Tracking evapotranspiration of applied water and effective precipitation by color-coding standardized soil water budgets* - Presented By: **Dinesh Gulati**, University of Idaho, Boise, Idaho, USA; Meetpal S. Kukal, Dinesh Gulati, Erin Brooks, Jason Kelley, Clarence Robison, Phil Blankenau, Bailey Liu, Isaya Kisekka, Srinivasa Rao Peddinti
4:30pm	2501662	*WISE Pro Software for Smart Crop Irrigation and Nutrient Management Decisions* - Presented By: **Mazdak Arabi**, Colorado State University, Fort Collins, Colorado, USA

4:45pm 2500302 *A Decade of Maize Irrigation Studies at the USDA-ARS Limited Irrigation Research Farm in Colorado: Dataset and Modeling* - Presented By: **Kendall DeJonge**, USDA-ARS, Fort Collins, Colorado, USA; Jaden Tatum, Kendall DeJonge, Tyler Pokoski

139 Role of Biochar in Improving Soil and Water Quality in Agricultural Systems

Monday, 2:30pm - 5:00pm

Location: Dominion South

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Biochar is added to soil to improve water retention, increase plant nutrient availability, enhance microbial activity, boost crop yields, and mitigate the adverse effects of climate change through soil carbon sequestration. The proposed session will focus on how biochar can affect the hydrological processes and the fate and transport of nutrients in soils and the role of engineering biochar to enhance biochar properties relevant to its use for various agricultural applications.

Organizer: Jasmeet Lamba, jsl0005@auburn.edu

Sponsoring Committee: NRES-22 Soil Erosion and Water Quality; **Co-Sponsors:** NRES-224 Sediment and Associated Pollutants

Moderators: Jasmeet Lamba, Vivian Chimezie Usha

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500790	*Evaluation of modified pinewood biochar for dissolved reactive phosphorous removal from different simulated water-phosphorous systems* - Presented By: **Usha Vivian**, Auburn University, Auburn, Alabama, USA; HOSSEIN JAHROMI, SUSHIL ADHIKARI
2:50pm	2500911	*The Influence of Biochar Types on Phosphorus and Nitrate Transport in Saturated Soils* - Presented By: **Atiqur Rahman**, Auburn University, Auburn, Alabama, USA; Atiqur Rahman, Rakesh Kumar, Jasmeet Lamba, Sushil Adhikari, Thomas R. Way, Henry Allen Torbert
3:05pm	2501189	*Effect of pyrolysis temperature and heating flow rate on the biochar synthesized by thermochemical conversion of coconut waste: characterization and application* - Presented By: **Shristi Shefali Saraugi**, Purdue University, West Lafayette, Indiana, USA; Shristi Shefali Saraugi, Francis Asare, Subhanki Padhi, Rado Gazo, Ashutosh Singh, Winny Routray
3:20pm	2500453	*Co-Composting with Biochar Alters Nutrient Release and Yield Responses und N-Limited Growing Conditions with Repeated Applications* - Presented By: **Emanuel Jaufmann**, Technical University of Munich (TUM), Freising, Germany; Emanuel Jaufmann, Harald Schmid, Kurt-Jürgen Hülsbergen
3:35pm		*BREAK*
3:45pm	2500473	*A Novel Magnesium Thiosulfate-modified Biochar for Enhanced Nutrient Use Efficiency in Agriculture* - Presented By: **Pradip Adhikari**, Auburn University, Auburn, Alabama, USA; Pradip Adhikari, Nitesh Kasera, Hossein Jahromi, Sushil Adhikari
4:00pm	2501275	*ADSORPTION AND TRANSPORT OF GENX IN BIOCHAR-AMENDED SOILS* - Presented By: **Niroj Aryal**, North Carolina A&T State University, Greensboro, North Carolina, USA; Md Tariqul Islam Shajib, Sierra Franco, Sushmita Roy, Kiran Subedi, Niroj Aryal
4:15pm	2501485	*Effect of Biochar, Hydrogel and Soil Liming on Nutrient Leaching in a Coarse-Textured Soil* - Presented By: **Joba Purkaystha**, McGill University, Montreal, Quebec, Canada; Joba Purkaystha, Shiv Prasher, Muhammad Tabassum Afzal, Jaskaran Dhiman, Christopher Nzediegwu

PAFS - Plant, Animal, & Facility Systems

140 Food and Medicinal Plant Production in Indoor Environments

Monday, 2:30pm - 5:00pm

Location: Provincial South

Technical Community: PAFS - Plant, Animal, & Facility Systems

Session Type: Oral Technical Session

Description: This session will include research presentations from researchers, educators, and industry experts to delve into advanced indoor cultivation methods for food and medicinal plant production.

Organizer: Phillipe Addo, philip.addo@mail.mcgill.ca

Sponsoring Committee: PAFS-30 Plant Systems Group

Moderators: Phillipe Addo, Mark Lefsrud

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2501476	*The Development of a Lunar Vegetation Evaluator: A Low-Cost Plant Health Monitoring System for Lunar and Space Agriculture* - Presented By: **Brandon Saulnier**, McGill University, Montreal, Quebec, Canada; Mohamed Debbagh
2:50pm	2500097	*Optimization of designs and operational parameters for the GREENBOX farming system* - Presented By: **Xiusheng Yang**, University of Connecticut, Storrs, Connecticut, USA; Jinghang Zhuo, Wei Ren, Xiusheng Yang
3:05pm	2500171	*Optimizing Lettuce Growth in Controlled High-Humidity Environments* - Presented By: **Jordan Wong**, McGill University, Montréal, Québec, Canada; Mark Lefsrud, Laurent Boucher
3:20pm	2500088	*Impacts of cucumber leaf digestate and inorganic fertilizers on hydroponically grown lettuce* - Presented By: **Patrick Kpai**, McGill University, Montreal, Quebec, Canada; Oluwafemi Adaramola, Philip Wiredu Addo, Sarah MacPherson, Mark Lefsrud
3:35pm		*BREAK*
3:45pm	2501104	*The Transmission Properties of Lutein Across the Visible Spectrum* - Presented By: **Anne Sophie Rufyikiri**, McGill University, Montreal, Quebec, Canada; Anne Sophie Rufyikiri, Philip Addo Wiredu, Sarah MacPherson, Alice Cherestes, Valérie Orsat, Mark Lefsrud
4:00pm	2500265	*Growth response and nutrient retention of kale in an indoor greenhouse using hydroponic conditions with biocompatible porous concrete substrate* - Presented By: **Tangina Tamanna**, Department of Bioresource Engineering, McGill University, Sainte-Anne-de-Bellevue, Montreal, Quebec, Canada; Dr. Mark Lefsrud, Dr. Sarah Anne MacPherson
4:15pm	2500908	*GrowDose: A Novel Software for Precision Ion-Based Nutrient Management in Closed-Loop Hydroponics* - Presented By: **Abdul Momin**, University of California Davis, USA; Saeed Karimzadeh, Md Shamim Ahamed
4:30pm	2500840	*Optimizing thermal and radiant exposure of a user-friendly UV-LED disinfection system integrated with automatic motion sensors for pathogen control* - Presented By: **Saman Zohrabi Alibeiglou**, McGill University, Sainte-Anne-de-Bellevue, Quebec, Canada; Saman Zohrabi, Sarah MacPherson, Shangpeng Sun, Mark Lefsrud
4:45pm	2500750	*Ultrafine bubbles for improving water use efficiency in soilless indoor plant production* - Presented By: **Sara Kuwahara**, California Polytechnic State University, San Luis Obispo, California, USA

141 Precision (SMART) Animal Management-LIGHTNING SESSION

Monday, 2:30pm - 5:00pm

Location: Provincial North

Technical Community: PAFS - Plant, Animal, & Facility Systems

Session Type: Lightning Oral Technical Session

Description: This lightning session provides a unique platform to discuss cutting-edge and innovative precision technologies for enhancing animal management practices.

Organizer: Josh Jackson, joshjackson@uky.edu

Sponsoring Committee: PAFS-40 Facilities & Systems Group

Moderators: Josh Jackson

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2501671	*Application of wireless wearable devices to monitor dairy cow behavior for improved management and welfare* - Presented By: **Trey Standiford**, University of Wisconsin - Madison, Madison, Wisconsin, USA; Trey Standiford, Dimuth Panditharatne, Hien Vu, Younghyun Kim, Christopher Y. Choi
2:42pm	2500530	*Assessing uniformity of incubators for broiler chickens* - Presented By: **Jessica Drewry**, Department of Agricultural and Biological Engineering, Mississippi State University, Starkville, Mississippi, USA; Drewry, J L., Mohammadi-Aragh, M. K., Elliot, K., Vechalapu, T. R.

2:49pm 2501204 *Mastitis detection in dairy cows via Adversarial autoencoder–driven data augmentation from the latent space* - Presented By: **Soo-Hyun Cho**, Department of Biosystems Machinery Engineering, Chungnam National University, Daejeon, Republic of Korea; Soo-Hyun Cho, Dae-Hyun Lee

2:56pm 2500781 *Evaluating Cow Ear Impedance to Deliver Effective Shock for Virtual Fence Application* - Presented By: **Jaycee Johnson**, University of Idaho, Moscow, Idaho, USA; Zachary DeLuca, Abby Fellows, Jaycee Johnson, Sydney Schoth, Dev Shrestha

3:03pm 2500845 *Application of Two Computer Vision Models on Commercial Finishing Pig Novel Data* - Presented By: **Mekali Felton**, University of Illinois Urbana-Champaign, Champaign, Illinois, USA; Mekali Felton, Feidra Gjata, Tawni Williams-Stroud, Anu Agarwal, Angela Green-Miller

3:10pm 2501585 *Respiration Sensing and Activity Tracking for Beef Cattle* - Presented By: **Ning Wang**, Oklahoma State University, Stillwater, Oklahoma, USA; Sam Mason, Kaci Ann Anderson

3:17pm 2501499 *Development of an IoT Enabled Device for Environmental Control In Livestock Structures* - Presented By: **Mobolaji Omobowale**, University of Ibadan, Nigeria; Ajayi D.A., Sijuade T.O., Alabi I. and Omobowale M.O.

3:24pm 2500903 *The Development and Enhancement of a Honeybee Colony Audio Early-Warning System* - Presented By: **I-Huai Lu**, National Taiwan University, Taipei, Taiwan

142 Sustainability and Biosecurity Management in Livestock and Poultry Facilities

Monday, 2:30pm - 5:00pm

Location: Civic Ballroom South

Technical Community: PAFS - Plant, Animal, & Facility Systems

Session Type: Oral Technical Session

Description: This session will include presentations from researchers, educators, and industry experts to share research experiences and discuss solutions for resource usage, sustainability, and biosecurity in livestock and poultry facilities.

Organizer: Rick Stowell, richard.stowell@unl.edu

Sponsoring Committee: PAFS-40 Facilities & Systems Group

Moderators: Rick Stowell

Time Pres. ID Presentation Title, Presenter, & Authors

2:35pm 2501621 *Laboratory-scale evaluation of ionization-based air inlet protection systems for poultry houses* - Presented By: **Angelo Alluag**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Angelo Alluag, Myra Martel, Roger Bolo, Bernardo Predicala, Karen Schwean-Lardner, Shelley Kirychuk, Brooke Thompson, Huiqing Guo, Lifeng Zhang

2:50pm 2501633 *Quantifying on-farm water use on a commercial broiler farm utilizing a rainwater harvesting system* - Presented By: **Carson Edge**, Auburn University, Auburn, Alabama, USA; Carson M. Edge, Jeremiah D. Davis, Jesse C. Campbell, Eugene H. Simpson

3:05pm 2501490 *DESIGN AND TESTING OF FORCED-HOT AIR FURNACES TO THERMALLY INACTIVATE THE HPAI VIRUS IN PACKAGED AND UNPACKAGED SHELL EGGS AT LARGE-SCALE POULTRY FACILITIES* - Presented By: **Ethan Burton**, University of Wisconsin-Madison, Mechanical Engineering Department, Madison, Wisconsin, USA; Ethan Burton, Gregory Nellis, Michael Cheadle, Sam Beffa

3:20pm 2501697 *Potential environmental benefits of supplementing protected blend of organic acids and essential oils in poultry diets in Canada* - Presented By: **Prince Agyemang**, McGill University, Montreal, Quebec, Canada

3:35pm *BREAK*

3:45pm 2500028 *Modelling Manure pH change using a newly developed pH model in Manure-DNDC* - Presented By: **Birk Li**, McGill University / Agriculture and Agri-Food Canada, Sainte-Anne-de-Bellevue, Quebec, Canada; Birk Li, Zhiming Qi, Andrew C. VanderZaag, Brian B. Grant, Ward N. Smith

4:00pm 2500671 *...size, production system and functional unit on milk carbon footprint in Bangladesh... life cycle assessment* - Presented By: **Md Elias Uddin**, Department of Animal Science, University of Connecticut, Storrs, Connecticut, USA; Md Sadakatul Bari, Mohammad Ashiqul Islam, Md Harun-ur Rashid, Md Elias Uddin

NO SHOW

NRES - Natural Resources & Environmental Systems

143 NRES-Advances in Environmental Systems POSTER SESSION

Monday, 5:00pm - 7:00pm
Location: Exhibit Hall
Technical Community: NRES - Natural Resources & Environmental Systems
Session Type: Poster Technical Session
Description: NRES Poster Session.
Organizer: Jaime Thissen, jaimethissen1@gmail.com
Sponsoring Committee: NRES-04 Program Committee
Moderators: Jaime Thissen

Poster#	Pres. ID	Presentation Title, Presenter, & Authors
1	2500121	*Development of Design Methodology for Agricultural Reservoirs Based on Climate Change Scenarios* - Presented By: **DongHyuk Joo**, Chonnam University, Gwangju, South Korea; Dong Hyuk Joo, Seung-Hwan Yoo, Ra Na
2	2500122	*Design of Agricultural Environmental Conservation Program Impact Assessment Platform Based on Carbon-Soil-Water-Energy-Food Nexus* - Presented By: **Ra Na**, Chonnam National University, Gwangju, Republic of Korea; Ra Na, Donghyuk Joo, Seung-Hwan Yoo, Sang-hyun Lee, Soo-Jin Kim, Seung-Jong Bae, Gyuhoon Choi, Jae-hoon Sung, Pu Reun Yoon, Jin-Yong Choi, Jeongwoo Son, Seung-oh Hur
3	2500147	*Monitoring and modeling sedimentation dynamics in river-tributary confluences using high-frequency remote sensing data and numerical modeling* - Presented By: **Tiffany Coogle**, University of Kentucky, Lexington, Kentucky, USA; Tiffany Coogle, Katye Berry, William Ford
4	2501549	*Evaluating machine learning for evapotranspiration estimation across diverse agroecosystems* - Presented By: **Darren Drewry**, The Ohio State University, Columbus, Ohio, USA; Sana Z. Shirazi, Darren T. Drewry
5	2501108	*Comparative Analysis of Soil Health and Greenhouse Gas Emissions Across Soil, Water, and Topography-Based Management Zones in Two Cropping Systems* - Presented By: **Raheleh Malekian**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada; Raheleh Malekian, Aitazaz A. Farooque, Qamar U. Zaman, Travis J. Esau, Ross Dwyer
6	2500295	*Quantitative Analysis of Runoff in Submerged Paddy Field Areas Using SWAT-Paddy* - Presented By: **Yeonji Jeong**, Kangwon National University, Chuncheon-si, Kangwon; Yeonji Jeong, Gwanjae Lee, Seoro Lee, Jeongho Han, Kyoung Jae Lim
7	2500362	*Analysis of High-temperature Air Environment of Wide Span Type & Venlo Greenhouses Using Computational Fluid Dynamics* - Presented By: **Chan-Min Kim**, Department of Smart Farm Engineering, Kongju National University, Chungcheongnam-do; Rack-Woo Kim. Seung-Hun Lee, Hee-Woong Seok, Su-Been Ahn, Sun-Hyoung Lee, Han Kim, Yun-Jeong Lee, Kyoung-Won Min, Yoon-Kyu Hur, Ji-Eun Kang
8	2500372	*A framework for evaluating pathogen and surrogate equivalence and case study: Bacillus persistence on various fomites* - Presented By: **Kayla Kendricks**, Michigan State University, East Lansing, Michigan, USA; Kendricks, Kayla, Mitchell, Jade
9	2500416	*NeuralFAO56: A data-driven Neural Network FAO56 Python Package for Irrigation Demand Estimation* - Presented By: **Adarsha Neupane**, Clemson University, Clemson, South Carolina, USA; Vidya Samadi
10	2500445	*Enhanced CDOM Estimation in Small Reservoirs Using Sentinel-2 Imagery: A Study on Classification and Regression-Based Resampling Techniques* - Presented By: **Jinuk Kim**, Konkuk University, Seoul, South Korea; Yonggwan Lee, Jeehun Chung, Yongwon Kim, Yongeun Park, Seongjoon Kim
11	2500450	*Development of a Satellite-Based Chlorophyll-A Estimation Model for Inland Lakes Using Oversampling Technique and Machine Learning* - Presented By: **Wonjin Jang**, Konkuk University, Republic of Korea; Jinuk Kim, Jeehun Chung, Yongwon Kim, Seongjoon Kim
12	2500451	*Evaluation of ecological flow recovery using PHABSIM maximum WUA and SWAT derived flow duration curves considering decades watershed environmental changes* - Presented By: **Seongjoon Kim**,

Konkuk University, Seoul, Republic of Korea; Seongjoon Kim, Yonggwan Lee, Jinuk Kim, Wonjin Jang, Yongwon Kim, Jeehun Chung

13 2500470 *Modeling Land Use and Climate Change Scenarios to Manage Water Quality in Integrated Agricultural-Urban Landscapes* - Presented By: **Alvee Bin Hannan**, University of Georgia, Athens, Georgia, USA; Alvee Bin Hannan, Whitney Pagan, Abolfazl Hojjat Ansari, Cibin Raj

14 2501276 *Impact of Feedstock Type and Pyrolysis Temperature on Biochar Performance for Nutrient Pollution Mitigation* - Presented By: **Francis Akyirem**, Penn State University, University Park, Pennsylvania, USA; Francis Akyirem, Daniel Ciolkosz, Ph.D., P.E.

15 2500486 *Optimizing Microaeration Rates in Anaerobic Digesters: Comparative Analysis Under Mesophilic and Thermophilic Conditions* - Presented By: **Doee Yang**, University of Wisconsin-Madison, Madison, Wisconsin, USA; Ellie Froelich, Nesli Akdeniz

16 2500817 *Simulating Upward and Downward Soil-water Flows from Buried Perforated Corrugated Pipes on Upland Fields using HYDRUS* - Presented By: **Jongsoon Kim**, Pusan National University, Miryang, Republic of Korea; Jongsoon Kim, Soon Hong Kwon, Ki-Yeol Jung, Sang Hun Lee

17 2500077 *Simulating Nature: Developing a Closed Artificial Sunlight Drying System for Fruits and Vegetables* - Presented By: **Pratik Nayi**, DTAIC, National Pingtung University of Science and Technology, Taiwan; Pratik Nayi, Ho-Hsien Chen

18 2500852 *Assessing Irrigation Distribution Uniformity with UAVs in California Almonds* - Presented By: **Jaya Suneja**, University of Wisconsin-Madison, Madison, Wisconsin, USA; Erica Edwards, Andrew Gal, Kyle Knipper, Micah Levinson, Conor Higgins, Mallika Nocco

19 2500924 *An Object-Based Image Analysis Approach to Map Animal Feeding Operations* - Presented By: **Becca Muenich**, University of Arkansas, Fayetteville, Arkansas, USA; Barira Rashid, Cole Clemmons, Joaquin Camacho, Becca Muenich

20 2500928 *Can geospatial data help to predict farm management data?* - Presented By: **Noah Rudko**, University of Arkansas, Fayetteville, Arkansas, USA; Noah Rudko, Rebecca Muenich

21 2500933 *Advancing Sustainable Practices in Québec Dairy Farms: Unlocking Local Data on Greenhouse Gas and Ammonia Emissions from Manure Storage* - Presented By: **Joahnn H. Palacios**, IRDA & Université Laval, Quebec City, Quebec, Canada; Sébastien Fournel, Stéphane Godbout

22 2500950 *Potential of Chicken Manure-Derived Microalgae Cultivation and Goat Manure W* - Presented By: **Atikur Rahman**, Prairie View A&M University, Prairie View, Texas, USA; Atikur Rahman, Anoop Valiya Veetil, Ripendra Awal, Anwar Adem, Ali Fares

NO SHOW

23 2501034 *Design and Development of a Clinostat for Large-Scale Crop Cultivation in Simulated Microgravity* - Presented By: **Hoonsoo Lee**, Chungbuk National University, Chungcheongbuk-do, Republic of Korea; Gwanggeun Song, Hoonsoo Lee, Byoung-Kwan Cho

24 2501068 *Evaluating soil amendments and soil electrical conductivity dynamics for lettuce under drip irrigation* - Presented By: **Erin Powell**, Michigan State University, East Lansing, Michigan, USA; Dr. Kumari, Soni, Dr. Dong,Younsuk

25 2501109 *Wading in the Stream: Industry Insights from Stream Restoration Professionals* - Presented By: **Noah Lane**, University of Kentucky, Lexington, Kentucky, USA; Noah Lane, John McMaine

26 2501195 *Advances in the sustainable production of biochar and biochar-based nanocomposites: Modern advancements and future insight* - Presented By: **Shristi Shefali Saraugi**, Purdue University, West Lafayette, Indiana, West Lafayette, Indiana, USA; Shristi Shefali Saraugi, Francis Asare, Subhanki Padhi, Rado Gazo, Ashutosh Singh, Winny Routray

27 2501227 *Precision Pest Monitoring in Asparagus Greenhouses using Deep Learning and IoT* - Presented By: **Po-Shao Chen**, National Taiwan University, Taiwan

28 2501292 *Evaluating the Effect of Saturated Buffer on Hydraulic Characteristics and Nutrient Loss in Northwest Ohio* - Presented By: **Charles Dochoff**, The Ohio State University, Columbus, Ohio, USA; Charles Dochoff, Dr. Vinayak Shedekar

29 2501344 *TRANSFORMING WILDFIRE SUSCEPTIBILITY ASSESSMENT USING ADVANCED HYBRID MACHINE LEARNING ALGORITHMS* - Presented By: **Muhammad Khan**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada; Muhammad Saadullah Khan, Aitazaz A. Farooque, Qamar Zaman, Kuljeet Grewal, Xander Wang

30 2501361 *Comparison and modeling of infiltration measurement devices for use in citizen science and the effects of vegetation in an established bioretention basin* - Presented By: **Megan Ransler**, Michigan State University, East Lansing, Michigan, USA; Dr. Dawn Dechand, Sebastian Hawkes, Ella Harrall

31 2501382 *Integrating Algal Turf Scrubber technology to optimize Aquaculture sustainability* - Presented By: **David Blersch**, Auburn University, Auburn, Alabama, USA; David Blersch, Gabriel Proano-Pena

32 2501407 *Modeling Drainage Flow and Phosphorus Losses in a Tile-Drained Field in Sweden Using RZWQM2-P* - Presented By: **Jinyu Wen**, McGill University, Sainte-Anne-de-Bellevue, Quebec, Canada; Jinyu Wen, Zhiming Qi, Jian Liu, Helena Aronsson, Hui Liu, Xiulu Sun

33 2501426 *Describing the Septic Tank System Microbiome and Resistome in Rural Southwest Virginia* - Presented By: **Emilie Sidelinger**, Virginia Tech, Blacksburg, Virginia, USA; Emilie Sidelinger, Sarah Price, Natasha Bell, Amy Pruden, Leigh Anne Krometis

34 2501442 *Evaluating the Performance of a Novel Subsurface Drip Irrigation System for Swine Wastewater Application* - Presented By: **Paige Seibert**, NC State University, Raleigh, North Carolina, USA; Paige Seibert, Chad Poole

35 2501529 *Valorizing Organic Waste: Assessing the Fertilization Potential of Black Soldier Fly By-Products in Tomato Cultivation* - Presented By: **Zong Liu**, , College Station, Texas, USA; Katayoun Pahlavanyali, Amirhossein Mahdaviarab, Ruiji Cheng, Nathan Kincaid, Mohammad Ruzlan Habib, Xiao Wang, Hui Wang, Zong Liu

36 2501710 *Regenerative agriculture to support soil health, productivity, and environmental outcomes* - Presented By: **Wendy Abbey**, Iowa State University, Ames, Iowa, USA; Wendy Abbey, Daniel Andersen, Carmen Gomes, Natasha Hoover, Michelle Soupir, Sara McMillan

37 2501533 *Implanting practices on Quebec vegetable farms to reduce pollutants loads from vegetable wash-water: A real case study* - Presented By: **Heidi Dayana Pascagaza Rubio**, Institut de recherche et de développement en agroenvironnement, Québec, Canada; Stéphane Godbout, Joahnn Palacios

38 2501545 *...avy Metals from Sewage Sludge Using Phytoremediation: A Sustainable Approach t... ...mediation* - Presented By: **Seyyed Ebrahim Hashemi Garmdareh**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada; Elham Mohamadian, Sasan Faramarzmanesh, Seyyed Ebrahim Hashemi Garmdareh

NO SHOW

39 2500883 *Design and Application of a Lab-on-Valve Platform for Advanced Aquaculture Water Analysis* - Presented By: **Yin-Hao Lai**, National Taiwan University, Taipei, Taiwan

40 2501317 *Quantifying Fertilizer Leaching and Nutrient Release Under Variable Soil Moisture Conditions* - Presented By: **Caden Wade**, Michigan State University, East Lansing, Michigan, USA; Caden Wade, Soni Kumari, Younsuk Dong

41 2501602 *Impacts of cost-effective and enviro-friendly additives on the reductions of greenhouse gas emissions from dairy manure* - Presented By: **Pramod Pandey**, University of California Davis, Davis, California, USA

42 2501444 *Health effects due to drinking water contaminated by disinfection byproducts (DBPs): A literature review for dose-response* - Presented By: **Isabelle DeLaet**, Michigan State University, East Lansing, Michigan, USA; Carly Gomez, PhD., Jade Mitchell, PhD.

43 2500383 *Evaluation of the Effects of Small Molecules Inhibitors on Fusarium oxysporum sp. vasinfectum: Experimental Methods and Results* - Presented By: **Lasan Manujitha Ukwatta Liyanage**, Texas A&M University, Texas, USA; Lasan Manujitha Ukwatta Liyanage, Gayan Abeysinghe, Aadhil Haq, Sandun Fernando

44 2500126 *Electrochemical-Driven Partial Denitrification Anammox (ePdNA) Process for Nitrogen Removal from Reverse Osmosis Concentrate* - Presented By: **Cyrus Li**, Virginia Tech, Blacksburg, Virginia, USA; Cyrus Li, Zhangtong Liao, Yewei Sun, Lei Shi, Huiyuan Zhu, Zhiwu Wang

45 2501716 *Effect of Sugar Kelp (Saccharina latissima) on Potato (Solanum tuberosum) Yield, Soil Health, and Greenhouse Gas Emissions* - Presented By: **Arishma Khan**, Dalhousie University, Truro, Nova Scotia, Canada

46 2500576 *Comparative Study of 1D and 3D models for Reservoir Outflow Prediction During Dam Failure* - Presented By: **Jimin Shim**, Seoul National University, Department of Rural System Engineering,

Seoul, South Korea; Jimin Shim, Jonghyuk Lee, Byunghun Seo, Dongsu Km, Yejin Seo, Dongwoo Kim, Yerim Jo, Won Choi

47 2500674 *Phosphoric Acid Activation of Biochar for Application in Sustainable Agriculture* - Presented By: **Tochukwu Ozor**, South Dakota State University, Brookings, South Dakota, USA; Ozor Tochukwu, Lin Wei, Anne Cidreira

48 2501493 *Development and Evaluation of L-THIA Sub-daily model for Water Use Assessment* - Presented By: **Gwanjae Lee**, ILEM Research Institute Inc., Chuncheon, Gangwon-do, South Korea; Seoro Lee, Kyoung Jae Lim

CBS - Circular Bioeconomy Systems

202 Enabling Technologies in Creating Circular Bioeconomy Systems

Tuesday, 9:30am - 12:00pm

Location: Willow East

Technical Community: CBS - Circular Bioeconomy Systems

Session Type: Oral Technical Session

Description: This session seeks innovations in digital technologies, biotechnology, material recovery (including resources, water, and energy) , and sustainable practices that enable and advance the transition toward a circular bioeconomy.

Organizer: Ziynet Boz, ZiynetBoz@ufl.edu

Sponsoring Committee: CBSI; **Co-Sponsors:** ITSC-318 Mechatronics & Biorobotics, MS-49 Crop Production Systems, Machinery, and Logistics, NRES-26 Sustainable Land Resources, NRES-27 Ag Byproducts & Animal Mortality Systems, PAFS-07/1 Agri-Industrial Facility Design and Operation, PAFS-30 Plant Syst

Moderators: Ziynet Boz

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500051	*Cascaded upcycling systems for wastepaper-based films and soft material production* - Presented By: **Kalavathy Rajan**, Texas Tech University, Lubbock, Texas, USA; Nur Hendri Wahyu Firdaus
9:50am	2500311	*Characterization of Growth Factors of Mycelium for Improving their Production as Alternative Packaging and Textile Biomaterials* - Presented By: **Sophie Robertson**, University of Guelph, Guelph, Ontario, Canada; Sophie Robertson, Malvika Sharma, Loong-Tak Lim, Guneet Kaur
10:05am	2500761	*Bio-based battery materials for circular energy storage systems* - Presented By: **Joe Sagues**, NC State University, Raleigh, North Carolina, USA
10:20am	2500682	*Multicell Pair Shock-Wave Electrodialysis for Recovering Nutrients and Chemicals from Waste Streams* - Presented By: **Yu-I Lin**, National Taiwan University, Taipei, Taiwan; Yu-I Lin, Po-Chih Tseng, Yupo J Lin, Shu-Yuan Pan
10:35am		*BREAK*
10:45am	2500184	*Ammonia recovery from anaerobically digested dairy wastewater facilitated by in-situ acid and base generation in a transmembrane electro-chemisorption system* - Presented By: **Lide Chen**, University of Idaho, Twin Falls, Idaho, USA; Ashish Kumar Das
11:00am	2501193	*In-Situ Biogas Upgrading Using a Self-Pressurized Methanogenic Reactor in a Two-Stage Anaerobic Digestion System for Renewable Natural Gas Production* - Presented By: **Teshan Habarakada Liyanage**, Department of Biological Systems Engineering, Washington State University, Pullman, Washington, USA; Teshan Udayanga Habarakada Liyanage, Sarah Witherrite, Liang Yu, Shulin Chen
11:15am	2501309	*Improving the Environmental, Economic, and Societal Sustainability of Farms by Harvesting Non-Marketable Tomato* - Presented By: **Adam Fuerst**, University of Florida, Gainesville, Floirda, USA; Sanjay Shukla, Kira Hansen
11:30am	2500544	*Effects of Growing Six Microgreen Species Hydroponically with Food Waste-Derived Hydrothermal Liquefaction Aqueous Phase on the Circular Bioeconomy* - Presented By: **Liam Reynolds**, University of Illinois Urbana-Champaign, Urbana, Illinois, USA; Brandon, Hollenback, Paul C. Davidson
11:45am	2501294	*Valorization of Oil Sand Tailings for Critical Metal Extraction- what Bioleaching could bring?* - Presented By: **Khyati Joshi**, York University, Toronto, Canada; Khyati Joshi, Sara Magdouli, Satinder Kaur Brar

EOPD - Education, Outreach, & Professional Development

203 Innovation and Integration in Education and Outreach-LIGHTNING PANEL

Tuesday, 9:30am - 12:00pm

Location: Willow Center

Technical Community: EOPD - Education, Outreach, & Professional Development

Session Type: Lightning Oral Technical Session

Description: This session provides opportunity for many individuals to share a variety of new and interesting experiences intended to infuse new ideas into education, outreach and professional development endeavors. The session will include multiple rounds of short lightning talks followed by a break after each set to allow for discussion among presenters and attendees.

Organizer: John Long, john.m.long@okstate.edu

Sponsoring Committee: EOPD-203 Undergraduate & Graduate Instruction; **Co-Sponsors:** EOPD-205 Engineering Technology & Management Education, EOPD-208 Extension

Moderators: Kevin Moore, David Mabie

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2501313	*Evaluation of Generative AI Tools for Lesson Planning in STEM* - Presented By: **Kevin Moore**, Oklahoma State University, Stillwater, Oklahoma, USA; Rachel Grimes, Kevin G. Moore
9:42am	2500142	*Creating Formative Assessments in Engineering Using AI* - Presented By: **Robert Hardin**, Texas A&M University, College Station, Texas, USA; Robert G. Hardin IV, Jaydeep M. Radadiya, Kelli M. Adam, Genaro Demuner-Molina
9:49am	2501573	*GenAI's Impact on Biosytems Engineering Graduate and Undergraduate Students* - Presented By: **Jeff Sadler**, Oklahoma State University, Stillwater, Oklahoma, USA
9:56am	2501515	*Leveraging Industry Career Pathways for Education Specializations in Agricultural Systems Management Curriculum* - Presented By: **Kathryn Boening-Ulman**, The Ohio State University, Columbus, Ohio, USA; Kathryn Boening-Ulman, Scott Shearer
10:03am		*DISCUSSION*
10:10am	2501252	*Can we make mass balances fun for everyone? Development of a mass balance and reactor card game for Biosystems Engineering* - Presented By: **Dawn Dechand**, Michigan State University, East Lansing, Michigan, USA
10:17am	2501707	*Strategies for North-South Collaboration in Modernizing African Agrifood Systems through Professional Societies- An Approach by ASABE AMAA Effort* - Presented By: **Klein Ileleji**, Purdue University, West Lafayette, Indiana, USA
10:24am	2501131	*Engaging with communities in the Global South to address climate change* - Presented By: **Claudiane Ouellet-Plamondon**, École de technologie supérieure - Université du Québec, Montreal, Quebec, Canada; Claudiane Ouellet-Plamondon, Sérgio Roberto Andrade Dantas, Carolina Moreno Londono, Diego Ramirez-Cardona
10:31am	2500494	*Drops of Water Make a Mighty Ocean: A Systems Thinking Approach to Thesis Writing* - Presented By: **Aavudai Anandhi**, Florida A&M University, Tallahassee, Florida, USA
10:38am		*DISCUSSION & BREAK*
10:50am	2501458	*Perceptions and Knowledge of Precision Agriculture Among University Level Students* - Presented By: **Chad Reynolds**, Sam Houston State University, Huntsville, Texas, USA; Chad A. Reynolds, Wyatt Duhon
10:57am	2500537	*Southeastern Vegetable Producers Possess Positive View of Precision Agriculture Technology* - Presented By: **Virginia Wayt**, Clemson University, Aiken, South Carolina, USA; Virginia Wayt, Kendall Kirk, Felipe Silva, Anastasia Thayer, Aaron Turner
11:03am	2500040	*Lifelong learning for practicing ag/bio/food engineers in Canada* - Presented By: **Claude Laguë**, University of Ottawa, Fac of Engineering, Ottawa, Ontario, Canada
11:10am		*DISCUSSION*

ES - Energy Systems

204 Thermochemical and Catalytic Conversion of Biomass to Biofuels and Chemicals

Tuesday, 9:30am - 12:00pm

Location: York Room

Technical Community: ES - Energy Systems

Session Type: Oral Technical Session

Description: The session would entertain topics pertinent to catalytic conversion of biomass to biofuels and/or syngas, and chemicals via thermochemical conversion methods including gasification, pyrolysis, liquefaction and other innovative techniques. High interest in the conversion of biomass to biofuels by thermochemical technologies

Organizer: Mi Li, mli47@utk.edu

Sponsoring Committee: ES-220 Bio-based Energy, Fuels and Products

Moderators: Hossein Jahromi

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500175	*Waste Plastics into Transportation Substitutes: A Comprehensive Study* - Presented NO SHOW h, University of Guelph, Guelph, Ontario, Canada; Salman Soltanian, George W. Huber, Animesh Dutta
9:50am	2500964	*drogen with in-process CO2 capture: A study on sorbent enhancement* - Presented NO SHOW niversity of Guelph, Guelph, Ontario, Canada
10:05am	2500261	*Design and Optimization of Nozzle Inclination Angle and Swirl Combustor in Low-tar Biomass (L NO SHOW mass Power Generation System Perspective* - Presented By: **Md Mashiur Rahman**, The Pennsylvania State University, State College, Pennsylvania, USA
10:20am	2500307	*ture Oxy-Steam Fluidized Bed Co-Gasification of Plastic Wastes and Biomass: Experimen NO SHOW imulation* - Presented By: **Hassan Khodaei**, , Auburn, Alabama, USA; Ashish Bhattarai, Hassan Khodaei, Sushil Adhikari
10:35am		*BREAK*
10:45am	2500909	*Co-upgrading of Pyrolysis and Waste Cooking Oil Optimization Using Box–Behnken Design* - Presented By: **Peerawat Wongsurakul**, Auburn University, Auburn, Alabama, USA; Peerawat Wongsurakul, Worapon Kiatkittipong, Tawsif Rahman, Nitchakul Hongloi, Sushil Adhikari
11:00am	2500629	*Prediction of syngas composition from steam gasification of hydrochar using machine learning integrated with particle swarm optimization and genetic algorithm* - Presented By: **Zeeshan Ul Haq**, McMaster University, Hamilton, Ontario, Canada; Zeeshan Ul Haq, Shakirudeen A Salaudeen
11:15am	2500940	*Hydrogen Generation via Dry Reforming of Corn Stover Pellets Using Corn Stover Biochar as Catalyst* - Presented By: **Ebenezer Adewola**, University of Alberta, Edmonton, Alberta, Canada; Ebenezer Adewola, Neelanjan Bhattacharjee, Amit Kumar

ESH - Ergonomics, Safety & Health

205 Advances in Farm Safety: Surveillance, Interventions, and Assistive Technologies

Tuesday, 9:30am - 12:00pm

Location: Cedar

Technical Community: ESH - Ergonomics, Safety & Health

Session Type: Oral Technical Session

Description: Safety and Risk management focus is needed on research or development projects involving various forms of electronic/digital technology in agriculture. This includes, but is not limited to, field and farmstead automation, robotics, driverless systems, and the associated safety and risk implications for the public and operators.

Organizer: Salah Issa, salah01@illinois.edu

Sponsoring Committee: ESH-04 Technology Exchange

Moderators: Aaron Etienne

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500650	*Electrocutions Associated with High Voltage Overhead Power Lines in Agricultural Workplaces Incident Analysis and Prevention Strategies* - Presented By: **Noah Haslett**, Purdue University, West Lafayette, Indiana, USA; Noah Joel Haslett, William E. Field, Mahmoud Nour
9:50am	2501314	*Using Core Body Temperature Sensors to Optimize Stair Stepper Workloads for PPE Heat Stress Evaluation* - Presented By: **Kevin Moore**, Oklahoma State University, Stillwater, Oklahoma, USA; Connor Colby, Kevin G. Moore

10:05am 2500526 *Agricultural Injury Surveillance Using the Florida Trauma Registry* - Presented By: **Madison Moore**, University of Florida, Gainesville, Floirda, USA; Madison Moore, Serap Gorucu, Nikolay Bliznyuk

10:20am 2501280 *Identifying Motivators and Barriers to Conducting Safety Trainings on Cattle Feedyards in the Midwestern United States* - Presented By: **Aaron Yoder**, Univ of Nebraska, Omaha, Nebraska, USA; Aaron Yoder, Suraj Adhikari, Cheryl Beseler, Athena Ramos

10:35am *BREAK*

10:45am 2500901 *Design and Fabrication of Ergonomic Auxiliary Handles for Agricultural Tools* - Presented By: **Felix Michael Oguche**, University of Missouri, Columbia, Missouri, USA; Felix Michael Oguche, Jianfeng Zhou, Karen E. Funkenbusch, Marcia C. Shannon, Noel Aloysius, Teng Teeh Lim

11:00am 2500410 *Effectiveness of Operator Protection Devices in Mitigating A TV Rollover Injuries* - Presented By: **Payam Farhadi**, UCD Faculty, Davis, California, USA; Payam Farhadi, Farzaneh Khorsandi

11:15am 2500715 *Development of Wet-Bulb Globe Temperature Prediction Methods Using Standard Meteorological Sources* - Presented By: **Minyoung Hong**, University of California, Davis, Davis, California, USA; Minyoung Hong, Farzaneh Khorsandi

11:30am 2500021 *Ergonomic Evaluation of Farm Machinery and the Environment in Rivers State Nigeria* - Presented By: **Idongesit Wobo**, National Agricultural Extension and Research Liaison Services, Ahmadu Bello University, Rivers State, Nigeria; Wobo, I. G., Firima, L.G. and Olanrewaju, T.O.

11:45am 2500482 *[illegible]t study on operational insight of oil palm farmers and Adoption of an ergonomic [illegible] operational safety* - Presented By: **Anita Ezeagba**, University of Manitoba, Canada; Chukwuemeka Jude Ohagwu, Chizoba Livinus Mbaja, Peter Ndukwe Igbeh, Benjamin Bernard Uzoejinwa, Violet Amarachukwu Ohagwu, Anita Ezeagba

NO SHOW

ITSC - Information Technology, Sensors & Control Systems

206 3D Machine Vision for Sensing and Automation

Tuesday, 9:30am - 12:00pm

Location: Provincial North

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Oral Technical Session

Description: Focuses on the development and application of3D imaging technologies for agricultural sensing and automation.

Organizer: Dongyi Wang, dongyiw@uark.edu

Sponsoring Committee: ITSC-312 Machine Vision

Moderators: Daniel Morris

Time Pres. ID Presentation Title, Presenter, & Authors

9:35am 2500757 *3D Point Cloud Reconstruction for Automated Mushroom Segmentation and Growth Monitoring* - Presented By: **Namrata Dutt**, University of Florida, Wimauma, Florida, USA; Namrata Dutt, Dr. Dana Choi, Dr. Won Suk Lee, Dr. Kevin Wang, Dr. Yiannis Ampatzidis

9:50am 2500816 *A high-throughput pipeline for 3D reconstruction of soybean root system architecture using macro-CT scanning* - Presented By: **Xuehai Zhou**, McGill University, Montreal, Quebec, Canada; Xuehai Zhou, Marc-Antoine Chiasson, Liwen Han, Davoud Torkamaneh, Pierre Dutilleul, Shangpeng Sun

10:05am 2500951 *A Synthetic Vision System for Accurate 3D Mushroom Pose Estimation Using Multi-View RGB-D Fusion* - Presented By: **Fan Wu**, North Carolina State University, North Carolina, USA; Fan Wu, Wenqiao Yuan

10:20am 2500562 *Optimizing Citrus Tree Detection: A Novel Improved Distance-Based Individual Tree Segmentation Method for Aerial LiDAR Data* - Presented By: **Wenhao Liu**, University of Florida, Gainesville, Floirda, USA; Wenhao Liu, Yiannis Ampatzidis

10:35am *BREAK*

10:45am 2501651 *Robust 3D Apple Localization in Robotic Harvesting Using Deep Learning and Spatial Clustering* - Presented By: **Siddhartha Bhattacharya**, Michigan State University, East Lansing, Michigan, USA; Siddhartha Bhattacharya, Chaaran Arunachalam, Kaixiang Zhang, Jiajia Li, Renfu Lu, Zhaojian Li

11:00am	2500561	*The Accuracy of Remote Sensing Technologies for Tree Height Estimation: A Comparative Evaluation in Citrus Orchards* - Presented By: **Wenhao Liu**, University of Florida, Gainesville, Floirda, USA; Wenhao Liu, Yiannis Ampatzidis, Benjamin Wilkinson
11:15am	2500489	*PDAM: Prompting Depth Anything Model for Fruit Surface Reconstruction With Monocular Vision* - Presented By: **Yuan Gao**, Zhejiang University, Hangzhou, P.R. China; Lijuan Xie, Yibin Ying
11:30am	2500659	*Streaming Incrementally Reconstructed Orchard Representations for Enhanced Situational Awareness in Teleoperation Through Virtual Reality* - Presented By: **Andrew Chesang**, Michigan State University, Michigan, USA; Andrew Chesang, Daniel Uyeh
11:45am	2500624	*Enhancing Apple Defect Detection Using 3D Vision for Online Quality Grading* - Presented By: **Jiajun Xu**, Michigan State University, East Lansing, Michigan, USA
12:00pm	2501039	*Dyrep-MAMBA: Enhancing Beef Cattle Weight Estimation with Multi-Task Feature Fusion for Practical Applications* - Presented By: **Chong Yao**, China Agricultural University, Beijing, China; Chong Yao, Wenlong Yin, Xue Tian, Gang Liu, Miao Zhang

207 Advanced Machine Learning-II

Tuesday, 9:30am - 12:00pm

Location: Provincial South

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Oral Technical Session

Description: Focuses on advanced machine learning techniques for plant and animal characteristics and behaviors.

Organizer: Joe Dvorak, joe.dvorak@uky.edu

Sponsoring Committee: ITSC-254 Emerging Information Systems

Moderators: Joe Dvorak

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500373	*Streamlining Dataset Development: A GUI for Automated Image Annotation in Wild Blueberry (Vaccinium angustifolium Ait.) with Multimodal Optimization* - Presented By: **Connor Mullins**, Dalhousie University - Faculty of Agriculture, Truro, Nova Scotia, Canada; Connor C. Mullins, Travis J. Esau, Riley Johnstone
9:50am	2501310	*Gap Filling in Leaf Wetness Data: Comparative Analysis of Machine Learning and Hybrid Model Approaches* - Presented By: **Shivani Rana**, Michigan State University, East Lansing, Michigan, USA
10:05am	2500827	*Accurate Pixel-Wise Object Detection Framework for Aerial Imagery* - Presented By: **Upama Mahato**, North Dakota State University, Fargo, North Dakota, USA; Upama S. Mahato, Navya Goli, Umamaheswara R. Tida, James Y. Kim
10:20am	2500916	*Automating Livestock Mixed Formulation and Feed Quality Control Using Semantic Segmentation* - Presented By: **Ifeanyi Nwaneri**, Michigan State University, Michigan, USA; Ifeanyi Nwaneri, Daniel Uyeh
10:35am		*BREAK*
10:45am	2500395	*Self-Supervised Root Insights: Advancing Root Phenotyping in Peanut Cultivars Under Drought Resistance* - Presented By: **Md Hasibur Rahman**, Auburn University, Auburn, Alabama, USA
11:00am	2501341	*Transforming Wildfire Susceptibility Assessment Using Advanced Hybrid Machine Learning Algorithms* - Presented By: **Muhammad Khan**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada; Aitazaz A. Farooque, Qamar Zaman, Kuljeet Grewal, Xander Wang
11:15am	2501409	*Enhancing Soil Compaction Prediction in Precision Agriculture Using Advanced Machine Learning Models* - Presented By: **Edwin Brokesh**, Kansas State University, Manhattan, Kansas, USA; Shaghayegh Janbazialamdari, Edwin Brokesh
11:30am	2501429	*Application of Unsupervised Change Detection Algorithms to Map Aquatic Vegetation Species Distribution in Constructed Wetlands* - Presented By: **Eduart Murcia**, University of Florida, Fort Pierce, Florida, USA; Eduart Murcia, Sandra Guzmán

11:45am	2501639	*Precision Detection of the Real-Time Health and Welfare Conditions of Pigs Using Deep Learning Techniques* - Presented By: **Melvin Hagonob**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada
12:00pm	2501610	*Distributed system for detection of coqui frogs in Hawaii* - Presented By: **Ghorban Ali Miarkiani**, University of Hawaii, Hawaii, USA; Ghorban Ali Miarkiani, Mohsen Paryavi, Daniel Jenkins

208 Biosensors and Bioinstrumentation for One Health

Tuesday, 9:30am - 12:00pm

Location: Simcoe

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Oral Technical Session

Description: This session provides attendees with the latest information on biosensor development and bioinstrumentation applications in One Health.

Organizer: Juhong Chen, jchen@ucr.edu

Sponsoring Committee: ITSC-230 Biosensors

Moderators: Juhong Chen

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500448	*...hored CRISPR/Cas12a sensing platform for the ultra-stable, on-site, and sensitive d... Salmonella Typhimurium in the supply chain* - Presented By: **Fei Jia**, Ocean University of China, Qingdao, China; Yanyan He, Qiuyu Jiang, Jingqi Shen, Yilin Qian, Zunying Liu, Fei Jia
9:50am	2500100	*Second Near-infrared Fluorescent Metal–Organic Framework Sensors for In Vivo Extracellular Adenosine Triphosphate Monitoring* - Presented By: **Shengchun Sun**, Zhejiang University, Hangzhou, Zhejiang Province, P.R.China; Shengchun Sun, Hong Hu, Yixian Wang
10:05am	2500384	*Development of a Nano-Biosensor Probe for Rapid Detection of Salmonella Using the flj Gene* - Presented By: **Kate Heinecke**, Michigan State University, Saint Paul, Minnesota, USA
10:20am	2500386	*Application of Gold Nanoparticle-Based Biosensor for the Rapid Detection of the hilA Gene in Salmonella* - Presented By: **Leah Wilson**, Michigan State University, East Lansing, Michigan, USA
10:35am		*BREAK*
10:45am	2500316	*Enhancing the magnetic nanoparticle-based sample preparation for foodborne pathogen detection through magnetic flocculation* - Presented By: **Evangelyn Alocilja**, Nano biosensors Laboratory, Department of Biosystems and Agricultural Engineering, Michigan State University; Global Alliance of Rapid Diagnostics, Michigan State University, East Lansing, Michigan, USA; Anthony James Franco, Evangelyn Alocilja
11:00am	2500380	*Rapid Detection of Carbapenem Resistance Genes blaKPC, blaNDM-1, and blaOXA-1 Using a Multi-array Plasmonic Nano-Biosensor* - Presented By: **Evangelyn Alocilja**, Michigan State University, East Lansing, Michigan, USA; Kaily Kao, Evangelyn C. Alocilja
11:15am	2500351	*Assessing Antibiotic Resistance in E. coli, K. pneumoniae, and E. cloacae Using Zeta Potential* - Presented By: **Jocelyn Cayen**, Michigan State University, Saline, Michigan, USA
11:30am	2500355	*Nucleic Acid Sensing Analysis Based on Integrated Microfluidic Chips for On-site Detection of Foodborne Pathogens* - Presented By: **Yuanyuan Zhu**, Zhejiang University, Hangzhou, Zhejiang Province, China; Yuanyuan Zhu, Jian Wu

NO SHOW

209 Digital Twins, DEM, and CFD Applications in Agriculture-LIGHTNING PANEL

Tuesday, 9:30am - 12:00pm

Location: Dufferin

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Lightning Oral Technical Session

Description: This session focuses on developing and applying computational simulations (DEM, FEM, etc.) for modeling and addressing current issues in agricultural and biological engineering.

Organizer: Hanwook Chung, hwchung@iastate.edu

Sponsoring Committee: ITSC-217 Computational Methods, Simulations & Applications

Moderators: Hanwook Chung

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500305	*Towards Physics-Based Digital Twins for Enhancing Particulate Tracking Systems in Agri-Food Prod* **NO SHOW** *y* - Presented By: **Amir Malvandi**, Department of Agricultural and Biological Engineering, University of Illinois at Urbana-Champaign, Urbana, USA; Mahdi Azizi, Chengbin Zhang, Yuanhui Zhang, Amir Malvandi
9:42am	2500842	*Digital Twin Method for Lifetime Prediction of Critical Components in Drip Irrigation Tape Production Line* - Presented By: **RenZhong Niu**, Shihezi University, Shihezi City, Xinjiang Province, China; RenZhong Niu, Zhigang Li, Qi Zhang, PeiLing Jin
9:49am	2501481	*Digital Twin Roadside Vegetation Management and Real-World Verification* - Presented By: **John Evans**, Purdue University, West Lafayette, Indiana, USA; Michael A Mardikes, John T Evans, Ethan M Brown, Nathan C Sprague, Timothy J. Wiegman
9:56am	2500523	*Soil compaction under cattle hoof using discrete element modeling (DEM)* - Presented By: **Mohammad Sadek**, California Polytechnic State University, San Luis Obispo, California, USA
10:03am		*DISCUSSION*
10:10am	2500685	*of the correlation between particle size distribution and generated load using discrete ele* **NO SHOW** *sented By:* **Hojae Yi**, Penn State University, University Park, Pennsylvania, USA; Heather Burkholder, Hojae Yi
10:17am	2500246	*Modeling of Electrostatic Sprayers for Optimization of Pesticide Spray Efficiency and Drift Reduction* - Presented By: **Matthew Herkins**, The Ohio State University, Columbus, Ohio, USA; Matthew Herkins, Lingying Zhao, Heping Zhu, Hongyoung Jeon
10:24am	2501094	*Computational Fluid Dynamics (CFD) Analysis of Phosphine Gas Distribution for Effective Fumigation in Grain-Filled Shipping Containers* - Presented By: **Adri Das**, Kansas State University, Manhattan, Kansas, USA
10:31am	2501154	*Design of Double Air Duct in Greenhouse Using CFD* - Presented By: **Yerim Jo**, Seoul National University, Seoul, South Korea; Jo, Yerim, Lee, Jong-Hyuk, Seo, Byung-Hun, Kim, Dongsu, Kim, Dongwoo, Seo, Yejin, Shim, Jimin, Choi, Won
10:38am		*DISCUSSION & BREAK*
10:50am	2501356	*A Computational Model of Sprayed Droplets from an Unmanned Aerial Application System* - Presented By: **Kevin Steele**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Kevin Steele, Jae Sung Park, Milos Zaric, Joe Luck, Yeyin Shi
10:57am	2501669	*Optimized Stall Design to Reduce Heat Stress in Dairy Cattle within Mechanically Ventilated Barns Using Computational Fluid Dynamics* - Presented By: **Hanwook Chung**, Iowa State University, Ames, Iowa, USA; Dimuth Panditharatne, Hanwook Chung, Nilroth Ly, Christopher Y. Choi
11:03am	2501667	*Design and Optimization of a Precision Air Jet Cooling System to Alleviate Heat Stress in Dairy Cattle Using Computational Fluid Dynamics* - Presented By: **Sahitha Karapitiya**, University of Wisconsin - Madison, Madison, Wisconsin, USA; Sahitha Karapitiya, Dimuth Panditharatne, Hanwook Chung, Christopher Y. Choi
11:10am	2500322	*Numerical simulation of moisture of corn stored in covered outdoor pile* - Presented By: **Adri Das**, Department of Mechanical & Nuclear Engineering, Kansas State University, Manhattan, Kansas, USA; Marvin Petingco, Mark Casada, Mingjun Wei, Dirk Maier, Younus Bhui Sabbir, Lester Pordesimo
11:17am		*DISCUSSION*

210 From Ideas to Commercialization-PANEL

Tuesday, 9:30am - 12:00pm

Location: Civic Ballroom North

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Panel Discussion

Description: An engineer entrepreneur will be selected to host the panel discussion, and 3-5 speakers with expertise in entrepreneurship from various industries will be invited to talk about how to bring ideas to commercialization. Q&A session with a short workshop on developing an elevator pitch for your research will follow. Two and a half hours will be reserved for this panel session.

Organizer: Evangelyn Alocilja, alocilja@msu.edu
Sponsoring Committee: ITSC-230 Biosensors; **Co-Sponsors:** E-2050 Global Engagement
Moderators: Evangelyn Alocilja
Panelists include: Evangelyn Alocilja, Michigan State University; Gurshagan Kandhola, Start-up Entrepeneur; Jian Jin, Purdue University; Keith Tinsey, HJV Equipment; Scott Osburn, University of Arkansas; John Chamberlin, Chamberlin Research

211 ITSC-Information Technology, Sensors & Control Systems POSTER SESSION B

Tuesday, 9:30am - 12:00pm
Location: Exhibit Hall
Technical Community: ITSC - Information Technology, Sensors & Control Systems
Session Type: Poster Technical Session
Description: Poster session for submissions to the ITSC division.
Organizer: Long He, luh378@psu.edu
Sponsoring Committee: ITSC-01 POSTER SESSION
Moderators: Long He

Poster#	Pres. ID	Presentation Title, Presenter, & Authors
1	2500604	*Deep Learning-Based Evaluation of Water Stress Levels in Sweet Potatoes Using RGB Images* - Presented By: **Soo Been Cho**, Department of Bio-industrial Machinery Engineering, Gyeongsangnam-do, Republic of Korea; Soobeen Cho, Jiwon Choi, Soleh Hidayat, Woosik Jeong, Woon-Ha Hwang, Young-son Cho, Geonwoo Kim
2	2500607	*PigME: Developing an App for Monitoring Emissions in Pig Husbandry – Feasibility and Challenges* - Presented By: **Andrea Costantino**, Institute of Animal Science and Technology, Universitat Politècnica de València, València, Spain; Daniel Alexander Méndez, Blanca Fajardo Viloria, Andrea Costantino, Salvador Calvet
3	2500635	*Building Energy Simulation-Based Prediction of THI in Mechanically Ventilated Broiler houses in South Korea* - Presented By: **Taehwan Ha**, Chungnam National University, South Korea, Daejeon, Korea; Taehwan Ha
4	2500425	*Rapid Estimation of Salmonella Concentration Using Magnetic Nanoparticles* - Presented By: **Finnian James**, Michigan State University, East Lansing, Michigan, USA; Finnian James, Anthony James Franco, Dr. Evangelyn C. Alocilja
5	2500653	*Cross-Facility Reliable Deep Learning Based Beef Marbling Assessment Via Unsupervised Domain Adaptation Regression* - Presented By: **Samuel Vinson**, University of Arkansas, Fayetteville, Arkansas, USA; Samuel Vinson, Dongyi Wang
6	2500654	*Point Cloud and Multi-View Deep Learning Approach for Poultry Weight Prediction* - Presented By: **Chung-Liang Chang**, National Pingtung University of Science and Technology, Neipu, Pingtung County, Taiwan; Chung-Liang Chang, Rui-Yi Xu
7	2500660	*Estimation of Water Activity in Homogenous Materials Using Multispectral Imaging* - Presented By: **Grace Akintan**, Michigan State University, USA; Grace Akintan, Daniel Uyeh
8	2500693	*BERRIGATION: Irrigation Management Smartphone App for Blueberry* - Presented By: **Jisun Lee**, Michigan State University, Michigan, USA; Jisun Lee, Cheyenne Sloan, Younsuk Dong
9	2500803	*ANN Modeling of Salmonella Inactivation on Pecan Halves Subjected to Intense Pulsed Light* - Presented By: **Ramana Gosukonda**, Fort Valley State University, Fort Valley, Georgia, USA; Kumudini Talari, Ajit Kumar Mahapatra, Ramana Murthy Gosukonda
10	2500874	*Design and simulation of single leg structure of bionic hexapod sugarcane harvesting robot* - Presented By: **Shaochun Ma**, China Agricultural University, Beijing, China; Wenzhi Li, Shaochun Ma, Jinzhi Ma, Baocheng Zhou, Chao Guo, Enze Wang
11	2500875	*Studies on the Combined Positioning Method Based on Adaptive Kalman Filter for Sugarcane Harvesters* - Presented By: **Jinzhi Ma**, China Agricultural University, Beijing, China; Jinzhi Ma, Shaochun Ma, Wenzhi Li, Baocheng Zhou, Sha Yang
12	2500882	*Instance Segmentation for Chamoe (Korean Melon) Cultivation Using YOLOv11 as a Step Toward Quadruped Robot Harvesting* - Presented By: **DoHyeon Lee**, Sejong University, Seoul, Korea; DoHyeon Lee, DongSeok Shin, SoonDuk Kwon, SeungUn Ha, Chang Hyeon Baek, Hyun Kwon Suh

13 2500887 *Development of an Embedded System for Measuring Greenhouse Structure Movements and a Predictive Model* - Presented By: **Jaesung Park**, Pusan National University, Miryang-si, South Korea; Gunhui Park, Eunji Jeong, Hyeonjun Hwang, Junghwa Park, Seokcheol Yu, Jaesung Park

14 2500936 *Integrated Observer-Based Kalman Filter and LQR Control with Lyapunov Stability Analysis for Tractor-Trailer Systems* - Presented By: **John Schueller**, University of Florida, Gainesville, Floirda, USA; Zi-Hao Zhang, John K. Schueller, Jane Jaejeong Shin

15 2500944 *Automated Cleaning Systems Effects On Long Term Oxygen Sensor Preservation* - Presented By: **Benjamin Shacklett**, University of Kentucky, Lexington, Kentucky, USA

16 2500957 *Autonomous Actuation of Robotic Arm for Precise Mechanical Weeding Based on Real-Time Weed Detection and Localization* - Presented By: **Samriddha Das**, North Dakota State University, Fargo, North Dakota, USA; Samriddha Das, Arjun Upadhyay, Xin Sun

17 2500997 NO SHOW *Ants (IFA) Mound Detection using UAS Images* - Presented By: **Anjin Chang**, Tennessee shville, Tennessee, USA; Anjin Chang

18 2501074 NO SHOW *ta Collection Using Low-cost System for Indoor Phenotyping* - Presented By: **Anjin Cha** University, Nashville, Tennessee, USA; Anjin Chang

19 2501033 *MONITORING OF PEAR TISSUE BROWNING DURING STORAGE USING MAGNETIC RESONANCE IMAGING* - Presented By: **Seong Min Kim**, Jeonbuk National University, Jeonju-si, Republic of Korea; Jeoun Woo Lee, Sooyeon Lim, Jin Su Lee

20 2501046 *2D LiDAR-based worker detection in orchards using attention-enhanced 1D-CNN* - Presented By: **Jintack Jeon**, Department of Agricultural Machinery Engineering, Chungnam National University, Daejeon, Republic of Korea; Jintack Jeon, Gookhwan Kim, Dae-hyun Lee

21 2501052 *Fertigation System for Closed-Loop Hydroponic Tomato Cultivation: Integrating Crop Water Demand Estimation and Ion-specific Nutrient Management* - Presented By: **Hak-Jin Kim**, Seoul National University, Seoul, Republic of Korea; Min-Seok Gang, Hak-Jin Kim, Sung Kwon Park

22 2501164 NO SHOW *ROSPECT and Machine Learning with Hyperspectral Remote Sensing for Monitori n Content* - Presented By: **Jianfeng Zhou**, University of Missouri; Fengkai Tian, Curtis J. Ransom, Jianfeng Zhou, Tim Reinbott, Gurbir Singh, Jasmine Neupane, Noel Aloysius, Kenneth A. Sudduth

23 2501205 *Strawberry maturity estimation using one-shot learning* - Presented By: **Baek-Gyeom Seong**, Department of Biosystems Machinery Engineering, Chungnam National University, Daejeon, Republic of Korea; Baek-Gyeom Seong, Seung-Woo Kang, Tae-Sin Lee, Dae-Hyun Lee

24 2501231 *Understanding How Emerging Agricultural Technologies Impact Cybersecurity and Societal Risks – and What to Do about It* - Presented By: **Jenn Johnson**, Kuma, Manassas, Virginia, USA

25 2501235 *The status of precision agriculture adoption and ranking the barriers by AHP analysis(Case Study: Chaharmahal va Bakhtiari Province, Iran)* - Presented By: **Priyanka Mali**, Pennsylvania State University, State College, Pennsylvania, USA; Sajad KarimiKia, Priyanka Rajendra Mali, Shirin Ghatrehsamani

26 2501236 *Mapping Root Growth of Fraser Fir (Abies Fraseri) using electrical impedance and resistance tomography technology* - Presented By: **Janus Grivins**, Michigan State University, East Lansing, Michigan, USA

27 2501346 NO SHOW *Gaussian Splatting-based navigation framework for agriculture* - Presented By: **ShengDa** State University, Raleigh, North Carolina, USA

28 2501386 *Real-time Phragmites Detection in Drone Imagery on Edge Device* - Presented By: **Yeyin Shi**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Wenxin Liu, Kevin Steele, Md Didarul Islam, Yeyin Shi

29 2501402 *High-Resolution Drone Imagery and Machine Learning for Predicting Soybean Grain Quality* - Presented By: **Blessing Ademola**, University of Missouri - Columbia, Columbia, Missouri, USA; Blessing Ademola, Jianfeng Zhou, Tian Fengkia, Guojie Ruan

30 2501430 *Monitoring Growth of Christmas Trees Using an Unmanned Ground Vehicle and Machine Learning* - Presented By: **Pranav Vedasendur Senthilvel**, Michigan State University, East Lansing, Michigan, USA

31 2501440 *Non-Destructive Assessment of Drought Stress in Strawberries Using Vis-NIR Spectral Measurement* - Presented By: **Daeseo Park**, Chungnam National University, Daejeon, South Korea; Byoung-Kwan Cho, Hangi Kim, Muhammad Arief Akbar

32 2501541 *Improving 3D Point Cloud Volume Estimation for Livestock Monitoring* - Presented By: **Karla Ladino**, University of Kentucky, Lexington, Kentucky, USA; Karla S. Ladino, Tara Bose, Michael P. Sama

33 2501568 *Based 3D Imaging and Machine Learning for Canopy and Berry Cluster Volume Estimation* - Presented By: **Manoj Karkee**, Cornell University, Ithaca, New York, USA; Priyanka Upadhyaya, Manoj Karkee, Achyut Paudel

NO SHOW

34 2501603 *bus Robot for Egg Collection and Sorting in Cage-Free Chicken Housing* - Presented B Michigan State University, East Lansing, Michigan, USA; Benjamin Smith, Kate Wernicke, Sid Bhattacharya, Juan Carlier, James Williams, Bowen Wang, Yuxuan Li, Syed Kazmi, Aria Mahinfallah, Carter Ostrowski, Daniel Morris

NO SHOW

35 2501692 *End-Effector Localization Utilizing Simultaneous Camera Streams on Soft Robotic Apple Harvester* - Presented By: **Ariel Ramos**, Washington State University, Pullman, Washington, USA; Ariel Ramos, Syed Usama Bin Sabir, Ryan Dorosh, Dr. Manoj Karkee, Dr. Ming Luo

36 2501664 *Grapevine Leaf Spectral Variability: Influence of Leaf Orientation and Sun Geometry* - **Ramos**

NO SHOW

37 2501620 *Fruit-peduncle pairs matching of strawberry using Hungarian algorithm* - Presented By: **Tae-Sin Lee**, Department of Biosystems Machinery Engineering, Chungnam National University, Republic of Korea; Tae-Sin Lee, Seung-Woo Kang, Baek-Gyeom Seong, Dae-Hyun Lee

38 2501683 *Enhanced Piglets Monitoring with a Multiview Camera System* - Presented By: **Xiao Yang**, Michigan State University, East Lansing, Michigan, USA; Xiao Yang, Anil Bhujel, Mk Bashar, Madonna Benjamin, Daniel Morris

39 2501687 *al Multispectral Imaging and Deep Learning for Hessian Fly Infestation Early Detection* **n Li**, University of Idaho, Moscow, Idaho, USA; Jingshu Wang, Kwaku Opoku-Ware, Liujun Li, Steven Odubiyi, Sanford Eigenbrode

NO SHOW

40 2501693 *Monitoring: Techniques, Site-Selection and Challenges* - Presented By: **Ernesta Hunter Hi** M University, Tallahassee, Florida, USA; Ernesta Hunter Hickman, Aavudai Anandhi

NO SHOW

41 2500466 *A Machine Vision System for Online Detection of Catfish Fillets Towards Automated Preparation for Individual Quick Freezing* - Presented By: **Yuzhen Lu**, Michigan State University, East Lansing, Michigan, USA

42 2500313 *Navigating Data Rights and Ethics in Precision Agriculture: Challenges, Perspectives, and Future Directions* - Presented By: **Ziwen Yu**, University of Florida, Gainesville, Floirda, USA; Ziwen Yu

MS - Machinery Systems

213 Application Technology Innovations for Crop Protection Product and Fertilizer

Tuesday, 9:30am - 12:00pm

Location: Dominion South

Technical Community: MS - Machinery Systems

Session Type: Oral Technical Session

Description: Innovations in application technologies are important to protect crops from its harms by suppressing or controlling weeds/pests/diseases and promote growth and production by providing better growing environments and conditions. Innovations are keys to improve crop protection product and fertilizer applications while reducing their impact in the environment. This session hosts innovation in application technologies to advance crop protection product and fertilizer applications.

Organizer: Rex Ruppert, rex.ruppert@cnhind.com

Sponsoring Committee: MS-23/6 Application Sys & US TAG ISO TC23/SC6

Moderators: Rex Ruppert

Time Pres. ID Presentation Title, Presenter, & Authors

9:35am 2500321 *Slick or Stiff: How Suspension Lubrication Affects Vehicle Dynamics on a Large Off-Road Vehicle* - Presented By: **Grace Bjustrom**, Iowa State University, Ames, Iowa, USA; Grace Bjustrom, Bailey Adams

9:50am 2500663 *Economic Analysis of Novel Granular Spot Applicator* - Presented By: **Craig MacEachern**, Dalhousie University, Truro, Nova Scotia, Canada; Craig MacEachern, Travis Esau, Scott White, Qamar Zaman, Aitazaz Farooque

10:05am 2500460 *A Comprehensive Assessment of Fertilizer Response Across Diverse Nutrient Application Strategies for Enhanced Crop Vigor and Yield* - Presented By: **Rahul Singh**, Kansas State University, Manhattan, Kansas, USA; Rahul Singh, Ajay Sharda

10:20am 2501013 *Development and Evaluation of Directed Energy Systems for Precision Weed Control* - Presented By: **Muhammad Usama Yaseen**, Department of Biosystems and Agricultural Engineering, Oklahoma State University, Stillwater, Oklahoma, USA; Muhammad Usama Yaseen, John M. Long, Ning Wang, Jeff Sadler, Liberty Galvin

10:35am *BREAK*

10:45am 2500525 *Optimization and evaluation of electrostatic sprayers and their effects on pesticide deposition inside dense canopy plants* - Presented By: **Matthew Herkins**, The Ohio State University, Columbus, Ohio, USA; Matthew Herkins, Lingying Zhao, Heping Zhu, Hongyoung Jeon, Jose Castilho-Theodoro

11:00am 2501184 *Development of a Self-Propelled Electric Sprayer for Electrostatic Spraying on Oil Seed Crops* - Presented By: **Swagatika Priyadarshini Mohanty**, Department of Agricultural and Food Engineering, IIT Kharagpur, West Bengal, India; Swagatika Priyadarshini Mohanty, Hifjur Raheman

11:15am 2500329 *Laboratory Testing of a Variable Metering System for Poultry Litter Conveyance* - Presented By: **Cody Mathis**, University of Georgia, Tifton, Georgia, USA; Cody Mathis, Wesley Porter, Whitney Pagan, Joshua McGrath

11:30am 2500633 *Using a Robotic Platform for Canopy-wise Sequential Defoliation in Cotton and its Effect on Fiber Quality* - Presented By: **Aashish Karki**, Department of Plant and Environmental Sciences, Clemson University, Clemson, South Carolina, USA; Michael Marshall, Van Patiluna, Gilbert Miller, Jun Luo, Mathew Cutulle, Edward Barnes, Joe Mari Maja

214 Machinery Systems and Task Optimization Through Data Analysis

Tuesday, 9:30am - 12:00pm

Location: Huron

Technical Community: MS - Machinery Systems

Session Type: Oral Technical Session

Description: This session will be about the collection of data and its analysis while conducting crop production tasks. This data collection and analysis can be for precision ag requirements or machinery management/task optimization.

Organizer: Ed Brokesh, ebrokesh@ksu.edu

Sponsoring Committee: MS-49 Crop Production Systems, Machinery, and Logistics

Moderators: Ce Yang

Time Pres. ID Presentation Title, Presenter, & Authors

9:35am 2501642 *Assessing Toolbar Location's Impact on Autonomous Regulation in Row Crop Planters* - Presented By: **Ajay Sharda**, Kansas State University, Manhattan, Kansas, USA; Peiretti, Jose, Sharda, Ajay

9:50am 2501471 *Monitoring Tractor Fleets: Insights from Three Years of CANBUS Data Collection* - Presented By: **Michele Mattetti**, Università di Bologna, Bologna, Italy

10:05am 2500495 *An Analysis on the Performance of Round Baling Systems using CANbus Data* - Presented By: **Katie McDowell**, Penn State University, State College, Pennsylvania, USA; Katie McDowell, Jude Liu

10:20am 2501445 *Electrifying Agriculture: Evaluating Tractor Electrification with a Data-Driven Approach* - Presented By: **Massimiliano Varani**, Department of Agricultural and Food Sciences – Alma Mater Sudiorum - University of Bologna, Bologna, Italy; Varani M., Mattetti M., Intrevado F.

10:35am *BREAK*

10:45am 2501203 *Development of the Motor Speed Controller Integrating Kalman Prediction Algorithm to Predict Axle Torque of Electric Tractor during Agricultural Operations* - Presented By: **Abu Ayub Siddique**,

Dept. of Biosystems Machinery Engineering, Chungnam National University, Daejeon, Republic of Korea; Md. Abu Ayub Siddique, Seung-Min Baek, Hae-Na Lee, Min-Ha Lee, Yong-Joo Kim

11:00am 2501202 *Development of a MBD Simulation Model for Axle Torque Prediction of an Electric Agricultural Vehicle* - Presented By: **Minjong Park**, Chungnam National University, Daejeon, Republic of Korea; Min-Jong Park, Jong-Dae Park, Cheol-Woo Yang, Min-Jae Park, Yong-Joo Kim

11:15am 2501584 *Analysis of efficiency and power requirements for a hydrogen fuel-cell tractor* - Presented By: **Hyeon-Ho Jeon**, Chung-Nam National University, Yuseong-Gu, Dae-Jeon; Jong-Dae, Park, Min-Jong, Park, Cheol-Woo, Yang and Yong-Joo, Kim

11:30am 2501043 *Big data-based entropy of wheat combine harvester for cross-regional operation* - Presented By: **Xingyu Gao**, China Agricultural University, Beijing, China; Shuo Liang, Xingyu Gao, Jiawei Xu, Caicong Wu

11:45am 2501397 *Research Harvestor Data Collection System Development* - Presented By: **Thomas Bartholomew**, North Carolina State University, Raleigh, North Carolina, USA; Thomas Bartholomew, Dr. Jason Ward

NRES - Natural Resources & Environmental Systems

215 Advances in Agrohydrological Sustainability through Modeling: Tools-HYBRID SESSION

Tuesday, 9:30am - 12:00pm

Location: Kenora

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Hybrid Session-submitted abstracts and guest speakers

Description: In the pursuit of sustainable agricultural practices, the integration of cutting-edge modeling techniques and Unmanned Aerial System (UAS) technologies has emerged as a powerful approach to enhance agrohydrological sustainability. This technical session aims to explore the latest developments, methodologies, and applications that harness the potential of modeling and UAS tools to address critical challenges in agricultural water management under the present and changing future climate. Topics of interest include, but are not limited to:

- Hydrological Modeling: Modeling approaches to simulate hydrology and water quality within agricultural landscapes (fields and watersheds) under a variety of agricultural practices.
- UAS Applications: Utilization of UAS for collecting high-resolution spatial data related to soil and crop health.
- Climate change adaptation: Modeling approaches to simulate effects of climate-smart agricultural practices on crop production and hydrology under changing future climate.
- Data Integration and Analysis: Methodologies for integrating diverse datasets into comprehensive agrohydrological models.
- Decision Support Systems: Advancements in developing decision support tools that integrate modeling and UAS information to assist farmers, water resource managers, and policymakers in optimizing agricultural water management practices.

Organizer: Sayantan Samanta, ssamanta@tamu.edu

Sponsoring Committee: NRES-21 Hydrology Group

Moderators: Sayantan Samanta, Arun Bawa

Time Pres. ID Presentation Title, Presenter, & Authors

9:35am 2500114 *Enhancing Accessibility and Reproducibility of Agroecosystem Modeling Research through Open-Source Web Tools* - Presented By: **Arun Bawa**, Texas A&M AgriLife Research, Temple, Texas, USA; Arun Bawa, Katie Mendoza, Raghavan Srinivasan

9:50am 2501416 *Enhanced Crop Yield Predictions and Water Management via Coupled Hydrological and Crop Growth Models* - Presented By: **Vaishali Sharda**, Kansas State University, Manhattan, Kansas, USA; Mahekpreet Kaur, Vaishali Sharda

10:05am 2500157 *Statistical Analysis of the Impact of Weather Parameters on Wild Blueberry Yield (A Case Study; Nova Scotia)* - Presented By: **Mona Golabi**, Shahid Chamran University of Ahvaz, Truro, Nova Scotia, Canada; Mona Golabi, Travis Esau

10:20am 2500285 *Deploying OpenET to assess consumptive use from field to water entity scales across Eastern Snake Plain Aquifer* - Presented By: **Dinesh Gulati**, University of Idaho, Boise, Idaho, USA; Meetpal Kukal, Dinesh Gulati, Phil Blankenau

10:35am *BREAK*

10:45am Guest Speaker *Machine Learning and Proximal Sensing to Advance Field-Scale Estimation of Evapotranspiration* - Presented By: **Darren Drewry**, Ohio State University, Columbus, Ohio, USA; Darren T. Drewry, James F. Cross, Sana Shirazi, Srishti Gaur

11:10am 2500013 *Evaluation of Evapotranspiration Simulations from the U.S. National Agroecosystem Model using OpenET Data* - Presented By: **Kelly Thorp**, USDA-ARS, Temple, Texas, USA; Kelly Thorp, Michael White, Nilesh Shinde, Colton Flynn, Natalia Cerkasova, Jeffrey Arnold

216 Drainage Design, Monitoring, and Modeling

Tuesday, 9:30am - 12:00pm

Location: Dominion North

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: With the increased importance of soil drainage in agricultural landscapes, there is growing interest in design, monitoring and modeling of drainage systems in agricultural (and in some cases non-agricultural) landscapes. The field of drainage research is constantly evolving with several major advances in recent years. This session invites presentation topics that advance the science, practice, and education of drainage across diverse landscapes and climates. Authors are encouraged to submit presentations based on (but not limited to) the following topics:

- Drainage expansion in northern latitudes.
- Case studies showing unique application of drainage modeling, drainage design, and drainage monitoring.
- Modeling of surface and/or subsurface drainage systems.
- Innovative approaches to simulate the underlying physical, chemical, or biological processes in agricultural drainage systems (e.g. hydraulics, hydrology, water quality, crop response, soil salinity).
- Improvements or enhancements of existing models for better representation of drainage processes.
- Model applications in watersheds/regions dominated by surface/subsurface drainage.

Organizer: Mark Williams, mark.williams2@usda.gov

Sponsoring Committee: NRES-23 Drainage Group; **Co-Sponsors:** NRES-21 Hydrology Group, NRES-28 Ecological Engineering

Moderators: Mark Williams, Manal Askar

9:35am 2500198 *Effect of drainage spacing refinements in SWAT model on field- and watershed-scale hydrology* - Presented By: **Vinayak Shedekar**, Department of Food, Agricultural, and Biological Engineering, The Ohio State University, Columbus, Ohio, USA; Fariba Babaeian, Asmita Murumkar, Margaret Kalcic, Kevin King, Ahmed Awad, Vinayak Shedekar

9:50am 2500989 *Linking water table fluctuation to soil hydraulic properties and subsurface drainage. A case study from Ohio, USA* - Presented By: **Vinayak Shedekar**, Department of Food, Agricultural and Biological Engineering, College of Food, Agriculture and Environmental Sciences, The Ohio State University, Columbus, Ohio, USA; Ahmed Awad, Manal Askar, Jedediah H. Stinner, Kathryne R. Rumora, Kevin King, Vinayak Shedekar

10:05am 2501650 *Simulating performance of subsurface drainage systems under future climate – a case study from Northwest Ohio* - Presented By: **Vinayak Shedekar**, The Ohio State University, Columbus, Ohio, USA; Vinayak Shedekar, Ahmed Abdelnabi, Elizabeth Schwab, Toni Chinchar, Meghan Bhanoo, Manal Askar, Babak Dialameh, Asmita Murumkar

10:20am 2501371 *e Vulnerability Assessment Using Hydro-Geomorphologic and Climatic Data Analyses: A* NO SHOW *Flow Assessment Emphasis for a Coastal EFR* - Presented By: **Sudhanshu Panda**, University of North Georgia, Oakwood, Georgia, USA

10:35am *BREAK*

10:45am 2500421 *Evaluating the Impact of Soil Compaction on Subsurface Tile Drain Efficiency in Intensively Cropped Fields* - Presented By: **Daniel Dikio**, McGill University, Sainte-Anne-de-Bellevue, Quebec, Canada

11:00am 2500507 *QUANTIFYING THE IMPACT OF MANAGEMENT PRACTICES ON SURFACE AND SUBSURFACE FLOW FROM TILE-DRAINED FIELDS USING LSTM MODELING* - Presented By: **Bill Ford**, University of Kentucky, Lexington, Kentucky, USA; Nabil Al Aamery, William (Bill) Ford, Kevin W. King

11:15am 2500726 *Using Machine Learning Models to Predict Phosphorus Loads in Drainage Discharge* - Presented By: **Harmanpreet Singh Grewal**, McGill University, Montreal, Quebec, Canada; Harmanpreet Singh Grewal, Chandra A. Madramootoo, Deepak Mishra

11:30am 2500290 *Evaluation of Changes in Watershed Runoff Characteristics Following Multipurpose Farmland Conversion: A SWAT-paddy Modeling Approach* - Presented By: **Sun Min Wi**, Kangwon National University, Republic Of Korea; Sun Min Wi, Junyoung Lee, Seoro Lee, Gwanjae Lee, Kyoung Jae Lim

217 Extension: Empowering our Stakeholders through New Technologies and Machine Learning Techniques

Tuesday, 9:30am - 12:00pm

Location: Elgin

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Inclusion of an extension session that can bring different stakeholders for discussion (e.g., panel) and/or presentations for what their objectives and impacts are and how we can work together to empower them for a changing climate. How to increase adoption of new technologies.

Organizer: Sandra Guzman, sandra.guzmangut@ufl.edu

Sponsoring Committee: NRES-24 Irrigation; **Co-Sponsors:** NRES-245 Microirrigation

Moderators: Vivek Sharma

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2501500	*A 3D Flood Risk Management Framework for Reservoir Downstream Region Using Terrain Generative AI and Semantic Segmentation Method* - Presented By: **Jonghyuk Lee**, Seoul National University, Seoul, South Korea; Jong-hyuk Lee, Siwon Kim, Sang-ik Lee, Byung-hun Seo, Dongsu Kim, Dongwoo Kim, Yerim Jo, Jimin Shim, Won Choi
9:50am	2500941	*Integrated Flood Susceptibility and Vulnerability Analysis for Sustainable Urban Infrastructure Planning: Case Study of West and North DFW Metroplex* - Presented By: **Fouad Jaber**, Texas A&M AgriLife, Dallas, Texas, USA; Yufan Zhang, Fouad Jaber
10:05am	2500980	*Climate-Smart Irrigation Strategies to Sustainably Maximize Potato Yield in Rain-Fed Agriculture: A Case Study in Prince Edward Island, Canada* - Presented By: **Mariaelisa Polsinelli**, McGill University, Agriculture and Agri-Food Canada, Montreal, Quebec, Canada; Morteza Mesbah, Zhiming Qi, Yefang Jiang
10:20am	2500867	*Linking access to private drinking water system treatment, demographics, and water quality in southwest Virginia* - Presented By: **Justin Lytle**, Virginia Tech, Blacksburg, Virginia, USA; Justin Lytle, Leigh-Anne Krometis, Erin Ling
10:35am		*BREAK*
10:45am	2500066	*Digitalization Potentials in the Dairy Value Chain for Inclusive Growth in Uganda* - Presented By: **Grace Modupe Adebo**, Ekiti State University, Ado-Ekiti, Nigeria; Kabagambe Bernard, Grace Modupe Adebo

218 Nature-Based Solutions: Innovations in Research and Application

Tuesday, 9:30am - 12:00pm

Location: Kent

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Nature-based solutions (NBS) incorporate natural features and processes to protect or sustainably use land and water resources, while incorporating socio-environmental concerns to improve communities and the ecosystems they inhabit. NBS will become strategically important as risks increase to both natural and built systems from climate change and land use conversion. This session seeks to discuss research in NBS including novel NBS, quantification of benefits of NBS, policy aspects regarding the use or implementation of NBS, social considerations of NBS, and application/implementation of NBS, such as green infrastructure, land conservation, and coastal installations. We would welcome global presentations from industry and academia and from applications in all kinds of landscapes, including agricultural, urban, and mixed-use.

Organizer: Kira Hansen, kira.hansen@kimley-horn.com

Sponsoring Committee: NRES-21 Hydrology Group; **Co-Sponsors:** NRES-25 Streams, Reservoirs, and Wetlands Group, NRES-26 Sustainable Land Resources, NRES-28 Ecological Engineering

Moderators: Kira Hansen, Whitney Pagan

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2500801	*A Review on the Representation of Green Stormwater Infrastructure (GSI) in Commonly Used Hydrologic Models and Systems* - Presented By: **Rudolf Angel Ngangalem**, Texas A&M University College Station, USA; Dr. Fouad Jaber, Dr. Rabi Mohtar
9:50am	2500806	*Climate-Adaptative Nature-Based Strategies for Flood Mitigation and Nutrient Reduction in Agricultural Watersheds* - Presented By: **Raj Cibin**, Pennsylvania State University, State College, Pennsylvania, USA; A H Ansari, Alfonso Mejia, Raj Cibin
10:05am	2500766	*Evaluating the Water Quality Performance of a Subsurface Gravel Weland Treating Stormwater Runoff* - Presented By: **Molly Landon**, North Carolina State University, Raleigh, North Carolina, USA
10:20am	2500905	*Evaluating the role of integrated agricultural-reservoir systems on water quality* - Presented By: **Danna Villarreal**, University of Arkansas, Fayetteville, Arkansas, USA; Danna Villarreal, Ting Liu, Todd Steissberg, Rebecca Muenich
10:35am		*BREAK*
10:45am	2500327	*Potential of Various Beet (Beta vulgaris subs. vulgaris) Varieties to Remediate Salt Impacted Agricultural Soils* - Presented By: **Leif van Lierop**, University of Minnesota, St Paul, Minnesota, USA; Amanda Son, Bo Hu
11:00am	2500836	NO SHOW *ted Solutions for Sustainable Soil Management and Ecosystem Restoration* - Presented **u**, Arizona State University, Tempe, Arizona, USA

219 Nutrient Transport and Cycling: Measurement and Modeling

Tuesday, 9:30am - 12:00pm

Location: Wentworth

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: This session solicits presentations on all aspects of nutrient (N and P) cycling and transport measurement and modeling at plot, field and watershed scales in agricultural and urban systems. The focus will be on nitrogen and phosphorus, but other nutrients that affect agricultural productivity and water quality will also be considered.

Organizer: Rabin Bhattarai, rbhatta2@illinois.edu

Sponsoring Committee: NRES-22 Soil Erosion and Water Quality

Moderators: Rabin Bhattarai, Subhasis Giri

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2501418	*Evaluating the Effectiveness of BMPs in Reducing Phosphorus Loads Using SWAT-O and SWAT-TM Models: A Case Study of the Gully Creek Watershed, Ontario* - Presented By: **Jaskaran Dhiman**,

University of Guelph, Guelph, Ontario, Canada; Rituraj Shukla, Jaskaran Dhiman, Ramesh Rudra, Prasad Daggupati, Shiv Prasher, Pradeep Goel

9:50am 2501120 *...Nitrogen Management and Water Quality in Sandy Soils through DSSAT CERES-M... ...ork and Precision Irrigation Approach* - Presented By: **Rakesh Singh**, University of Florida, Gainesville, Florida, USA

NO SHOW

10:05am 2500837 *A novel CNN-based approach for soil nutrient prediction using hyperspectral imaging* - Presented By: **Niharika Vullaganti**, North Dakota State University, Fargo, North Dakota, USA; Niharika Vullaganti, Billy G. Ram, Xiaomo Zhang, Carlos B. Pires, William Aderholdt, Paul Overby, Xin Sun

10:20am 2500668 *Sensitivity analysis for phosphorus source attribution in an agricultural watershed using SWAT* - Presented By: **Hector Fajardo**, North Carolina State University, Raleigh, North Carolina, USA; Rebecca Muenich, Daniel Obenour, Natalie Nelson

10:35am *BREAK*

10:45am 2500613 *Crop Diversity as an Adaptation to Changing Rainfall Patterns: Measuring and Modeling Greenhouse Gas Emissions and Soil Nutrients* - Presented By: **Théo Humbeeck**, McGill University, Sainte-Anne-de-Bellevue, Québec, Canada; Théo Humbeeck, Michael Yongha Boh, O. Grant Clark, Jan F. Adamowski, Cynthia M. Kallenbach

11:00am 2500160 *Assessing rhizosphere effect and nutrient concentration of colza genotypes* - Presented By: **Riley Lawson**, Institute Agro Rennes and North Carolina State University, Rennes, France and Raleigh, NC; Riley Lawson, Edith Le Cadre, Mathieu Emily

11:15am 2501336 *Carbon Storage and Greenhouse Gas Emissions from Land Application of Municipal Organics* - Presented By: **Grant Clark**, Faculty of Agriculture and Environmental Sciences, McGill University, Ste-Anne-de-Bellevue, Quebec, Canada; Michael Boh, Theo Humbeek, Orsborne Grant Clark

220 Ontario Perspective on Sustainable Manure Management-GUEST SPEAKERS

Tuesday, 9:30am - 12:00pm

Location: Birchwood Ballroom

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Guest Speaker Session

Description: Manure land application can contribute to soil nutrient imbalances, particularly in regions that have many large-scale animal productions. When manure production exceeds the nutrient needs of surrounding fields, the excess can lead to environmental concerns, while transporting manure to more distant fields can be cost prohibitive. This session will address regional nutrient management issues, featuring experts from local government agencies, extension, research, and industry, who will share their perspectives and explore potential solutions. A newly developed manure treatment technology decision-support tool will also be presented. The session will conclude with a panel discussion, providing interactive dialogue and knowledge exchange opportunities.

Organizer: Teng Teeh Lim, limt@missouri.edu

Sponsoring Committee: NRES-27 Ag By-products & Animal Mortality Management

Moderators: Teng Teeh Lim, Richard Stowell

Time Pres. ID Presentation Title, Presenter, & Authors

9:35am Guest Speaker *Ontario Livestock Manure Management Perspective – efforts in nutrient management and regulations* - Presented By: **Dale McComb Wilson**, Ontario Ministry of Agriculture, Food and Agribusiness, Guelph, Ontario, Canada; Matt Wilson

10:00am Guest Speaker *Comprehensive research and data to consider manure management and treatment technologies* - Presented By: **Andrew VanderZaag**, Agriculture & Agrifood Canada, Ottawa, Ontario, Canada

10:25am Guest Speaker *Efforts of Ontario livestock industry in environmental and economic sustainability* - Presented By: **Christoph Wand**, Ontario Ministry of Agriculture, Food and Agribusiness, Elora, Ontario, Canada

10:50am *BREAK*

11:00am Guest Speaker *Ontario's AgriSuite Nutrient Management Decision Support Tools* - Presented By: **Christine Brown**, Ontario Ministry of Agriculture, Food and Agribusiness, Guelph, Ontario, Canada

11:15am Guest Speaker *Application and potential of Manure Tech Decision Support Tool* - Presented By: **Jacob Hickman**, University of Arkansas, Fayetteville, Arkansas, USA; Varma Vempalli

11:35am Panel Discussion/Q&A

221 Water Management and Soil Health under Water Scarcity and Extreme Events

Tuesday, 9:30am - 12:00pm

Location: Civic Ballroom South

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Water scarcity and extreme weather events continue to be concerns for agricultural producers and the public. Water management decisions can be made and planned for to address these likelihoods but application of soil health practices in many land uses can also change and/or improve what water management decisions must be made. With improved soil health and water management, water scarcity and extreme weather events can be better navigated.

Organizer: Carolyn Jones, carolyn.jones@usda.gov

Sponsoring Committee: NRES-21 Hydrology Group; **Co-Sponsors:** NRES-21 Hydrology Group, NRES-22 Soil Erosion and Water Quality, NRES-24 Irrigation Group, NRES-242 Surface Irrigation & Water Supply, NRES-25 Streams, Reservoirs, and Wetlands Group, NRES-26 Sustainable Land Resources

Moderators: Asmita Murumkar, Sushant Mehan

Time	Pres. ID	Presentation Title, Presenter, & Authors
9:35am	2501647	*Mitigating evaporation loss from water storages: Ideas from the Australian Cotton Industry* - Presented By: **Michael Scobie**, University of Southern Queensland, Australia; Elsie Hudson, Justine Baillie, Derek Long, Sarah Seton, Erik Schmidt, Pam Pittaway
9:50am	2501599	*Concurrent irrigation pauses can create stream flow pulses for fish during critical low-flow periods* - Presented By: **Md Redwan Khan**, Washington State University, Pullman, Washington, USA; Md Redwan Ahmad Khan, Bhupinderjeet Singh, Michael P. Brady, Jonathan Yoder, Joseph Cook, Georgine Yorgey, Kirti Rajagopalan
10:05am	2501107	*Evaluating Water Productivity in Topographically Diverse Agricultural Fields under Rainfed and Supplemental Irrigation Conditions* - Presented By: **Raheleh Malekian**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada; Raheleh Malekian, Nauman Yaqoob, Aitazaz A. Farooque, Travis J. Esau, Gurjit S. Randhawa, Ross Dwyer
10:20am	2500059	*Evaluation of SCS-Curve Number Method under Different Tillage Practices to Enhance Estimation and Modeling* - Presented By: **Umar Javed**, Department of Agricultural and Biosystems Engineering, South Dakota State University, Brookings, South Dakota, USA; John McMaine, Kristen Blann, Philip Adalikwu, Todd Trooien, Sushant Mehan, Hankui Zhang
10:35am		*BREAK*
10:45am	2500418	*Increased water retention from soil carbon gain is insufficient to result in a tangible positive change in agricultural water budgets* - Presented By: **Dinesh Gulati**, , Boise, Idaho, USA; Dinesh Gulati, Meetpal S. Kukal
11:00am	2500006	*Evaluation of Broccoli and Cantaloupe Water Use and Productivity under Different Irrigation Rates, Methods, and Soil Conditions in Arizona* - Presented By: **Peter Waller**, Biosystems Engineering Department, University of Arizona, Maricopa, Arizona, USA; Diaa Eldin M. Elshikha, Elsayed A. Elsadek, Said Attalah, Peter Waller, Douglas Hunsaker, Debankur Sanyal, Charles Sanchez, Randy Norton, Clinton Williams, Kelly R. Thorp, Shaddy Alshaarh, Bhupinder Singh, Ethan Orr

PAFS - Plant, Animal, & Facility Systems

222 PAFS-Plant, Animal, & Facility Systems POSTER SESSION

Tuesday, 9:30am - 12:00pm

Location: Exhibit Hall

Technical Community: PAFS - Plant, Animal, & Facility Systems

Session Type: Poster Technical Session

Description: This is the poster session for all Plant, Animal, & Facility Systems Committees.

Organizer: Suzanne Leonard, smleona4@ncsu.edu
Sponsoring Committee: PAFS-01 POSTER SESSION; **Co-Sponsors:**
Moderators: Suzanne Leonard

Poster#	Pres. ID	Presentation Title, Presenter, & Authors
43	2501561	*Using aerial imagery and deep learning to create an anonymized dataset of broiler farm locations in Alabama* - Presented By: **Md Min-ha-zul Abedin**, Auburn University Biosystems Engineering, Auburn, Alabama, USA; John Linhoss, Tanzeel Rehman, Carson Edge
44	2501459	*Online calculators for computing ventilation requirements of dairy buildings* - Presented By: **Neslihan Akdeniz**, University of Wisconsin-Madison, Madison, Wisconsin, USA; Neslihan Akdeniz
45	2500808	NO SHOW *Macromolecule-Based Multi-Pool Decomposition Models for Animal Slurry under Amb ons* - Presented By: **Birk Li**, McGill University / Agriculture and Agri-food Canada, Sainte-Anne-de-Bellevue, Quebec, Canada; Birk Li, Zhiming Qi, Laniel Melodie, Yanni F. Sandra, Ulrica McKim, Ward N. Smith, Andrew C. VanderZaag
46	2501425	NO SHOW *itigate methane emissions from liquid manure* - Presented By: **Andrew VanderZaa** gri-Food Canada, Ottawa, Ontario, Canada
47	2500721	*Evaluating LED Lighting Flicker in Poultry Barns for Improved Performance* - Presented By: **Qiang Zhang**, University of Manitoba, Winnipeg, Manitoba, Canada; Uduak Edet, Qiang Zhang, Wei Jia, Van Doan
48	2500686	*Investigation of Concrete Degradation from Exposure to Acidified Swine Slurry* - Presented By: **Marie-Michelle Corbeil**, IRDA, Quebec City, Quebec, Canada; Marie-Michelle Corbeil, Patrick Brassard, Erika Yukari Nakanishi, Stéphane Godbout
49	2500349	*Soil quality assessment following multi-year manure application and cover crop practices* - Presented By: **Teng Lim**
50	2500244	*Electrolyzed Water for Improving Biosecure Entry Systems* - Presented By: **Teng Lim**, Univerisity of Missouri, Missouri, USA; Rana Das, Moh Moh Thant Zin, Zonggang Li, Teng Teeh Lim
51	2500286	NO SHOW *f Small-Scale Smart Pig Engineering Experimental & Demonstration Facility for Integra arbon Emissions in Livestock Facilities* - Presented By: **SunHyoung Lee**, Department of Agriculture Engineering, Kongju National University, Chungcheongnam-do, Republic of Korea; Rack-Woo Kim, Su-Been Ahn, Seung-Hun Lee, Chan-Min Kim, Hee-Woong Seok, Han Kim, Ji-Eun Kang, Yun-Jeong Lee, Yoon-Kyu Hur
52	2500104	*Passive flux sampler to measure ammonia emissions: sorbent material comparison* - Presented By: **Angela M Trivino**, McGill University, Montreal, Quebec, Canada; Angela M. Trivino, Patrick Brassard, Stéphane Godbout, Vijaya Raghavan
53	2501173	*Use of Magnetic Graphene Oxide Nanoparticles for Decontamination of Deoxynivalenol in Feed Grains* - Presented By: **Bernardo Predicala**, Prairie Swine Centre Inc., Saskatoon, Saskatchewan, Canada; Alvin Alvarado, Darren Korber
54	2501436	*Study on the Growth and Quality of Pakchoi under Non photosynthetically Effective Radiation in Different Light Intensity Environments* - Presented By: **Jingjin Zhang**, Shanghai Jiao Tong University, Shanghai, China; Ximeng Zheng, Lingyan Zha, Yuanyuan Tian, Haolin Wang, Jingjin Zhang
55	2501300	*Hydrophobic CuS nanoparticle entrapment and release from lignin-derived nanoparticles* - Presented By: **Cristina Sabliov**, LSU and LSU AgCenter, Baton Rouge, Louisiana, USA
56	2500487	*Phenology Modeling for Greenhouse Hydroponic Tomato* - Presented By: **Henry Zhu**, University of Florida, Gainesville, Floirda, USA; Henry C. Zhu, Vakhtang Shelia, Ying Zhang, Caroline Blanchard, Jessica G. Paranhos, Daniel E. Wells, Brandon Higgins
57	2501097	*Nutrition and Flavor Analysis of Nile Tilapia and Cherry Tomatoes Grown in Different Aquaponics Treatments* - Presented By: **Grace Hohn**, Auburn University, Auburn, Alabama, USA; Grace Hohn
58	2500035	NO SHOW *al nutrition on hop latent viroid infected Cannabis sativa* - Presented By: **Patrick Kpai** Montreal, Quebec, Canada; Oluwafemi Adaramola, Philip Wiredu Addo, Sarah MacPherson, Mark Lefsrud
59	2500308	*Influence of iron fertilizer form and concentration on bioelectricity and methane emission from hydroponic plant microbial fuel cells* - Presented By: **Shuyao Wang**, McGill University, Montreal, Quebec, Canada; Shuyao Wang, Yvan Gariepy, Ademola Adekunle, Vijaya Raghavan

60 2500033 *Development and Testing of a Wind-Pollination Drone for Greenhouse Tomatoes* - Presented By: **Qiang Shi**, Shanghai Open University, Shanghai, China; PuQi Liu, Qiang Shi, Bin Wang, Lu You, Yong Liu, Yongzhong Zhang

61 2500233 *Airflow analysis of double-duct system in semi-closed glass greenhouses using computational fluid dynamics* - Presented By: **Sangik Lee**, Kyungpook National University, Daegu, South Korea; Jaewon Choi, Sunyoung Yeo, Seoyun Kim, Hyeon Ryu, Yerim Jo, Won Choi

62 2500342 *r Pressure Deficit (VPD) with Cultivation Room Air Distribution* - Presented By: **Walter S** NO SHOW onsulting, Huntington, New York, USA

63 2501457 *Engineering Violaxanthin De-Epoxidase to Improve Photoprotective Efficiency* - Presented By: **Hannah Rockwell**, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA; Dr. Laurie Leonelli, Jake Harris

64 2501714 *Empowering Farmers with Artificial Intelligence for Climate-Smart Agriculture: Revolutionizing Potato Disease Detection* - Presented By: **Avneet Kaur**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada; Avneet Kaur, Gurjit S. Randhawa, Aitazaz A. Farooque, Hassan Afzaal, Harmanpreet Singh

65 2501713 *nt simulation by leveraging bench-scale tests for hydroponic* - Presented By: **Michael Bor** NO SHOW

66 2501695 *Solar Power Desalination Integrated Humidification-Dehumidification Greenhouse for Mediterranean Climates* - Presented By: **Aidan Ferguson**

67 2500156 *Development of Novel Artificial Sunlight Drying System with a Concept of Sunshine Anytime to Replace Sun Drying* - Presented By: **Pratik Nayi**, National Pingtung University of Science and Technology, Taiwan, Taiwan; Pratik Nayi, Ho-Hsien Chen

PRS - Processing Systems

223 Physical and Chemical Properties of Food, Agricultural and Biological Materials I

Tuesday, 9:30am - 12:00pm

Location: Willow West

Technical Community: PRS - Processing Systems

Session Type: Oral Technical Session

Description: Physical and chemical properties of food, agricultural and biological materials that include current and modern cutting-edge technologies in measurement.

Organizer: Deandrae Smith, smit4870@purdue.edu

Sponsoring Committee: PRS-701 Physiochemical Properties of Biological Pr; **Co-Sponsors:** PRS-03 Processing Systems Standards Oversight

Moderators: Clairmont Clementson, Emmanuel Baidhe

Time Pres. ID Presentation Title, Presenter, & Authors

9:35am 2500022 *Revealing the Influence of Supercooling and Pressure in Pressure-Shift Freezing on Freshwater Surimi Gel Properties* - Presented By: **Sinan Zhang**, Zhejiang University; Mcgill University, Hangzhou, China; Sinan Zhang, Hosahalli S. Ramaswamy, Songming Zhu, Yong Yu

9:50am 2500054 *Effect of Sun and Solar Drying on the Proximate Composition and Mineral Properties of Zobo Leaves* - Presented By: **Akindele Folarin Alonge**, University of Uyo, Uyo, Akwa Ibom, Nigeria

10:05am 2500055 *Effect of Drying Methods on the Drying Kinetics, Proximate Analysis and Functional Properties of Yellow Cassava (Manihot Esculenta)* - Presented By: **Akindele Folarin Alonge**, University of Uyo, Uyo, Akwa Ibom, Nigeria

10:20am 2500661 *Impact of Thermal and Nonthermal Process Technologies on Canola Seed Quality* - Presented By: **Thirukumaran Ramesh**, Department of Biosystems Engineering, University of Manitoba, Winnipeg, Manitoba, Canada; Thirukumaran Ramesh, Chyngyz Erkinbaev

10:35am *BREAK*

10:45am 2500800 *Variation in microstructure, and quality of Larimichthys crocea frozen by liquid nitrogen spray during storage as affected by temperature, sample volume and depth* - Presented By: **Yuxiao Mao**,

College of Biosystems Engineering and Food Science, Zhejiang University, Hangzhou, Zhejiang, China; Yuxiao Mao, Hosahalli S. Ramaswamy, Ting Xiao, Hongyue Li, Yong Yu, Songming Zhu

11:00am 2500854 *Enhancing wheat seed germination and reducing Cadmium uptake through dielectric barrier discharge - Atmospheric cold plasma treatment in hydroponic system* - Presented By: **Dr. Janie Moore**, Texas A&M University, College Station, Texas, USA; Dr. Shuyu Liu, Luke Whiteley

11:15am 2501002 *Cold Plasma-based Nonthermal Technology for Improving Functionalities of Pea Proteins* - Presented By: **Mohamad Mehdi Heydari**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Mohamad Mehdi Heydari, Mina Movasaghi, Federica Higa, Michael Nickerson, Venkatesh Meda, Lifeng Zhang

11:30am 2501307 *Enhancing Cooking Quality of Canadian Pulse Grains using Infrared and Microwave Treatments: Novel 3D Multiscale Approach of X-ray Micro-CT Technology* - Presented By: **Maheshika Jayasinghe**, Department of Biosystems Engineering, University of Manitoba, Winnipeg, Manitoba, Canada; Chyngyz Erkinbaev

11:45am 2501338 *Inactivating Ascochyta rabiei spores with fungicidal plasma activated water produced with an innovative liquid-phase plasma discharge technology* - Presented By: **Robinson Junior Ndeddy Aka**, University of Idaho, Moscow, Idaho, USA; Robinson Junior Ndeddy Aka, Sheng haiqing, Dinithi Mohotti, Yuan Yuan, Pascal Deuel, Benjamin Miller, Sarah Wu

12:00pm 2501482 *Oil-assisted thermal dehydration of whole egg: Impact on albumin and yolk dehydration efficiency and quality profile* - Presented By: **Emmanuel Cobbinah-Sam**, McGill University, Ste-Anne-de-Bellevue, Quebec, Canada; Emmanuel Cobbinah-Sam, Idaresit Ekaette

224 Physical Properties and Modeling Related to Crop and Feed Drying, Handling, and Storage

Tuesday, 9:30am - 12:00pm

Location: Linden

Technical Community: PRS - Processing Systems

Session Type: Oral Technical Session

Description: Physical properties and modeling related to crop and feed drying, handling, and storage. The session deals with various modern aspects of measurement and modeling where physical properties are the integral part.

Organizer: Marvin Petingco, mpetingco@ksu.edu

Sponsoring Committee: PRS-702 Crop & Feed Processing & Storage; **Co-Sponsors:** PRS-701 Physiochemical Properties of Biological Pr

Moderators: Ma. Cristine Concepcion Ignacio, Shikhadri Mahanta

Time Pres. ID Presentation Title, Presenter, & Authors

9:35am 2500454 *Evaluating rice and corn breakage during impact loading* - Presented By: **Weronika Kruszelnicka**, Bydgoszcz University of Science and Technology, Bydgoszcz, Poland; Weronika Kruszelnicka, Mateusz Fankidejski, Kingsly Ambrose, Andrzej Tomporowski

9:50am 2500324 *Influence of moisture content on compression and impact damage of corn kernels* - Presented By: **Carl Wassgren**, Purdue University, West Lafayette, Indiana, USA; Anna Porto, Thomas Goetze, Johnson Adegboyega, Owen Wu, Zhengpu Chen, Ashu Tamrakar, Carl Wassgren, Kingsly Ambrose

10:05am 2500973 *Kinetic model-based evaluation of sugar beet harvesting month for long-term storage stability of sucrose* - Presented By: **Rajpreet Kaur Goraya**, Lethbridge Polytechnic, Lethbridge, Alberta, Canada; Rajpreet Kaur Goraya, Chandra B. Singh

10:20am 2501183 *Modeling Moisture Sorption Isotherms of Selected Philippine Rice Varieties* - Presented By: **Ma Cristine Ignacio**, University of the Philippines Los Banos, Philippines; Mary Louise Pascual

10:35am *BREAK*

10:45am 2501330 *Bulk Density Increase and Rebound for Wheat and Fuzzy Cottonseed Under Repeated Confined Uniaxial Compression* - Presented By: **Aaron Turner**, Clemson University, Clemson, South Carolina, USA; Aaron Turner, George Dyck, Kevin Johnson, Michael Montross, Adam Rogers

11:00am 2500684 *Assessment of a New Nondestructive Method to Measure Rice Chalk Content Based on Rough Rice Properties* - Presented By: **Griffiths Atungulu**, University of Arkansas System, Fayetteville, Arkansas, USA; Christabel Tachie, Chaitanya Pallerla, Dongyi Wang

11:15am 2500999 *Development of wireless monitoring and automated aeration control system for sugar beet conditioning in outdoor piles* - Presented By: **Chandra B Singh**, RDAR Research Chair in Agricultural Engineering & Technology, Lethbridge Polytechnic, Alberta, Canada; Senthilkumar Thiruppathi, Shubham Subrot Panigrahi, Mohit Singla, Chandra B. Singh

11:30am 2501326 *Minimizing Shrink Loss in Potatoes During Long-term Storage* - Presented By: **Sunday Olakanmi**, Advanced Postharvest Technology Centre, Lethbridge Polytechnic, Canada; Sunday J. Olakanmi, Mohit Singla, Chandra B. Singh

E-2050 - Global Engagement

226 Technology Trends and Career Opportunities in the U.S. and Korea-HYBRID

Tuesday, 2:30pm - 5:00pm

Location: Civic Ballroom North

Technical Community: E-2050 - Global Engagement

Session Type: Hybrid Session-submitted abstracts and guest speakers

Description: This session aims to explore current technological trends in agricultural and biological engineering while identifying career opportunities in both the U.S. and Korea. It is designed to foster collaboration between agricultural and biological engineers in the U.S. and Korea, as well as promote international partnerships between Korea and other countries.

Organizer: Jaehak Jeong, jeongj@tamu.edu

Sponsoring Committee: E-2050 Global Engagement

Moderators: Jaehak Jeong, Anjin Chang

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	Guest Speaker	*Current Status of Robot and Data-Driven Digital Agriculture Research in Korea* - Presented By: **Ghiseok Kim**, Seoul National University, Seoul, South Korea
3:05pm	Guest Speaker	*Adaptation and value creation of land and water for our Globe* - Presented By: **Seong Joon Kim**, Kunkook University, Seoul, South Korea
3:35pm		*BREAK*
3:45pm	2500436	*Development of Tractor Control Algorithm using Simulations* - Presented By: **Gyuha Han**, Department of Biosystems Engineering, Seoul National University, Seoul, South Korea; Young-Jun Park, Jin Woong Lee
3:55pm	2500447	*Estimation of fish assessment index (FAI) based on multiple machine learning algorithms for the aquatic ecosystem in South Korea* - Presented By: **Yongwon Kim**, Konkuk University, Seoul, Republic of Korea; Yongwon Kim, Yonggwan Lee, Jeehun Chung, Jinuk Kim, Wonjin Jang, Seongjoon Kim
4:05pm	2500449	*A cloud-assisted automated machine learning framework for soil moisture and agricultural drought monitoring* - Presented By: **Jeehun Chung**, Konkuk University, Seoul, South Korea; Jeehun Chung, Yonggwan Lee, Jinuk Kim, Wonjin Jang, Yongwon Kim, Seongjoon Kim
4:15pm	2501180	*Attention-LSTM-Based Emulation of Expert Climate Control in Strawberry Greenhouses* - Presented By: **Yu-Jin Jeon**, Kyung Hee University, Yongin, Republic of Korea; Yu-Jin Jeon, Hyein Lee, So Jin Park, Dongkyu Lee, Dae-Hyun Jung
4:25pm	Guest Speaker	*Student Presentations Determined at AIM*

EOPD - Education, Outreach, & Professional Development

227 Identifying Common Attributes of an Agricultural and Biological Engineering Graduate-RAP

Tuesday, 2:30pm - 5:00pm

Location: Willow Center

Technical Community: EOPD - Education, Outreach, & Professional Development

Session Type: Rap Session

Description: This interactive working group aims to identify and discuss the core competencies, experiences, and attributes that contribute to a BE graduate's effectiveness in the field.

Organizer: John Long, john.m.long@okstate.edu

Sponsoring Committee: EOPD-203 Undergraduate & Graduate Instruction; **Co-Sponsors:** EOPD-204 Engineering & Technology Accreditation

Moderators: John Classen

ES - Energy Systems

228 Clean Energy and Agrivoltiacs

Tuesday, 2:30pm - 5:00pm

Location: York Room

Technical Community: ES - Energy Systems

Session Type: Oral Technical Session

Description: Join us to learn how renewable energy and agrivoltaics are paving the way for a sustainable and resilient future for human development. Experts will delve into the transformative potential of integrating clean energy technologies with agricultural practices and discuss cutting-edge research and development in renewable energy.

Organizer: Jaime Thissen, jaimethissen1@gmail.com

Sponsoring Committee: ES-210 Renewable Power Generation Committee

Moderators: Jaime Thissen, Fei Yu

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2501058	*The use of renewable energy systems for the decarbonization of the poultry sector in the Mediterranean region* - Presented By: **Andrea Costantino**, Institute of Animal Science and Technology, Universitat Politècnica de València, València, Spain; Andrea Costantino, Dimitrios Tyris, Michael Goliomytis, George Meramveliotakis, Panteleimon Bakalis, Apostolos Gkountas, Dimitris Manolakos
2:50pm	2500085	*Agrivoltaics in Germany: Synergies, Challenges, and Potentials for Sustainable Land Use* - Presented By: **Heinz Bernhardt**, Technical University of Munich, Freising, Germany; Heinz Bernhardt, Christina Sebald, Fredrik Regler, Simon Grebner
3:05pm	2500656	*CO2-Reduction in Agricultural Logistics – HVO as Alternative to Diesel?* - Presented By: **Simon Grebner**, Technical University of Munich, Freising, Bavaria, Germany; Simon Grebner, Christine Stöckel, Heinz Bernhardt
3:20pm	2500137	*Implementing Hydrogen as Long-Term Energy Storage for Dairy Farms* - Presented By: **Fredrik Regler**, Technical University of Munich, Chair of Agricultural Systems Engineering, Freising, Germany; Fredrik Regler, Markus Ostermeier, Reinhard Dietrich, Franz Behm, Michael Späth, Heinz Bernhardt
3:35pm		*BREAK*
3:45pm	2500921	*Dynamic Control of Photovoltaic Shade Screen for Sustainable Greenhouse Cultivation* - Presented By: **Aidan Ferguson**, BAE, UC Davis, Davis, California, USA; Muhammad Kashif, Md. Shamim Ahamed
4:00pm	2500463	*OFF-GRID ENERGY SYSTEM COMPONENTS FOR A PV GENERATOR: AN ENVIR ECONOMIC STUDY* - Presented By: **Nicholas Kiggundu**, Makerere Univeristy, Kampala, Uganda; Alvin Asingya, Allan John Komakech
4:15pm	2500645	*Agrivoltaics Research in New Mexico* - Presented By: **Paul Funk**, Retired, Las Cruces, New Mexico, USA; Paul Funk, Derek Whitelock, Brandon Bestelmeyer, Sheri Spiegal, Gregory Cooper, Israel Joukhadar
4:30pm	2501214	*A Comprehensive Review of Condensing Boiler Applications in Greenhouses: Enhancing Energy Efficiency, CO2 Dosing for Plant Growth, and Thermal Energy Storage* - Presented By: **Shirin Ghatrehsamani**, Pennsylvania State University, USA; Amir Okhovat, Alireza Ansari, Shirin Ghatrehsamani

NO SHOW

ESH - Ergonomics, Safety & Health

229 ESH-Ergonomics, Safety, & Health POSTER SESSION

Tuesday, 2:30pm - 5:00pm

Location: Exhibit Hall

Session Type: Poster Technical Session

Description: Agriculture is one of the most hazardous industries. Injury and illness prevention efforts are the primary effort in the field of ergonomics, safety, and health. However, many employees, operators, and families often

experience life-altering injuries or illnesses requiring worksite modifications. Posters are welcomed for safety education programming, technologies, and program efforts that highlight objective evaluation of these efforts.

Organizer: Salah Issa, salah01@illinois.edu

Sponsoring Committee: ESH-04 Technology Exchange

Moderators: Serap Gorucu

Poster#	Pres. ID	Presentation Title, Presenter, & Authors
1	2500552	*Embedded Sensor Fusion System for Evaluating the Dynamic Stability of Agricultural ATVs* - Presented By: **Farzaneh Khorsandi**, University of California, Davis, Davis, California, USA; Fernando Ferreira Lima dos Santos, Farzaneh Khorsandi
3	2500760	*Development of Occupational Safety Indicators for Wineries in Selected States* - Presented By: **Dr. Jaime Thissen**, Department of Physics and Engineering, Monmouth College, Monmouth, Illinois, USA; Dr. Jaime Thissen, MInstP, MIET
4	2501696	*Development of Occupational Safety Indicators for Breweries in Selected Regions* - Presented By: **Dr. Jaime Thissen**, Monmouth College, Monmouth, Illinois, USA; Dr. Jaime Thissen, MInstP, MIET
5	2500719	*Optimizing Smartphone-Based Activity Level Estimation Algorithm for Heat Illness Prevention in Farmworkers* - Presented By: **Minyoung Hong**, University of California, Davis, Davis, California, USA; Minyoung Hong, Farzaneh Khorsandi
6	2500717	*Wet-Bulb Globe Temperature Prediction by Weather Forecast and Linear Regression Methods* - Presented By: **Minyoung Hong**, University of California, Davis, Davis, California, USA; Minyoung Hong, Farzaneh Khorsandi
7	2501679	*Enhancing Agricultural Safety Training Through Virtual Reality (VR) Simulations: Findings for Pre-trip inspection trainings* - Presented By: **Salah Issa**, University of Illinois Urbana-Champaign, Urbana, Illinois, USA; Sihan Li
8	2501570	*Exploring the Role of Artificial Intelligence in Agricultural Safety: A Review* - Presented By: **Salah Issa**, University of Illinois at Urbana- Champaign- Department of Agricultural and Biological Engineering, Champaign, Illinois, USA; Sahar Yousefi, Salah F. Issa
9	2500101	*Agricultural All-Terrain Vehicle Safety Research: An Overview* - Presented By: **Payam payam Farhadi**, University of California, Davis, Davis, California, USA; Fernando Ferreira Lima dos Santos, Minyoung Hong, Payam Farhadi, Jordan Wong, Aliya Abla, Farzaneh Khorsandi
10	2500409	*Finite Element Modeling of ATV Stability in Agricultural Settings* - Presented By: **Payam Farhadi**, UCD Faculty, Davis, California, USA; Payam Farhadi, Farzaneh Khorsandi
11	2500527	*Discovering Agricultural-Related Injuries from Florida's Prehospital Emergency Medical Services Tracking and Reporting System (EMSTARS) Data* - Presented By: **Madison Moore**, University of Florida, Gainesville, Floirda, USA; Madison Moore, Serap Gorucu, Nikolay Bliznyuk
12	2501211	*Prediction of Snow Depth and Wind Speed Using Transformer Model for Structural Analysis of Greenhouses* - Presented By: **Dongwoo Kim**, Seoul National University, Seoul, Republic of Korea; Dongwoo Kim, Jonghyuk Lee, Byunghun Seo, Yejin Seo, Yerim Jo, Won Choi
13	2501175	*Enhancing ATV Safety: Tackling Rollover Risks with Cutting-Edge Technology* - Presented By: **Priyanka Mali**, Pennsylvania State University, State College, Pennsylvania, USA; Dr. Judd Michael, Dr. Shirin Ghatrehsamani

ITSC - Information Technology, Sensors & Control Systems

230 Generative AI and Large Multimodal model for Agriculture & Natural Resources-LIGHTNING PANEL

Tuesday, 2:30pm - 5:00pm

Location: Provincial South

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Lightning Oral Technical Session

Description: Focuses on the development of new or innovative machine learning and artificial intelligence approaches for applications in natural resources.

Organizer: Shirin Ghatrehsamani, spg5994@psu.edu
Sponsoring Committee: ITSC-254 Emerging Information Systems
Moderators: Xuechen Lim

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500995	*Can Generative AI Make Farming Decisions? Current Status Evaluation and Future Expectations in Commercial Row Crop Production Environment* - Presented By: **Nipuna Chamara**, University of Nebraska Lincoln, Lincoln, Nebraska, USA; Nipuna Chamara, Yu Pan, Saleh Taghvaeian, Cory Walters, Chris Proctor, Daran Rudnick, Daren Redfearn, Joe Luck, Yufeng Ge
2:42pm	2501434	*Generative AI-Based Digital Twin Pipeline for Advanced Agricultural Analytics Enabled by Synthetic Data and Zero-Shot Learning* - Presented By: **Muhammad Waseem**, Auburn University, Auburn, Alabama, USA
2:49pm	2501289	*ChatBug: A Knowledge Graph-Driven Entomology Agent* - Presented By: **Xuechen Li**, University of Minnesota, Saint Paul, Minnesota, USA; Xuechen Li, Lang Qiao, Junxiong Zhou, Vera Krischik, Ce Yang
2:56pm	2501284	*Transforming Sweetpotato Grading Through Machine Learning: From Farmer Insight to Data Driven Decisions* - Presented By: **Annelise Intemann**, North Carolina State University, Raleigh, North Carolina, USA; Annelise Intemann, Daniela Jones, Cranos Williams, Mike Kudenov
3:03pm	*DISCUSSION*	
3:10pm	2501254	*Identify the optimal spatial resolutions and best approaches for downscaling of SMAP Soil Moisture for Florida region* - Presented By: **Susanta Das**, University of Florida, Gainesville, Floirda, USA
3:17pm	2501197	*Development of an integrated herbal medicine sensory evaluation support system combining a ViT-CNN-based image classification model and LLM application* - Presented By: **Hyein Lee**, Department of Smart Farm Science, Kyung Hee University, Gyeonggi-do, Republic of Korea; Hyein Lee, Yu-Jin Jeon, So Jin Park, Ho-Youn Kim, Jung-Ok Kim, Joo-Young Kim, Dae-Hyun Jung
3:24pm	2501190	*Growth Stage-Based Temperature Control and Cultivation Support System for Strawberry Greenhouses Using RAG and LLM* - Presented By: **So Jin Park**, Kyung Hee University, Yongin, Republic of Korea; Yu-Jin Jeon, Hyein Lee, Dae-Hyun Jung
3:31pm	2500869	*Incorporating Data-Driven Relational Context into Prompt-Based LLM Reasoning for Agricultural Time Series Forecasting* - Presented By: **Sanghyeok Choi**, Seoul National University, Seoul, South Korea; Sanghyeok Choi, Woosang Jeon, Kyuseok Yang, Seungwoo Lee, Taehyeong Kim
3:38pm	*DISCUSSION & BREAK*	
3:50pm	2500649	*Data Supplement for Spectral Analysis Using a new Transformer-Based Conditional Generative Adversarial Network* - Presented By: **Yinka Sikiru**, Department of Biosystems Engineering, University of Manitoba; Yinka Sikiru, Chyngyz Erkinbaev
3:57pm	2500608	*Attitude control of VTOL based on deep reinforcement learning for bushfire management* - Presented By: **Xinyi Jie**, Zhejiang University, Ningbo, Zhejiang, China; Xinyi Jie, Jiahong Yang, Jiamei Liu, Fangle Chang, Jingbao Lu, Longhua Ma, Hongye Su
4:03pm	2500587	*Developing an Image-Text System for Pest and Disease Identification for Vegetable Crops in Urban Community Farming* - Presented By: **Chiao-Chi Hsu**, National Taiwan University, Taipei, Taiwan; Chiao-Chi Hsu, Ting-Ting Li, Ya-Ching Yang, Shih-Fang Chen
4:10pm	2500039	*Meta Ag 2.0: A Framework for AI-Infused Contextual Agricultural Recordkeeping* - Presented By: **Dennis Buckmaster**, Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana, USA; Md. Samiul Basir, Aarav Pai, Lionel Y. Loo, Fabio A. Castiblanco, Joshua K. Bailey, Andrew Balmos, Dennis R. Buckmaster, James V. Krogmeier
4:17pm	*DISCUSSION*	

231 Hyperspectral Imaging: Advances in Technologies, Analytics, and Applications-LIGHTNING PANEL

Tuesday, 2:30pm - 5:00pm
Location: Dufferin
Technical Community: ITSC - Information Technology, Sensors & Control Systems
Session Type: Lightning Oral Technical Session

Description: Focuses on submissions addressing the use of hyperspectral imaging technologies for agrifood applications. Topics cover from hardware design, to algorithm development and validation, and to research and production applications.

Organizer: Alireza Pourreza, apourreza@ucdavis.edu

Sponsoring Committee: ITSC-348 Electromagnetics & Spectroscopy

Moderators: Alireza Pourreza

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500578	*Hyperspectral Imaging for Non-Destructive Identification of Degraded Korean fir (Abies Koreana)* - Presented By: **Sangjun Lee**, Department of Biosystems Machinery Engineering, College of Agricultural and Life Science, Chungnam National University, Daejeon, Republic of Korea; Pahlawan Muhammad Fahri Reza, Kurniawan Hary, Byoung-Kwan Cho
2:42pm	2500798	*Robust Transformer-Based Classification of Wheat Diseases Using UAV Hyperspectral Imaging* - Presented By: **Alireza Sanaeifar**, University of Minnesota, Saint Paul, Minnesota, USA; Alireza Sanaeifar, Shahryar Kianian, Yue Jin, Matthew N Rouse, Ruth Dill-Macky, Rebecca Curland, Susan Reynolds, James Anderson, Lang Qiao, Ce Yang
2:49pm	2500736	*Multi-source Data Fusion Based on Hyperspectral and Physical Properties for Predicting the Shelf Life o* NO SHOW nted By: **Peilin Jin**, Shihezi University, Shihezi City, Xinjiang Province, China; Peilin Jin, Qi Zhang, Renzhong Niu, Zhigang Li, Xiaoshuan Zhang,
2:56pm	2500396	*A graph convolutional network approach for hyperspectral image analysis of blueberries physiological traits under drought stress* - Presented By: **Md Hasibur Rahman**, Auburn University, Auburn, Alabama, USA
3:03pm		*DISCUSSION*
3:10pm	2500206	*n of Stress in Greenhouse-Grown Industrial Hemp Plants by Hyperspectral Imaging* - P NO SHOW **Abdulridha**, University of Arkansas, Arkansas; Ce Yang
3:17pm	2500849	*High-Resolution Hyperspectral Image Segmentation for Global Context-Aware Open-Field Crop Classification* - Presented By: **Woosang Jeon**, Seoul National University, Seoul, Korea; Taehyun Jung, Seungwoo Lee, Kyuseok Yang, Sanghyeok Choi, Taehyeong Kim
3:24pm	2500961	*Multi-task machine learning for quality assessment of pecan kernel using hyperspectral imaging* - Presented By: **Ebenezer Olaniyi**, University of Georgia, Athens, Georgia, USA; Ebenezer Olaniyi, Priyanka Dahiya, Allison Niu, Christopher Kucha
3:31pm	2500871	*Deep Learning-Based Reconstruction of Specific Spectral Band Images Using RGB Images* - Presented By: **Yeong-Jin kim**, Jeonbuk National University, Jeonbuk-do, Republic of Korea; Yeong-Jin Kim, Woo-Joo Choi, Ki-Su Park, Seong-hwan Lee, Dokyun Jung, Myongkyoon Yang
3:38pm		*DISCUSSION & BREAK*
3:50pm	2500538	*Leveraging Hyperspectral Data for Precision Dust Management Near the Great Salt Lake Basin* - Presented By: **Sierra Young**, Utah State University, Logan, Utah, USA; Vaishali Swaminathan, Sierra Young, Eric P. Westra, Megan Tera Schaumann, Hannah Smith, Janice Brahney
3:57pm	2500688	*Integrating Micro-Hyperspectral Imaging and Mie Scattering for Early Detection of Microbial Contamination in Liquid Culture* - Presented By: **Libin Wu**, McGill University & Fujian Agriculture and Forestry University, Montreal, Quebec, Canada; Libin Wu, Haiyong Weng, Shangpeng Sun, Dapeng Ye
4:03pm	2501712	*Detection of Downy Mildew in Arugula Using Modified YOLO Semantic Segmentation with Hyperspectral Imaging and Downy Mildew Index* - Presented By: **Bennett Morris**, California Polytechnic State University San Luis Obispo, San Luis Obispo, California, USA; Bennett Morris, Jenna Keller, John Urrutia, Bo Liu, Shunping Ding
4:10pm	2500062	*ve classification of yellow and orange color yolk eggs using hyperspectral imaging co* NO SHOW *analysis* - Presented By: **Alin Khaliduzzaman**, Department of Agricultural and Biological Engineering, University of Illinois Urbana–Champaign, Urbana, Illinois, USA; Alin Khaliduzzaman, Jason Lee Emmert, Mohammed Kamruzzaman, Isabella C.F.S. Condotta
4:17pm	2501174	*Machine Learning-Based Non-Destructive Classification of Tilapia Flesh Using Spectroscopic Techniques* - Presented By: **Pin-Wei Chen**, National Taiwan University, Taipei, Taiwan; Pin-Wei Chen, Yu-Hsin Chiu, Shih-Fang Chen
4:24pm		*DISCUSSION*

232 Machine Vision Applications in Agriculture and Food Processing-LIGHTNING PANEL

Tuesday, 2:30pm - 5:00pm

Location: Linden

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Lightning Oral Technical Session

Description: This session focuses on machine vision systems for applications in agriculture and food processing.

Organizer: Yuzhen Lu, luyuzhen@msu.edu

Sponsoring Committee: ITSC-312 Machine Vision

Moderators: Yuzhen Lu

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2501663	*Non-destructive identification of spotted wing drosophila hidden infection in blueberries using hyperspectral imaging and explainable AI* - Presented By: **Priyanka Dahiya**, University of Georgia, Athens, Georgia, USA; Priyanka Dahiya, Ebenezer Olaniyi, Allison Niu, Christopher Kucha
2:42pm	2500146	*Application of Deep Learning in Counting and Gender Identification of Parasitoid Wasps: A Case Study of Trissolcus sp. (Hymenoptera: Scelionidae)* - Presented By: **Chiao-Jo Tung**, Department of Biomechatronics Engineering, National Taiwan University, Taiwan (R.O.C.); Yi-Hui Wu, Shih-Yang Lee, Yan-Fu Kuo
2:49pm	2500335	*Enhancing foreign material detection in poultry processing plants using thermal imaging and vision-based systems* - Presented By: **Chaitanya Kumar Reddy Pallerla**, University of Arkansas, Fayetteville, Arkansas, USA
2:56pm	2500998	*Robotic-assisted harvesting using machine vision* - Presented By: **Douglas Cook**, Brigham Young University, Provo, Utah, USA
3:03pm		*DISCUSSION*
3:10pm	2500930	*End-to-end multi-object tracking and segmentation for precision agriculture* - Presented By: **Henry Medeiros**, University of Florida, Gainesville, Floirda, USA; Zahra Khademi, Henry Medeiros
3:17pm	2501035	*Speckle Imaging and Deep Learning-Based Classification of Drought Stress Levels in Soybean Crops* - Presented By: **SeongHo Lee**, Chungbuk National University, Cheongju, Republic of Korea; SeongHo Lee, HoonSoo Lee
3:24pm	2501495	*In Field Canola Flea Beetle Damage Estimation based on High-Resolution Multimodal Imaging and Deep learning* - Presented By: **Liujun Li**, University of Idaho, Moscow, Idaho, USA; MD Sabid Hasan, Liujun Li, Kamal Khadka, Subodh Adhikari
3:31pm	2500238	*Automated Defect Detection and Severity Assessment in Astringent Persimmon Sorting Using Semantic Segmentation* - Presented By: **Seokha Hwang**, Department of Biosystems Engineering, Seoul National University, Seoul, Republic of Korea; Seokha Hwang, Eung-chan Kim, DongHyeon Seong, Sang-Yeon Kim, Minhyun Kim, Ghiseok Kim, Jongmin Park, Hyun Mo Jung
3:38pm		*DISCUSSION & BREAK*
3:50pm	2500631	*Development of Use Cases and Image Database Collection Protocols for Implementation of Artificial Intelligence in Soybean Production* - Presented By: **Christopher Dean**, The Ohio State University, Columbus, Ohio, USA; C. Dean, C. Tkach, A.A Klopfenstein, A. Parsio, J.P. Fulton, R. Venkatesh, S.A Shearer
3:57pm	2500549	*Improvements and Evaluation of A Smart Sprayer Prototype for Weed Control in Vegetable Crops* - Presented By: **Boyang Deng**, MSU, Okemos, Michigan, USA
4:03pm	2500839	*Sugar Beet and Multispecies Weed Detection Utilizing Ground Robots and Advanced Deep Learning YOLO Models* - Presented By: **Evans Wiafe**, North Dakota State University, Fargo, North Dakota, USA; Evans K. Wiafe, G C Sunil, Arjun Upadhyay, Kirk Howatt, William Aderholdt, Mohamed Khan, Thomas Peters, Xin Sun
4:10pm	2501311	*Image Processing Techniques for Varying Lighting Conditions on a Machine Vision Smart Sprayer in Wild Blueberry (Vaccinium angustifolium Ait.) Fields* - Presented By: **Patrick Hennessy**, Dalhousie University, Truro, Nova Scotia, Canada
4:17pm		*DISCUSSION*

233 Robotics and AI-Enabled Robotics for Production Agriculture-LIGHTNING PANEL

Tuesday, 2:30pm - 5:00pm

Location: Willow East

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Lightning Oral Technical Session

Description: Focuses on the development and application of robotics and AI -enabled robotics technologies for production systems in agriculture.

Organizer: Xin Zhang, xzhang@abe.msstate.edu

Sponsoring Committee: ITSC-318 Mechatronics & Biorobotics

Moderators: Xin Zhang

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500894	*A Coordination Strategy for a Dual-arm Apple Harvesting Robot* - Presented By: **Kyle Lammers**, Michigan State University, East Lansing, Michigan, USA; Keyi Zhu, Kyle Lammers, Kaixiang Zhang, Chaaran Arunachalam, Jiajia Li, Renfu Lu, Zhaojian Li
2:42pm	2501681	*Advancing Robotic Apple Harvesting: Optimizing Vision Models for Real-Time Performance and High Precision Detection and Segmentation* - Presented By: **Siddhartha Bhattacharya**, Michigan State University, East Lansing, Michigan, USA; Chaaran Arunachalam, Siddhartha Bhattacharya
2:49pm	2500638	*Detection and Severity Classification of Chilli Thrips Symptoms in Florida Strawberry Production* - Presented By: **Uchechukwu Ilodibe**, University of Florida, Gainesville, Floirda, USA; Uchechukwu Ilodibe, Daeun Choi
2:56pm	2500190	*ned Neural Network-Based Distributed Model Predictive Control for Multi-Vehicle Co* **NO SHOW** *n in Hybrid Rice Seed Production* - Presented By: **Rongkai Shi**, Zhejiang University; Rongkai Shi, Ying Li, Te Xi, Huaiqu Feng, Yongwei Wang, Jun Wang
3:03pm		*DISCUSSION*
3:10pm	2500234	*age-less Robotic In-Situ Kiwifruit Maturity Recognition: A Gripper with Soft Magnetic* **NO SHOW** *nted By:* **Chaoyue Han**, Zhejiang University, Hangzhou, Zhejiang, China; Chaoyue Han, Yongkai Ye, Feng Gao, Chenrui Jin
3:17pm	2500870	*Application of a GNSS/Vision Integrated Navigation System for Autonomous Sowing Robots* - Presented By: **Yong-Hyun Kim**, Seoul National University, South Korea; Chulwhan Yoon, Jungun Lee, Hak-Jin Kim
3:24pm	2501319	*Autonomous Robotic Navigation in Ornamental Crop Production Using Vision and Sensor Fusion* - Presented By: **Faraz Ahmad**, Auburn University, Auburn, Alabama, USA
3:31pm	2501037	*tacle Avoidance from Imperfect Demonstrations for Agricultural Robot Navigatio* **NO SHOW** *rmendra Saraswat*, Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana, USA; Dharmendra Saraswat
3:38pm		*DISCUSSION & BREAK*
3:50pm	2500073	*Targeted weed management of Palmer amaranth using robotics and deep learning* - Presented By: **Amlan Balabantaray**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Shaswati Behera, CheeTown Liew, Nipuna Chamara, Mandeep Singh, Amit Jhala, Santosh Pitla
3:57pm	2500681	*Real-time Weed Species Localization and Tracking for Intra-Row Weed Density Estimation in Apple Orchards* - Presented By: **Lawrence Arthur**, The Pennsylvania State University, University Park, Pennsylvania, USA; Lawrence Arthur, Sadjad Mahnan, Long He, Magni Hussain, Paul Heinemann, Caio Brunharo
4:03pm	2500266	*of a Clavel-Based Lightweight Delta Robot with Adaptive Parallelogram Linkages f* **NO SHOW** *eed Elimination* - Presented By: **MD Sultan Mahmud**, University of Georgia, Athens, Georgia, USA
4:10pm		*DISCUSSION*

MS - Machinery Systems

234 Advances in Soil-Plant-Machine Dynamics and Systems Simulation

Tuesday, 2:30pm - 5:00pm

Location: Churchill Room

Technical Community: MS - Machinery Systems

Session Type: Oral Technical Session

Description: This session is focused on the use of modeling and simulation to investigate interactions at the interface of soil, plant, and machine associated with machine systems.

Organizer: Brian Steward, bsteward@iastate.edu

Sponsoring Committee: MS-45 Soil-Plant-Machine Dynamics; **Co-Sponsors:** MS-23/7/2 Forage & Biomass Engineering, MS-48 Specialty Crop Engineering, MS-58 Agricultural Equipment Automation

Moderators: Heinz Bernhardt

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2501160	*Comparison of Static and Dynamic Estimates of Soil Volume Being Displaced by Construction Equipment Obtained Using Discrete-Element Method, LiDAR, and 3D Scanning* - Presented By: **Guillaume C. Boily**, CNH / McGill University, Quebec, Canada; Guillaume C. Boily, Martin Roberge, Viacheslav Adamchuk, Vahid Sadrmanesh
2:50pm	2500047	*Discrete Element Modelling of Soil and Residue Dynamic Behaviours Resulting From a Tandem Disc Harrow* - Presented By: **Peng Wu**, University of Manitoba, Winnipeg, Manitoba, Canada; Ying Chen
3:05pm	2500228	*Development of MBD-DEM Coupling Simulation Model for Predicting Power Requirements of Garlic Harvester* - Presented By: **Young-Woo Do**, Kyungpook National University, Daegu, Republic of Korea; Young-Woo Do, Seok-Pyo Moon, Young-Jo Nam, Seung-Gwi Kwon, Wan-Soo Kim
3:20pm	2500582	*Study on optimal working conditions for soil separation in mechanical harvesting of garlic* - Presented By: **Bomin Bae**, Pusan National University, Busan; Bomin Bae, Minseung Kim, Seo Choi, Daewi Jung, Yeonsoo Kim, Jongmin Park, Jongsoon Kim, Yongjoo Kim
3:35pm	*BREAK*	
3:45pm	2501453	*DEM-Based Simulation and Contact parameter Analysis of Garlic Bulbs for Agricultural Applications* - Presented By: **Ajay Patel**, , West Bengal, India; Ajay Kumar Patel, Dr. Peeyush Soni
4:00pm	2500364	*Experimental Dynamic Overturning and Rollover Analysis for a Small Tracked Tractor Under Ground Slope and Obstacles* - Presented By: **Chan-young Lee**, Kangwon National University, Chuncheon, Republic of Korea; Chan-young Lee, Moon-Kyeong Jang, Kwang-mo Kim, Ju-Seok Nam
4:15pm	2500363	*Analysis of Dynamic Lateral Overturning and Backward Rollover Characteristics of Small Tracked Tractor using Simulation* - Presented By: **Moon-Kyeong Jang**, Kangwon National University, Chuncheon, South Korea; Kwang-Mo Kim, Chan-Young Lee, Ju-Seok Nam
4:30pm	2501080	*Effect of Duct and Nozzle Geometry on Suction Pressure for Conveying Materials Using Air Jet Pumps* - Presented By: **Michael Boyko**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Michael Boyko, David Sumner, Lope Tabil, Martin Roberge

235 Machinery Systems for Crop Production

Tuesday, 2:30pm - 5:00pm

Location: Huron

Technical Community: MS - Machinery Systems

Session Type: Oral Technical Session

Description: Session focused on advances in machinery systems that may not fit well into crop production sessions that are more narrowly defined.

Organizer: Ed Brokesh, ebrokesh@ksu.edu

Sponsoring Committee: MS-49 Crop Production Systems, Machinery, and Logistics; **Co-Sponsors:** MS-45 Soil-Plant-Machine Dynamics, MS-54 Precision Agriculture, MS-58 Agricultural Equipment Automation

Moderators: Ed Brokesh, Luke Fuhrer

Time	Pres. ID	Presentation Title, Presenter, & Authors

2:35pm 2500630 *Economics of Small- vs. Large-Scale Production Platforms in Row Crop Agriculture* - Presented By: **Christopher Dean**, The Ohio State University, Columbus, Ohio, USA; C. Dean, V, Herron, C. Tkach, A.A Klopfenstein, A. Parsio, R. Bench, R. Anand, J.P. Fulton, S.A Shearer

2:50pm 2501251 *An ANN Approach to Estimate Soil Compaction after Multiple Passes of Tractor Tire* - Presented By: **Harsha Chandrakar**, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India

3:05pm 2500597 *Rice Straw Node-Based Physical Property Analysis and DEM Modeling for Agriculture Simulations* - Presented By: **Min Seung Kim**, Pusan National University, Miryang-si, South Korea; Min-Seung Kim, Bo-Min Bae, Dae-Wi Jung, Se-O Choi, Yeon-Soo Kim, Yong-Joo Kim

3:20pm 2500873 *Structural design and experiment of new-concept basecutter for portable sugarcane harvesters* - Presented By: **Shaochun Ma**, China Agricultural University, Beijing, China; Chao Guo, Shaochun Ma, Jinzhi Ma, Baocheng Zhou, Wenzhi Li

3:35pm *BREAK*

3:45pm 2500954 *Automating Weed Removal for Precision Management of Palmer Amaranth (Pigweed) in Cotton Production* - Presented By: **Taranjeet Singh Sodhi**, , Tifton, Georgia, USA; Glen C Rains, Shekhar Thapa, Canicius Mwitta

4:00pm 2500796 *Developing a Mobile Agrivoltaics System to Enhance Water Use Efficiency and Crop Productivity in California's Specialty Agriculture* - Presented By: **Reza Ehsani**, University of California, Merced, Merced, California, USA; Mohammadmehdi Maharlooei, Amir Kouravand, Mohsen Farajijalal, Ricardo Pinto de Castro, Reza Ehsani

236 MS-Machinery Systems POSTER SESSION

Tuesday, 2:30pm - 5:00pm
Location: Exhibit Hall
Technical Community: MS - Machinery Systems
Session Type: Poster Technical Session
Description: Machinery Systems Poster Session.
Organizer: Robert Waggoner, robert.waggoner@agcocorp.com
Sponsoring Committee: MS-01 POSTER SESSION; **Co-Sponsors:** ASE-12 Forest Engineering
Moderators: Robert Waggoner

Poster# Pres. ID Presentation Title, Presenter, & Authors

14 2501017 *A Study on the Effect of Soil texture and Water Content on Soil Adhesion by Material* - Presented By: **DaeWi Jeong**, Pusan National University, Miryang-si, South Korea; Dae Wi Jeong, Yeon Soo Kim, Jong Soon Kim, Jong Min Park, Yong Ju Kim

15 2500103 *Analysis of Performance Test for Variable Fertilizer Applicator Capable of Deep Fertilization* - Presented **NO SHOW** **ng**, Upland Mechanization Team, National Institute of Agricultural Sciences, Rural Development Administration, Jeonju, Jeollabuk-do, Republic of Korea; Jae-Keun Woo, Il-Su Choi, Young-Hwa Kim, Seung-Hwa Yu, Seok-Pyo Moon, Chun-Gu Lee, Na-Rae Kang, Seok-Jun Hong, Kyeong-Sik Choi

16 2500590 *ty Factors and Fatigue Life Prediction for a Cabbage Transplanter Using MBD-DEM* **NO SHOW** **ok Hwang**, Chungbuk National University, Cheongju, Republic of Korea; Wantea Im, Changseop Shin

17 2500522 *Assessing the Effects of Soil Moisture on Microwave Heat Distribution for Disinfecting Soilborne Pathogen (Macrophomina phaseolina) in Strawberry Fields* - Presented By: **Jake Sporleder**, California Polytechnic State University, San Luis Obispo, California, USA; Mohammad Sadek

18 2500229 *Comparative analysis of load and power characteristics according to mechanical mechanisms of tractor-mounted sweet potato harvesters* - Presented By: **Jung Yeon Seo**, Jeonbuk National University, Jeonju, Republic of Korea; Jung-Yeon Seo, Jinho Won, Yongjin Cho, Ok-Ran Park, Dae-Cheol Kim

19 2500437 *of a 6-DOF Helicopter Model for Shift Control Logic of Variable RPM Module* - Presented **NO SHOW** partment of Biosystems Engineering, Seoul National University, Seoul, South Korea; Young-Jun Park

20 2501201 *Development of a Simulation Model for the Overturning Angle Evaluation of Self-propelled Underground Crop Harvester* - Presented By: **Jong Dae Park**, Chungnam National University, Daejeon, Republic of Korea; Hyeon-Ho Jeon, Seung Min Baek, Seung Yun Baek, Yong-Joo Kim

21 2500446 *Friction Reduction in ploughing by air lubrication* - Presented By: **Julius Wendling**, Technical University of Munich, Freising, Germany; Julius I. Wendling, Heinz Bernhardt

22 2500942 *Mobile Biomass-to-Fuel Harvester Design* - Presented By: **John Schueller**, University of Florida, Gainesville, Floirda, USA; Konnor G. Hole, John K. Schueller

23 2501140 *On the Transport of Insects by Ground Robots in Agricultural Row Crops* - Presented By: **Ellen Halbur**, Iowa State University, Ames, Iowa, USA; Ellen J. Halbur, Joshua M. Peschel

24 2500515 *Parasitic and Auxiliary Load Modeling in Support of Electrification of Off-Highway Equipment* - Presented By: **Christopher Tkach**, The Ohio State University, Columbus, Ohio, USA; C.J. Tkach, B. Bench, C.R. Dean, A.A. Klopfenstein, A. Parsio, J.P. Fulton, S.A. Shearer

25 2500189 *Performance Evaluation of a Double-Conveyor Type Sweet Potato Harvester according to Soil Texture* - Presented By: **Jinho Won**, Jeonbuk National University, Jeonju, Republic of Korea; Jinho Won, Jung-Yeon Seo, Dae-Cheol Kim, Yongjin Cho

26 2501472 *Performance Testing of Combine Automation during a Representative Soybean Harvest* - Presented By: **Ian Sherer**, University of Illinois, Urbana, Illinois, USA; Ian Sherer, Cody Allen

27 2500191 *Prediction and Spatial Mapping of Soil Properties Using UAV-based Multispectral Imagery and Random Forest Regression* - Presented By: **June Young Han**, Jeonbuk National University, Jeonju, Republic of Korea; June Young Han, In-Seop Jang, Dae-Cheol Kim, Yongjin Cho

28 2501062 *Simulation and Experiment of Pigment Pepper Harvesting Process Based on DEM* - Presented By: **Binning Yang**, Xinjiang Agricultural University, Urumqi, China; Binning Yang

29 2501315 *Simulation-based optimization of path planning and task assignment for fruit harvesting in dual-type robotic arm collaboration* - Presented By: **Chung-Liang Chang**, National Pingtung University of Science and Technology, Neipu, Pingtung County, Taiwan; Chung-Liang Chang

30 2500598 *...gn and Electric Control System Development of Four-Wheel Independent Drive and S... Robot* - Presented By: **Qianqian Zhou**, School of Agriculture Engineering, Jiangsu University, Zhenjiang, Jiangsu, China; Qianqian Zhou, Zhan Zhao, Sisi Liu

NO SHOW

31 2500583 *...ffect of Road Surface Conditions on Soil Thrust and Slip Ratio of a 1.6 kW Wheel-Typ... EM-MBD Coupling Method* - Presented By: **Se-O Choi**, Pusan National University, Miryang-si, South Korea; Se-O Choi, Bo Min Bae, Min Seung Kim, Dae Wi Jung, Yeon Soo Kim, Yong Joo Kim, Jong Soon Kim, Jong Min Park

NO SHOW

32 2500589 *...imization for Mass Minimization of a Star-Shaped Disc In Seeders* - Presented By: **Wan-T...** ...ational University, Cheongju, Republic of Korea; Changseop Shin, Inseok Hwang

NO SHOW

33 2500179 *A Novel Method for Estimating Soil Organic Matter Based on Soil Type* - Presented By: **Hamed Etezadi**, McGill University, Quebec, Canada; Hamed Etezadi, Viacheslav I. Adamchuk, Yacine Bouroubi, Maxime Leduc, Marc-Olivier Gasser, David Titley-Peloquin

34 2500095 *...ia's Economy through Agricultural Engineering Research and Development* - Presented B... ...niversity of Ilorin, Department of Agricultural Biosystems Engineering, Faculty of Engineering and Technology, Ilorin, Nigeria; Joshua Olanrewaju Olaoye, Emmanuel Ajeigbe Kudabo, Mary Olayinka Olaoye, Elijah Olawale Ajala

NO SHOW

35 2500570 *Machine learning-based prediction of traction performance for agricultural tractors using various tillage tools* - Presented By: **So-Yun Gong**, Department of Smart Bio-Industrial Mechanical Engineering, Kyungpook National University, Daegu, Republic of Korea; Wan-Soo Kim

36 2500368 *Prediction of Emission Factors Based on Engine Performance of Agricultural Tractors Using Deep Learning Models* - Presented By: **Si-Eon Lee**, Kyungpook National University, Daegu, South Korea; Yong-Joo Kim, Wan-Soo Kim

37 2500683 *Enhancing Uniformity in Tart Cherry Orchards Through Precision Management and Variable Rate Fertilization* - Presented By: **Kurt Wedegaertner**, Utah State University, Logan, Utah, USA; Kurt Wedegaertner, Brent Black, Grant Cardon, Matt Yost, Alfonso Torres-Rua

38 2500676 *A Mobile Cartographer System to Measure Tree Growth Within Tart Cherry Orchards* - Presented By: **Kurt Wedegaertner**, Utah State University, Logan, Utah, USA; Kurt Wedegaertner, Brent Black, Anderson Safre, Sierra Young, Alfonso Torres-Rua

39 2500748 *Quantifying Harvest Efficiency of Manual Pickers for American Elderberry using an Automated GPS-Enabled Fruit Weight Logger* - Presented By: **Sazzad Rifat**, University of Missouri, Columbia, Missouri, USA; Sazzad Mahmud Rifat, Jianfeng Zhou, Andrew Thomas

40 2501448 *Precision Seeder for Creating Custom Wildflower Designs on North Carolina Roadways* - Presented By: **Max Hooks**, North Carolina State University, North Carolina, USA; Max Hooks, Spencer Corkins, Jason Ward

41 2500966 *Optimal Weight Distribution of a Quarter Scale Tractor* - Presented By: **Kenton Simonson**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Kenton Simonson, Scott Noble

NRES - Natural Resources & Environmental Systems

238 Advances in Irrigation Management: Deficit Irrigation and Nutrient Management

Tuesday, 2:30pm - 5:00pm

Location: Elgin

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Advances in irrigation management, particularly irrigation systems such as mobile drip, drip irrigation, center pivot irrigation, soil moisture sensing techniques, and other sensors used for irrigation management, have shown a potential to improve crop water use efficiency. Adopting these technologies is essential for optimizing water usage, reducing wastage, reducing leaching, and promoting healthier plant growth, leading to increased crop yields and enhanced agricultural productivity.

Organizer: Vasudha Sharma, vasudha@umn.edu

Sponsoring Committee: NRES-24 Irrigation; **Co-Sponsors:** NRES-244 Irrigation Management

Moderators: Vasudha Sharma

Time Pres. ID Presentation Title, Presenter, & Authors

2:35pm 2501640 *Deficit Irrigation Strategies for Sprinkler-Irrigated Corn* - Presented By: **Jonathan Aguilar** Rocio Reyes Esteves

2:50pm 2501101 *Alfalfa Yield Recovery After Reestablishment of Full Irrigation Following Three Years of Deficit Irrigation* - Presented By: **Uriel Cholula**, University of Nevada, Reno, Department of Agriculture, Veterinary and Rangeland Sciences, Reno, Nevada, USA; Uriel Cholula, Manuel A. Andrade, Juan K. Q. Solomon, Mahipal R. Ramireddy, Khushi Khushi

3:05pm 2500462 *POTENTIAL IMPACT OF CLIMATE CHANGE ON IRRIGATION REQUIRE* **NO SHOW** *IN UGANDA* - Presented By: **Nicholas Kiggundu**, Makerere Univeristy, Kampala, Uganda; Bongomin Samuel Otto, Ahamada Zziwa

3:20pm 2501026 *EVALUATING DIFFERENT IRRIGATION SCHEDULING METHODS FOR VARIABLE RATE IRRIGATION SYSTEMS IN ALFALFA* - Presented By: **Mahipal Reddy Ramireddy**, University of Nevada Reno, Reno, Nevada, USA; Mahipal Reddy Ramireddy, Manuel A. Andrade, Susan A. O'Shaughnessy , Isaya Kisekka, Steven R. Evett

3:35pm *BREAK*

3:45pm 2500799 *Calibration of Crop Growth Model for alfalfa cultivated in Northern Nevada* - Presented By: **Khushi Khushi**, University of Nevada, Reno, Reno, Nevada, USA; Khushi Khushi, Manuel A. Andrade, Uriel Cholula, Juan Solomon, Tin Nguyen, Susan A. O'Shaughnessy, Steven R. Evett, Jie Zhang, Diego Quintero

4:00pm 2500832 *Evaluation of ideal planting dates and irrigation levels for cotton production in the northern Texas Panhandle* - Presented By: **Srinivasulu Ale**, Texas A&M AgriLife, Vernon, Texas, USA; Bibek Acharya, Srinivasulu Ale, Jourdan Bell, Thomas Marek, Dana Porter

4:15pm 2500181 *Low-Cost Precision Agriculture Solutions for Advancing Irrigation Efficiency* - Presented By: **Sam Theobald**, Mississippi State University, Starkville, Mississippi, USA; Mary Love Tagert, Tsz Him Lo, Vitor Martins

4:30pm 2500223 *mpact of Deficit Irrigation Strategies on Alfalfa Growth and Water Conservati* NO SHOW *of California* - Presented By: **Ali Montazar**, University of California ANR, Holtville, California, USA; Daniel Putnam

4:45pm 2500923 *gen and potassium ratio on soil salinity, yield and quality of fragrant pear under drip irrigat* NO SHOW *iang* - Presented By: **Jun Wang**, China Institute of Water Resources and Hydropower Research, Beijing, China; Jun Wang, Long Wang, Jing Jiang, Jiusheng Li

5:00pm 2500952 *Assessing the Impact of Climate Change on Potato Yield Using DSSAT: A Study on Integrated Irrigation and Nitrogen Management under Future Climate Scenarios* - Presented By: **Varshitha Prasanna**, University of Florida, Gainesville, Floirda, USA; Varshitha Prasanna, Vivek Sharma

5:15pm 2500042 *Impact of Irrigation and Nitrogen Rates on Corn Yield, Water and Nitrogen Use Efficiency, and Nitrate Leaching in the Upper Midwest* - Presented By: **Vasudha Sharma**, University of Minnesota, Saint Paul, Minnesota, USA; Vasudha Sharma, Yuxin Miao, Fabian Fernandez

248 Conservation Practices, Climate Resilient Agroecosystems, and Nutrient Management Strategies

Tuesday, 2:30pm - 5:00pm

Location: Cedar

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Globally freshwater bodies are threatened by increases in sediment and nutrient losses from agricultural fields. Significant knowledge is added regarding agricultural conservation practices for protecting the water bodies, however, continued eutrophication and hypoxia persist in the waters. This session aims to provide a platform for presentation and discussion of the latest research on agriculture conservation practices and their impact on the environment.

Organizer: Laxmi Prasad, laxmi.prasad@ndsu.edu

Sponsoring Committee: NRES-22 Soil Erosion and Water Quality; **Co-Sponsors:** NRES-23 Drainage Group

Moderators: Laxmi Prasad, Vinayak Shedekar

Time Pres. ID Presentation Title, Presenter, & Authors

2:35pm 2501554 *Evaluating Soil and Nutritional Benefits of Grass-Fed Beef Systems: Implications for Agricultural Conservation Practices* - Presented By: **Sierra Young**, Utah State University, Logan, Utah, USA; Muhammad Ahsin, Joseph V. Varre, Matt H. Poore, Johnny Rogers, Alan Franzluebbers, Scott L. Kronberg, Frederick D. Provenza, James R. Bain, Stephan van Vliet

2:50pm 2500155 *Assessing The Impacts of Tillage, Manure Management, and Crop Rotation on Soil Carbon Dynamics and Crop Growth in Eastern Canada* - Presented By: **Ruth Sitienei**, McGill University, Montreal, Quebec, Canada; Ruth Sitienei, Zhiming Qi, Brian Grant, Andrew Vanderzaag, Guillaume Jégo, Martin Chantigny, Marie-Élise Samson, Budong Qian, Ward Smith

3:05pm 2500367 *Evaluating the Resilience and Sustainability of Diverse Crop Rotations with Long-Term Manure Management Under Future Climate Change in Eastern Canada* - Presented By: **Ruth Sitienei**, McGill University, Montreal, Quebec, Canada; Ruth Sitienei, Zhiming Qi, Brian Grant, Andrew Vanderzaag, Guillaume Jégo, Martin Chantigny, Marie-Élise Samson, Budong Qian, Ward Smith

3:20pm 2501084 *Developing Phosphorus BMPs while Considering Hydrologic Factors for Fresh-Market Tomato* - Presented By: **Vijay Santikari**, University of Florida, Immokalee, Florida, USA; Vijay Santikari, Sanjay Shukla, Justin Schabow, Mehran Homayounfar, Ibukun Ayankojo, Nikolay Bliznyuk

3:35pm *BREAK*

3:45pm 2500953 *UAV-Based Imaging and Machine Learning for Estimating Nitrogen Status, plant height and Yield in Potato* - Presented By: **Varshitha Prasanna**, University of Florida, Gainesville, Floirda, USA; Varshitha Prasanna, Vivek Sharma

4:00pm 2501121 *Next-Generation Nitrogen Management: Combining DSSAT-CERES and Machine Learning to Optimize Corn Production and Environmental Sustainability* - Presented By: **Rakesh Singh**, University of Florida, Gainesville, Floirda, USA

4:15pm 2501161 *RZWQM2 Performance in Simulating Maize Yield and Evapotranspiration under Rainfed and Irrigated Conditions* - Presented By: **Viveka Nand**, Department of Bioresource Engineering, McGill

University, Sainte-Anne-de-Bellevue, Quebec, Canada; Viveka Nand, Zhiming Qi, Liwang Ma, Ward N. Smith, Elizabeth Pattey, Bruce A. Kimball, Andrew E. Suyker, Steven R. Evett, Harmanpreet Singh Grewal

4:30pm 2501597 *Efficient numerical modeling of multi-species pesticide transport, degradation and remobilization in vegetative filter strips* - Presented By: **Rafael Muñoz-Carpena**, University of Florida, Gainesville, Floirda, USA; R. Muñoz-Carpena, S. Reichenberger, Yuzhou Luo

4:45pm 2500388 *Surface Water Nutrient Monitoring in U.S. Agricultural Watersheds: Gaps in Efforts to Address Nutrient Inputs* - Presented By: **Christopher Oates**, North Carolina State University, Raleigh, North Carolina, USA; Christopher Oates, Hector Fajardo, Khara Grieger, Daniel R. Obenour, Rebecca L. Muenich, Natalie G. Nelson

5:00pm 2500932 *Climate Change Impacts on Sediment and Phosphorus Dynamics in the Lake Erie Basin: Insights from SWAT Modeling for Adaptive Water Quality* - Presented By: **Pranesh Paul**, University of Guelph, Guelph, Ontario, Canada; Pranesh Kumar Paul, Prasad Daggupati, Pradeep Goel, Ramesh Rudra

239 Extreme Event Hydrologic and Water Quality Modeling

Tuesday, 2:30pm - 5:00pm

Location: Wentworth

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Extreme events induced by climate change, including heavy precipitation, wildfires, droughts, frosts, storms, and rising sea levels in coastal areas, are profound in many parts of the globe and may pose a serious threat to water quality. For example, more intense and frequent precipitation events due to climate change increase soil erosion, which may significantly degrade water quality through increased turbidity and lead to deterioration of aquatic ecosystem health. Modeling-based approaches can help scientists understand and project the impact of extreme events on water quality. This proposed session will provide new scientific knowledge that can be employed by policymakers and practitioners to ameliorate the water quality impacts of extreme events.

Organizer: Jasmeet Lamba, jsl0005@auburn.edu

Sponsoring Committee: NRES-22 Soil Erosion and Water Quality; **Co-Sponsors:** NRES-21 Hydrology Group, NRES-23 Drainage Group, NRES-26 Sustainable Land Resources

Moderators: Jasmeet Lamba, Subhasis Giri

Time Pres. ID Presentation Title, Presenter, & Authors

2:35pm 2500232 *Hydroclimatic & Geomorphologic Analyses to Provide Proactive Management DSS for Groundwate[illegible]mafrost Melting-related Environmental Vulnerability* - Presented By: **Sudhanshu Panda**, University of North Georgia, Oakwood, Georgia, USA

NO SHOW

2:50pm 2501654 *Estimation of Sediments Loading in the Corpus Christi and Nueces Bays, Texas using Remote Sensing* - Presented By: **Tushar Sinha**, Texas A&M University Kingsville, Kingsville, Texas, USA; Omar H. Talafha, Tushar Sinha, Jianhong Ren, Jong-Won Choi

3:05pm 2501085 *Post-Hurricane Helene Recovery: Assessing Agricultural Soil and Water Contamination in East Tennessee* - Presented By: **Emine Fidan**, University of Tennessee, Knoxville, Tennessee, USA; Forbes Walker, David McIntosh, Andrea Ludwig, Shawn Hawkins, Annette Wszelaki, Bruno Carneiro e Pedreira, Haochen Li

3:20pm 2501077 *Assessment of Best Management Practices for Reducing Sediment and Phosphorus Loads Using the AGNPS Model in Agricultural watersheds in the Great Lake basin* - Presented By: **Manpreet Kaur**, University of Guelph, Canada; Manpreet Kaur, Ramesh Rudra, Prasad Daggupati, Pradeep Goel, Pranesh Paul

3:35pm *BREAK*

3:45pm 2500723 *Projection of Hydrologic Intensity Duration Frequency Parameters and Their Uncertainties Based on Climate Projections for the 21st Century in the State of Texas* - Presented By: **Fouad Jaber**, Texas A&M AgriLife, Dallas, Texas, USA; Fouad H. Jaber, Bardia Heidari, Samantha Murray, Haoyu Niu, Nicholas Duffield

4:00pm 2500214 *Evaluating Water Deficit and Evapotranspiration Dynamics in Maryland: A Climate Change Perspective* - Presented By: **Adel Shirmohammadi**, Department of Environmental Science and Technology,

University of Maryland, College Park, Maryland, USA; Majid Mirzaei, Adel Shirmohammadi, Masoud Negahban-Azar, Ritesh Karki

240 Innovations in Nutrient and Energy Recovery from Manure and Wastewater Systems-LIGHTNING PANEL

Tuesday, 2:30pm - 5:00pm

Location: Birchwood Ballroom

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Lightning Oral Technical Session

Description: Nutrient recycling in water and wastewater systems are an important part of sustainable management of watershed management, agricultural management and production systems. Novel approaches for recovery and reuse of nutrients in aquatic waste streams is essential for future sustainability in these systems.

Organizer: Mahmoud Sharara, msharar@ncsu.edu

Sponsoring Committee: NRES-27 Ag By-products & Animal Mortality Management; **Co-Sponsors:** NRES-28 Ecological Engineering

Moderators: Mahmoud Sharara, Eban Bean

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500262	*Enhancement of biofuel feedstock production in an algal-based wastewater system* - Presented By: **Ryan Lam**, University of Florida, Gainesville, Floirda, USA; Ryan Lam, Nathan O'Neil, Vanessa DeShambo, Lance Schideman, Ana Martin-Ryals
2:42pm	2501327	*Simultaneous Recovery of Nitrogen and Phosphorus from Poultry Litter Digestate via Integrated Electrolytic Struvite Precipitation and Ammonia Scrubbing* - Presented By: **Robinson Ndeddy Aka**, University of Idaho, Moscow, Idaho, USA; Robinson Junior Ndeddy Aka, Md. Mokter Hossain, Alia Nasir, Dinithi Mohotti, Ekow Agyekum-Oduro, Sarah Wu, Jun Zhu
2:49pm	2500063	*hosphorus from swine manure using acid precursors contained in other wastes* - Prese **NO SHOW** **otti**, USDA-ARS, Florence, South Carolina, USA
2:56pm	2500678	*Additives as a strategy to mitigate methane and ammonia emissions from dairy manure storage* - Presented By: **Jason Oliver**, Cornell University, Ithaca, New York, USA
3:03pm		*DISCUSSION*
3:10pm	2500480	*Bio-electrochemical pretreatment of dairy manure in transition pit: effective hydrogen sulfide remediation and enhanced biogas production* - Presented By: **Leif van Lierop**, University of Minnesota, St Paul, Minnesota, USA; Lingkan Ding, Leif van Lierop, Noah Friedman, Yuanhang Zhan, Erin Cortus, Bo Hu
3:17pm	2501623	*Process Control of a Bench-scale Wastewater Treatment System for Increased Ammonia Recovery* - Presented By: **Emilia Maria Emerson**, Michigan State University, East Lansing, Michigan, USA; Emilia M Emerson, Wei Liao, Yan (Susie) Liu
3:24pm	2500755	*Phosphorus removal from subsurface drainage water using Alcan media: Column adsorption and regeneration* - Presented By: **Soni Kumari**, Michigan State University, East Lansing, Michigan, USA
3:31pm	2500893	*Developing a Self-Sustaining Technology to Recover Clean Water and Nutrients from Animal Manure Wastewater* - Presented By: **Liang Yu**, Kentucky State University, Frankfort, Kentucky, USA; Sarah Witherrite, Vy Kha Pham, S M Hasan Shahriar Rahat, Jianying Wang, Shulin Chen
3:38pm		*DISCUSSION & BREAK*
3:50pm	2501256	*Maximizing biomass growth of Chlorella vulgaris CA1 in AD effluent via process optimization and control strategy* - Presented By: **Liang Yu**, Kentucky State University, Frankfort, Kentucky, USA; S M Hasan Shahriar Rahat, Liang Yu, Shulin Chen
3:57pm	2501643	*Constructed wetlands for aquaculture wastewater treatment* - Presented By: **Natasha Bell**, Biological Systems Engineering, Virginia Tech, Blacksburg, Virginia, USA; Natasha Bell, Matthew Barnes, Kimiya Yousefi, Steve Hall, Randall Etheridge
4:03pm	2500428	*Controlling nitrification in poultryponics through the operation of bioreactors in series* - Presented By: **Brendan Higgins**, Auburn University, Auburn, Alabama, USA; Brendan Higgins, Wellington Arthur, Jacob Deng, Emma Gujski, Daniel Wells

4:10pm 2501086 *Characterization of Electroactive and Microalgal Biofilms on the Electrodes of a Microbial Fuel Cell for Valorizing Agricultural Wastewater* - Presented By: **Dorcas Amoh**, North Carolina Agricultural & Technical State University, Greensboro, North Carolina, USA; Dorcas Amoh, Lijun Wang

4:17pm 2500746 *Innovative Biodesulfurization for High H_2S Biogas Using Psychrophilic Anaerobic Media: A Cost-Effective Solution for Livestock Operations* - Presented By: **Rajinikanth Rajagopal**, Sherbrooke Research and Development Centre, Agriculture and Agri-food Canada, Sherbrooke, Quebec, Canada; Rajinikanth Rajagopal, Bernard Goyette

4:24pm *DISCUSSION*

241 Urban Water Challenges: From Irrigation to Water Quality Management

Tuesday, 2:30pm - 5:00pm

Location: Dominion North

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Due to increased urbanization, cities have issues related to water quality, flooding, water supply, irrigation, stormwater management, and streambank erosion. This session will explore the interconnected issues of urban water resources, highlighting both conventional and innovative strategies for improving water use efficiency, reducing pollution, and mitigating environmental impacts. Discussions will encompass technological advancements and nature-based solutions that support resilient urban water systems.

Organizer: Emine Fidan, efidan@utk.edu

Sponsoring Committee: NRES-25 Streams, Reservoirs, and Wetlands Group; **Co-Sponsors:** NRES-28 Ecological Engineering, NRES-22 Soil Erosion and Water Quality, NRES-224 Sediment and Associated Pollutants, NRES-242 Surface Irrigation & Water Supply, NRES-246 Turf & Landscape Irrigation, NRES-25 Streams, Reservoirs, and Wetlands Group

Moderators: Emine Fidan, Andrea Ludwig

Time Pres. ID Presentation Title, Presenter, & Authors

2:35pm 2500036 *Understanding the impact of short in-stream disturbances on nutrient dynamics in two contrasting streams* - Presented By: **Debabrata Sahoo**, Clemson University, Pendleton, USA; Calvin B Sawyer, Jeremy Pike, Emily Jordan

2:50pm 2501553 *Drinking Water Quality Challenges in Rural and Urban Environments* - Presented By: **Caitlin Proctor**, Purdue University, West Lafayette, Indiana, USA; Caitlin R Proctor

3:05pm 2500320 *Hydro-informatics-Driven Onsite Water Reuse: Advancing the One Water Concepts for Increasing Water Availability and Climate Resiliency* - Presented By: **Anish Jantrania**, Texas A&M University, Temple, Texas, USA; R K Srivastava, J E Wolfe, A R Rubin

3:20pm 2500007 *Evaluating the Water Quality and Hydrologic Performance of Passive and Active Release Systems Retrofitting Rainwater Harvesting Cisterns* - Presented By: **Sarah Waickowski**, Clemson University, Georgetown, South Carolina, USA; Sarah Waickowski, Amy Scaroni, Mitch Woodward, Stefanie Whitmire, Morgan Chaudry

3:35pm *BREAK*

3:45pm 2500125 *Exploring the Combined Use of Permeable Pavement and Geothermal Energy Systems* - Presented By: **Lydia Miller**, North Carolina State University, Raleigh, North Carolina, USA; Dr. William F. Hunt III

4:00pm 2500314 *Maximizing Water Conservation by Refining Turf Water Requirements to Homeowner Satisfaction* - Presented By: **Charles Swanson**, Texas A&M Agrilife Extension Service, College Station, Texas, USA; Charles Swanson, Guy Fipps

4:15pm 2501143 *Evaluating the impact of maintenance on permeable pavement performance* - Presented By: **Lu-Ming Chen**, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA; Lu-Ming Chen, Oscar Perez, Lane Simpson, Timothy Lecher, Paul Davidson

4:30pm 2500099 *Evapotranspiration Forecasting in Greenhouse Rose Cultivation Using LSTM Networks and Structural Causal Models* - Presented By: **Ji-Eun Park**, Jeonbuk National University, Jeonju, Jeollabuk-do, South Korea; Ji-Eun Park, Mingle Xu, Jongyun Kim, Hyongsuk Kim, Yongchae Jeong, Sook Yoon

242 Water Resources in Circular Bioeconomy Systems-HYBRID

Tuesday, 2:30pm - 5:00pm

Location: Civic Ballroom South

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Hybrid Session-submitted abstracts and guest speakers

Description: As ASABE expands research in circular bioeconomy systems, water will become an important resource and environmental consideration. The circular bioeconomy represents a system of systems in which water resources are interconnected with other components such as land management, food production and processing, and energy production. Currently, water serves as a valuable resource in production as well as a potential sink receiving nutrients or other waste streams. How will this change with proposed circular bioeconomy systems?

Organizer: Whitney Pagan, wl59680@uga.edu

Sponsoring Committee: NRES-21 Hydrology Group; **Co-Sponsors:** NRES-26 Sustainable Land Resources, CBSI-Circular Bioeconomy Systems Institute

Moderators: Whitney Pagan

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2501096	*Evaluating the Impact of Recycled High-Osmotic Strength Water on Sustainability in Spirit Distilleries* - Presented By: **Ryan Sarhan**, University of Kentucky, Lexington, Kentucky, USA; Sarhan, Ryan, Berron, Brad, Joyce-Welsko, Glenna, Barzee, Tyler
2:50pm	2501255	*...ry and Recycling Systems in Greenhouses: Reducing Agricultural Water Consump... ...ustainability* - Presented By: **Shirin Ghatrehsamani**, Pennsylvania State University, USA; Amir Okhovat, Alireza Ansari, Shirin Ghatrehsamani
3:05pm	Guest Speaker	*How does "one water" planning fit with the spherical water economy?* - Presented By: **Bob Rubin**, North Carolina State University, Raleigh, North Carolina, USA; A. R. Rubin, Steve Crawford, Scott Frederick, Anish Jantrania, June Wolfe
3:35pm		*BREAK*
3:45pm	2500019	*Determination and Water Quality Assessment of Community Water Systems from Selected Rural Coastal Communities in the Province of Davao del Sur* - Presented By: **Mark Jude Trondillo**, Davao del Sur State College, Digos City, Philippines; James Phil Flores, Kris Kristofferson Tan, Larra Mae Testado
4:00pm	Guest Speaker	*Ecological Engineering Solutions Validated through High School Programming Efforts for Local Drinking Water Source Impairments* - Presented By: **Tiffany Messer**, University of Kentucky, Lexington, Kentucky, USA
4:30pm	Guest Speaker	*Empowering Students Through Experiential Learning in Water and Circular Bioeconomy Systems* - Presented By: **Anandhi Swamy**, Florida A&M University, Tallahassee, Florida, USA

NO SHOW

PAFS - Plant, Animal, & Facility Systems

243 Mitigation of Air Pollution from Agricultural Facilities

Tuesday, 2:30pm - 5:00pm

Location: Dominion South

Technical Community: PAFS - Plant, Animal, & Facility Systems

Session Type: Oral Technical Session

Description: This session will include presentations from researchers, educators, and industry experts to share research experience and discuss air emission challenges and solutions in livestock and poultry production.

Organizer: Xufei Yang, xufei.yang@sdstate.edu

Sponsoring Committee: PAFS-50 Environmental Air Quality

Moderators: Xufei Yang

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500194	*Evidence from Field Measurements of the Impacts of Ammonia Deposition on Soil Properties in the Near Fields of a Poultry Production Facility* - Presented By: **Lingjuan Wang-Li**, NC State University,

Raleigh, North Carolina, USA; Sam Cherotich, Wei Shi, Kenneth Anderson, Sanjay Shah, John Classen and Lingjuan Wang-Li

2:50pm 2500532 *Mitigation of gaseous emissions from swine lagoon manure with biochar* - Presented By: **Erin Cortus**, Ur[NO SHOW]a, St Paul, Minnesota, USA; Jacek A. Koziel, William Willis, Heather Robbe, Anna C. Ortiz, A. Nathan Frazier, Nathan Howell, Kurt A. Spokas

3:05pm 2501303 *Evaluating ionization technology for particulate matter reduction in cage-free housing systems* - Presented By: **Yijie Xiong**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Felipe Rodrigues Picchi, Brett C. Ramirez

3:20pm 2500724 *Mitigating Greenhouse Gas and Ammonia Emissions in Litter-Based Pig Farming with Microbial Consortia* - Presented By: **Félix Gobeil**, Université Laval, Quebec City, Quebec, Canada; Erika Yukari Nakanishi, Patrick Brassard, Mick Wu, Sébastien Fournel, Stéphane Godbout

3:35pm *BREAK*

3:45pm 2501325 [NO SHOW]*gation with solid-liquid separation depends on manure storage temperature* - Presented [NO SHOW]**Zaag**, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada

4:00pm 2500658 *Environmentally friendly scenario combining In-Barn Swine Manure Separation and Dry Anaerobic Digestion of the Solid Fraction* - Presented By: **Patrick Brassard**, IRDA, Quebec City, Quebec, Canada; Patrick Brassard, Laura Mila Saavedra, Joahnn Palacios, Stéphane Godbout

4:15pm 2500915 *Biofiltration of gaseous effluents from dairy barns: An in vitro approach for maximizing methane oxidation potential* - Presented By: **Sugandhi Verma**, Université Laval, Quebec, Canada; Sugandhi Verma, Andrea K. Carranza-Díaz, Alexis Ruiz-González, Alexandre Cabral, Stéphane Godbout, Matthieu Girard, Sébastien Fournel

244 Solutions for more Sustainable Controlled Environment Agriculture Systems

Tuesday, 2:30pm - 5:00pm

Location: Simcoe

Technical Community: PAFS - Plant, Animal, & Facility Systems

Session Type: Oral Technical Session

Description: This session will include abstracts that focus on sustainable energy solutions tailored specifically for controlled environment agriculture.

Organizer: Jonathan Maisonneuve, maisonneuve@oakland.edu

Sponsoring Committee: PAFS-30 Plant Systems Group

Moderators: Jonathan Maisonneuve, Md Shamim Ahamed

Time Pres. ID Presentation Title, Presenter, & Authors

2:35pm 2501031 *Balancing Energy Efficiency and Water Use in Adsorption Cooling Systems for Greenhouse Applications* - Presented By: **Md Shamim Ahamed**, University of California, Davis, Davis, California, USA; TM Abir Ahsan, Md Shamim Ahamed

2:50pm 2501298 *Computational Fluid Dynamics (CFD) Simulations of Photovoltaic-Powered Ventilation Systems in Deep Winter Greenhouses* - Presented By: **Yoonhong Yi**, University of Wisconsin-Madison, Madison, Wisconsin, USA; Yoonhong Yi, Neslihan Akdeniz

3:05pm 2500572 *Investigating The Reliability of Aquarium Test Kits and Ion-Selective Electrodes for Nutrition Management of Hydroponic Systems* - Presented By: **Nastaran Alizadeh**, McGill University, Montreal, Quebec, Canada; Philip Wiredu Addo, Sarah MacPherson, Mark Lefsrud

3:20pm 2500741 *Energy Performance of Fertilizer-Based Liquid Desiccants in Controlled Plant Environments* - Presented By: **Jonathan Maisonneuve**, Oakland University, Rochester, Michigan, USA; Sandeep Aryal, Foster Caragay, Sarah Moussaddy, Mark Lefsrud, Jonathan Maisonneuve

3:35pm *BREAK*

3:45pm 2500705 *Building Tools to Predict and Manage the Production of Brassica (Brassica juncea) in High Salinity Hydroponics* - Presented By: **Melanie Correll**, University of Florida, Gainesville, Floirda, USA; Correll, M., Pompeo, J., Hammond, B., Karthikeyan, R., Amy, G., Branham, S., Wechter, P., Adelberg, J., Basil, E., Huffaker, R., Bayabil, H.

4:00pm	2500020	*Recirculating Drip Irrigation System using Seaweed (Kappaphycus Sp.) Drippings for Hydroponic Production of Cherry Tomatoes* - Presented By: **Mark Jude Trondillo**, Davao del Sur State College, Philippines; VITALIANA U. MALAMUG, MARVIN M. CINENSE, JEFFREY A. LAVARIAS
4:15pm	2500196	*Investigating Far-Red Energy Ratios in Photosynthesis: A Real-Time Evaluation Chamber Design* - Presented By: **Fardad Didaran**, Department of Bioresource Engineering, McGill University, Sainte-Anne-de-Bellevue, Montreal, Quebec, Canada; Fardad Didaran, Philip Wiredu Addo, Alice Cherestes, Sophie Rufyikiri, Mark Lefsrud
4:30pm	2500906	*Nano-Enhanced Spectral Selective Cover for Sustainable Agriculture* - Presented By: **Md Shamim Ahamed**, University of California Davis, Davis, California, USA

PRS - Processing Systems

245 Drying, Handling, and Storage of Grain Crops

Tuesday, 2:30pm - 5:00pm

Location: Provincial North

Technical Community: PRS - Processing Systems

Session Type: Oral Technical Session

Description: Grain crops drying, processing, handling, and storage that includes measurement, development, modeling, and related research activities.

Organizer: Ma Cristine Concepcion Ignacio, cristineignacio82@gmail.com

Sponsoring Committee: PRS-702 Crop & Feed Processing & Storage

Moderators: Bethany Calixto

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500689	*Meeting Consumer Demand for Convenient Rice via Instantization: A Focus on Cultivar Optimization* - Presented By: **Griffiths Atungulu**, University of Arkansas System, Fayetteville, Arkansas, USA; Faith Ouma
2:50pm	2501025	*Quantification of Soybean Hydration based on Grain Depth and Airflow Rate using Ambient Air* - Presented By: **Johnselvakumar Lawrence**, AGI (Ag Growth International), Lenexa, Kansas, USA; Johnselvakumar Lawrence, Dirk E. Maier and George Obeng-Akrofi
3:05pm	2500877	**NO SHOW** *to ship traceable pulse products in controlled atmosphere environment* - Presented B University of Turin, Torino, Italy; Patrizia Busato, Diego De la Torre, Ricardo Bartosik
3:20pm	2500360	*Microwave resonator sensor for real-time rusty grain beetle detection in wheat bulk* - Presented By: **Kavi Mughil Murugesan**, University of Manitoba, Winnipeg, Manitoba, Canada; Garrett Kozyniak, Yongsheng Gui, Can-Ming Hu, Fuji Jian
3:35pm		*BREAK*
3:45pm	2500680	*Exploring Microwave Technology as a Replacement for Rice Tempering in Crossflow Column Dryers: A Laboratory Feasibility Study* - Presented By: **Griffiths Atungulu**, University of Arkansas System, Fayetteville, Arkansas, USA
4:00pm	2500264	*Mixed-flow Dryer System Performance Characterization with a Comprehensive Data Acquisition Package* - Presented By: **Keith Urmie**, Iowa State University, Ames, Iowa, USA; Keith Urmie, Bailey Adams
4:15pm	2500485	*Effect of interstitial carbon dioxide on DON production in wheat under different storage conditions* - Presented By: **Aanchal Pande**, University of Manitoba, Winnipeg, Manitoba, Canada; Aanchal Pande, Jitendra Paliwal, Fuji Jian, Matthew G. Bakker
4:30pm	2500280	*Recent development of radio frequency drying technology for grains* - Presented By: **Shaojin Wang**, Northwest A&F University, Yangling, Shaanxi, China

246 Physical and Chemical Properties of Food, Agricultural and Biological Materials II

Tuesday, 2:30pm - 5:00pm

Location: Willow West

Technical Community: PRS - Processing Systems

Session Type: Oral Technical Session

Description: Physical and chemical properties of food, agricultural and biological materials that include current and modern cutting-edge technologies in measurement.

Organizer: Deandrae Smith, smit4870@purdue.edu

Sponsoring Committee: PRS-701 Physiochemical Properties of Biological Pr; **Co-Sponsors:** PRS-03 Processing Systems Standards Oversight

Moderators: Clairmont Clementson, Emmanuel Baidhe

Time	Pres. ID	Presentation Title, Presenter, & Authors
2:35pm	2500068	*Deep Learning-Based Hyperspectral Model Reconstruction from RGB Data for Gluten Detection and Quantification in Foods* - Presented By: **Akinbode Adedeji**, University of Kentucky, Lexington; Akinbode Adedeji, Adewale Oloyede
2:50pm	2500400	*Development of pH-Responsive Nanocarriers for Targeted Oral Delivery of Centella asiatica leaf extract Encapsulated in Starch-β-Cyclodextrin Systems* - Presented By: **Soubhagya Tripathy**, Indian Institute of Technology Kharagpur, India; Soubhagya Tripathy, Prem Prakash Srivastav
3:05pm	2500934	*The effects of particle sizes on the thermal and functional properties of carbohydrate-rich fractions of pea (PCRF)* - Presented By: **Christopher Etti**, School of Engineering, University of Guelph, Guelph, Ontario, Canada; Manickavasagan Annamalai
3:20pm	2500975	*Effect of Electric Field Polarity on the Tribo-Electrostatic Separation of Pulses with Insulators as Charging Tubes* - Presented By: **Ganapathy Subramanian M**, Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Ganapathy Subramanian M, Dayo Oke, Tolu Emiola-Sadiq, Lifeng Zhang, Venkatesh Meda
3:35pm	*BREAK*	
3:45pm	2501091	*Feedstock Modification for Improved Extractability, Structural and Thermo-Rheological Properties of Pea Proteins Derived from Alkaline Assisted Fractionation* - Presented By: **Chinwendu Eze**, McGill University, Montreal, Quebec, Canada; Chinwendu Eze, Michael Ngadi
4:00pm	2501339	*Effect of milling and pre-treatment methods of chickpea on microstructure and physical properties of enriched cereal-based products* - Presented By: **Obasi Ukoji**, University of Manitoba, Winnipeg, Manitoba, Canada; Obasi Ukpai Ukoji, Muhammad Mudassir Arif Chaudhry, Lindsey Boyd, Elaine Sopiwnyk, Jitendra Paliwal
4:15pm	2501392	*Comparative Evaluation of Enzymatic and Aqueous Extraction Techniques for Protein from Cold-Pressed Canola Meal* - Presented By: **Sindhu Chaudhary**, University of Guelph, Guelph, Ontario, Canada; Sindhu Chaudhary, Md. Junaeid Khan, Manickavasagan Annamalai
4:30pm	2501483	*Research Progress and Application of Novel Food Techniques in Food Allergy Feild* - Presented By: **Jin Wang**, Department of Nutrition and Food Hygiene, Southeast University, China; Lili Zhang, Youfa Wang, Jialu Shi, Vijaya Raghavan, Jin Wang

NRES - Natural Resources & Environmental Systems

247 NRES-Advances in Natural Resources POSTER SESSION

Tuesday, 4:30pm - 6:30pm

Location: Exhibit Hall

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Poster Technical Session

Description: NRES Poster Session.

Organizer: Jaime Thissen, jaimethissen1@gmail.com

Sponsoring Committee: NRES-04 Program Committee

Moderators: Jaime Thissen,

Time	Pres. ID	Presentation Title, Presenter, & Authors

2 2501318 *Monitoring Land Use Changes in the Headwaters of the Karkheh River in Southwestern Iran* - Presented By: **Farzaneh Khorsandi**, UC Davis, Davis, California, USA; Khorsandi Kouhanestani, Zohreh, Mokhtari, Farhad, Khorsandi, Farzaneh

42 2500057 *Hydrologic Assessment of Pine Plantations for Water Farming: A Nature-Based Approach to Flood Mitigation* - Presented By: **Callie McCright**, North Carolina State University, Raleigh, North Carolina, USA; Callie McCright, Barbara Doll, Marcelo Ardón, Jack Kurki-Fox, Chad Poole, Hossam Moursi, Mohamed Youssef

43 2500273 *Quantifying sediment source dynamics in tile-drained depressional Midwest watersheds: Insights from in situ sensing, modeling, and fingerprinting* - Presented By: **Tyler Botts**, The University of Kentucky, Department of Biosystems and Agricultural Engineering, Lexington, Kentucky, USA; Tyler Botts, Dr. William Ford, Dr. Mark Williams

44 2500511 *Modeling of soil water distribution under different irrigation types and techniques for improving blueberry irrigation management* - Presented By: **Stewart Tucker**, Michigan State University, East Lansing, Michigan, USA

45 2500518 *Deep percolation estimation through weighing lysimeter using soil moisture sensor: decadal simulation of winter rainfall and snow melt through HYDRUS* - Presented By: **Greg Rounland**, Michigan State University, USA; Nawab Ali, Greg Rouland, Younsuk Dong

46 2500535 *Field-Scale Agro-Hydrological Effects of Regenerative Agriculture in Altus, Oklahoma, under Projected Future Climate* - Presented By: **Navdeep Saasan**, , Stillwater, Oklahoma, USA; Navdeep Saasan, Ali Mirchi, Kasra Khodkar, Kevin Wagner, Adrienne Wootten, Srinivasulu Ale

47 2500712 *Assessing The Impacts Of Broader Adoption Of Deficit Irrigation Practices On Groundwater Conservation In An Agricultural Watershed* - Presented By: **Ayushi Pandey**, Texas A&M University, College Station, Texas, USA; Ayushi Pandey, Srinivasulu Ale, Sayantan Samanta, Seonggyu Park, Jaehak Jeong, Salvatore Calabrese, Jourdan Bell

48 2500795 *Optimization of hydraulic parameters using HYDRUS 1D for flow through a biobed* - Presented By: **Ifeoluwa Omotade**, University of Manitoba, Winnipeg, Manitoba, Canada; Ifeoluwa F. Omotade, Sarah Johnson, Ramanathan Sri Ranjan, Annemieke Farenhorst

49 2500810 *Pasture Cropping as a Regenerative Practice on Grazing Lands: Impacts on Soil Physical, Chemical, and Biological Properties* - Presented By: **Hardev Singh**, Texas A&M University, College Station, Texas, USA; Srinivasulu Ale, Bhupinder Singh, Sayantan Samanta, Arun Bawa, Paul B. DeLaune, Rabi Mohtar

50 2500913 *Effect of Biochar Modification on Metal Transport* - Presented By: **Atiqur Rahman**, Auburn University, Auburn, Alabama, USA; Atiqur Rahman, Rakesh Kumar, Jasmeet Lamba, Sushil Adhikari, Thomas R. Way, Henry Allen Torbert

51 2500124 *Phosphorus Removal and Dissolved Oxygen Dynamics in the Shannon Wetlands* - Presented By: **Derek McAden**, University of Georgia, Athens, Georgia, USA; Dr. Whitney Pagan, Dr. Rhett Jackson, Dr. Brian Bledsoe

52 2501023 *Impact of biochar addition and crop rotations on soil hydraulic properties* - Presented By: **Ranveer Singh**, Auburn University, Auburn, Alabama, USA; Jasmeet Lamba, Audrey Gamble, Hemendra Kumar, Thomas R. Way

53 2500168 *Enhancing Irrigation Performance Using Remote Sensing and Ground-Measured Data During Compound Drought and Heatwave Events* - Presented By: **Won-Ho Nam**, , Korea; Won-Ho Nam

54 2501100 *Rooting for Resilience: Assessing Soil Function in Reforested Riparian Areas* - Presented By: **Myranda Hentges**, University of Kentucky, Lexington, Kentucky, USA; Myranda Hentges, Noah Lane, Abbie Davidson, Kenton Sena, John McMaine

55 2500896 NO SHOW *aulic properties of maize peduncle of different varieties on kernels under deficit irrigation* - **Li**, China Institute of Water Resources and Hydropower Research, Beijing, China; Li Hao, Zhang Yanqun, Zhang Hengyuan, Zhao Luying, Mo Yan, Li Sien

56 2500274 *Soil Moisture Prediction using VNIR Spectroscopy and Deep learning for Ground Vehicle Applications* - Presented By: **Xiaomo Zhang**, Department of Agricultural and Biosystems Engineering, North Dakota State University, Fargo, North Dakota, USA

57 2500387 *Predicting Future Nutrient Loads and Associated Ecological Impacts under Climate and Land Use Uncertainty* - Presented By: **Helen Velasquez Duron**, North Carolina State University, Raleigh, North Carolina, USA; Helen Velasquez Duron, Daniel Obenour, Natalie Nelson

58 2501115 *RATION OF GEOPHYSICAL TOOLS FOR MONITORING GROUN RRIGATED FIELDS* - Presented By: **Estée Swartz**, Michigan State University, East Lansing, Michigan, USA

59 2501136 *ield improvement method of winter wheat high yield field based on NPK ratio and fertig* - Presented By: **Weixia Zhao**, State Key Laboratory of Simulation and Regulation of Water Cycle in River Basin, China Institute of Water Resources and Hydropower Research, Beijing, China; Jiale Li., Weixia Zhao

60 2501187 *rop variety and seeding rate on sprinkler fertigation management for winter wheat* - Pr **Zhao**, State Key Laboratory of Simulation and Regulation of Water Cycle in River Basin, China Institute of Water Resources and Hydropower Research, Beijing, China; Limei Xiao, Weixia Zhao, Zhijie Shan

61 2501342 *DRAINMOD Modeling of Water Table Depth and Soybean Yield under Different Drain Spacing in Heavy Clay Soils in Manitoba* - Presented By: **Thushyanthy Akileshan**, Department of Biosystems Engineering, University of Manitoba, Winnipeg, Manitoba, Canada; Ramanathan Sri Ranjan

62 2501358 *Effects on Hydrological Processes and Fluxes* - Presented By: **Neelnayana Kalita**, Uni inesville, Floirda, USA; Sanjay Shukla, Gregory Hendricks, Vijay Santikari, Ismael Ramirez

63 2501465 *mpact of Net Dimensions on Bycatch Levels in Lake Victoria* - Presented By: **Zziwa Mich** ral Research Institute, Mukono, Uganda

64 2501486 *Wheat Straw Biochar Effects on the Green Pepper Fruit Quality under Two Different Textured Soils* - Presented By: **Joba Purkaystha**, McGill University, Montreal, Quebec, Canada; Joba Purkaystha, Shiv Prasher, Muhammad Tabassum Afzal, Jaskaran Dhiman, Christopher Nzediegwu

65 2501626 *Assessments of Statewide Surface Water Samples for Data Deserts* - Presented By: **William Rud**, University of Kentucky, Lexington, Kentucky, USA; William Rud, Dr. Tiffany Messer

66 2501649 *Automatic Mapping of Center Pivot Irrigation Systems in Mahomet Aquifer Region of Illinois* - Presented By: **Hannah Sundararajan**, University of Illinois Urbana-Champaign, Champaign, Illinois, USA; Sunoj Shajahan

67 2500029 *vided machine learning model with soil moisture for corn yield prediction under droug* nted By: **Zhou Zhang**, Department of Biological Systems Engineering, University of Wisconsin-Madison, Madison, Wisconsin, USA; Xiaoyu Wang, Yijia Xu, Jingyi Huang, Zhengwei Yang, Zhou Zhang

68 2500326 *A Low-Cost IoT Water Sampler for Scalable Environmental Monitoring* - Presented By: **Ansley Brown**, Colorado State University, Fort Collins, Colorado, USA; Ansley Brown, Emmanuel Deleon, Jake Ladow, Erik Wardle

69 2500789 *Understanding the Impact of Some Defatted Soybean Meal Management Options: A Life Cycle Assessment Approach* - Presented By: **Ademola Ajayi-Banji**, North Dakota State University, USA; Ademola Ajayi-Banji, Francisca Kyei, Xiaoyu Feng

70 2500390 *Lake Surface Water Quality Assessment for Central Kentucky Distilleries* - Presented By: **Katherine Ristola**, University of Kentucky, Lexington, Kentucky, USA; Katherine Ristola, Dr. Tiffany Messer

71 2500205 *on with paraquat to control goat weed (Scoparia dulcis) in citrus orchards* - Presented B , University of Arkansas, Arkansas, USA; Ramdas Kanissery, Yiannis Ampatzidis

72 2501715 *Optimization strategies for carbon neutrality in a maize-soybean rotation production system from farm to gate* - Presented By: **Yueying Wang**, Zhejiang University, Hangzhou, China; Yueying Wang, Qianjing Jiang, Yong He

73 2501708 *undwater Vulnerability Assessment in Florida: DRASTIC Model using XAI* - Presented B **mmadi**, University of Florida, Gainesville, Floirda, USA; Seyed Mostafa Biazar, Golmar Golmohammadi, Saba Shaghaghi, Kourosh Mohammadi

74 2501709 *od Sustainability in Florida through Explainable AI-Based Susceptibility Mapping* - P **r Golmohammadi**, University of Florida, Ona, Florida, USA; Seyed Mostafa Biazar, Golmar Golmohammadi, Saba Shaghaghi, Kourosh Mohammadi

ASE - Applied Science & Engineering

301 Sustainability in Circular and Carbon-Negative Biosystems

Wednesday, 7:30am - 10:00am

Location: Maple East/West

Technical Community: ASE - Applied Science & Engineering

Session Type: Oral Technical Session

Description: Achieving a circular economy is critical for a sustainable future, particularly in sectors that currently produce resource-intensive products in a linear fashion, such as food and agriculture. At the same time, carbon-negative technologies that remove atmospheric CO2 must be developed and deployed rapidly in order to avoid the worst effects of climate change. Circularity and carbon removal are often assessed and discussed independently, even though they are highly intertwined. This session will explore conventional and emerging technologies and practices that synergize carbon removal within circular biosystems. A particular emphasis will be on assessing trade-offs between utilizing biomass for energy and carbon removal.

Organizer: Joe Sagues, wjsagues@ncsu.edu

Sponsoring Committee: ASE-16 Engineering for Sustainability; **Co-Sponsors:** ES-220 Bio-based Energy, Fuels and Products, CBSI-Circular Bioeconomy Systems Institute

Moderators: Joe Sagues, Lori Duncan

Time	Pres. ID	Presentation Title, Presenter, & Authors
7:35am	2500786	*Features of Interest in Agrifood System Observations and Measurements: How to Model Them Painlessly and Make Them Work for You* - Presented By: **Kodai Watanabe**, Mississippi State University, Starkville, Mississippi, USA; Watanabe, K., Adhikari, D., Craker, B.E., Ferreyra, R.A., Fuller, H.D., Hillyer, C.C.
7:50am	2500162	*Innovative Framework for Assessing Agricultural Resilience Across Economic Classes in Diverse Climate Scenarios* - Presented By: **Kieron Moller**, Michigan State University, East Lansing, Michigan, USA; Kieron Moller, A. Pouyan Nejadhashemi, Mohammad Tirgaris, Nilson Vieira Junior, Ana Julia Paula Carcedo, Ignacio Ciampitti, P. V. Vara Prasad, Amadiane Diallo
8:05am	2500297	*Techno-Economic Assessment of Atmospheric Carbon Removal via Anaerobic Digestion of Biomass Waste* - Presented By: **Julia Cunniffe**, North Carolina State University, Raleigh, North Carolina, USA; Julia Cunniffe, Yaojing Qiu, Chloe Lum, Jay Cheng, William Joe Sagues
8:20am	2500330	*Alkaline Mineral Residues from Pulp Mills as a Sustainable and Economical Alternative to Lime Fertilizers* - Presented By: **Ethan Woods**, North Carolina State University, Raleigh, North Carolina, USA; Andrew Trlica, Perry Berlin, Sean Bloszies, Alex Woodley, Rachel Cook, Joe Sagues
8:35am	*BREAK*	
8:45am	2500519	*Measuring sustainability with ecosystem services: A systematic review of indicator selection in ecosystem health modeling* - Presented By: **Raj Cibin**, Penn State University, University Park, Pennsylvania, USA; Kalra Marali, Robert Chiles, Jason Kaye, Christine Kirchhoff, Lisa Wainger, Raj Cibin
9:00am	2500520	*Biochar added to cementitious materials: An approach to develop green concrete composites* - Presented By: **Ravi Patel**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada
9:15am	2500983	*Synergizing CO_2 Utilization and Biofuel Production with Clostridium muellerianum P21: Advancements in Media, Temperature, and Gas Composition Optimization* - Presented By: **Mari Chinn**, Oklahoma State University, Stillwater, Oklahoma, USA; Rahul Thunuguntla, Hasan K. Atiyeh, Mari S. Chinn, Ralph S. Tanner
9:30am	2501395	*Hierarchical Activated Biocarbon from Corn Distiller Soluble: A Promising Adsorbent for Efficient CO2 Capture* - Presented By: **Aneela Hayder**, University of Guelph, Guelph, Ontario, Canada; Animesh Dutta

EOPD - Education, Outreach, & Professional Development

302 EOPD-Education, Outreach and Professional Development POSTER SESSION

Wednesday, 7:30am - 10:00am

Location: Exhibit Hall

Technical Community: EOPD - Education, Outreach, & Professional Development

Session Type: Poster Technical Session

Description: Posters related to education, outreach, and professional development across ASABE topic areas.

Organizer: John Long, john.m.long@okstate.edu

Sponsoring Committee: EOPD-01 POSTER SESSION; **Co-Sponsors:** EOPD-203 Undergraduate & Graduate Instruction, EOPD-204 Engineering & Technology Accreditation, EOPD-205 Engineering Technology & Management Education, EOPD-206 Ag Technology & Mgmt Curriculum Review & Pgm Recog, EOPD-208 Extension, EOPD-412 Professional

Moderators: John Long

Poster#	Pres. ID	Presentation Title, Presenter, & Authors
1	2501322	*Interdisciplinary Certificate - Skills for Navigating Uncertain Environments* - Presented By: **John Classen**, Biological & Agricultural Engineering, NC State University, Raleigh, North Carolina, USA; John Classen, Alison Deviney, Praveen Kolar
2	2501389	*Come Rain or Shine: An Inventory of Climate Entities at U.S. Public Universities* - Presented By: **Abbie Davidson**, University of Kentucky, Lexington, Kentucky, USA; Abbie Davidson, Myranda Hentges, Noah Lane, John McMaine, Ashfaq Ahmad
3	2501388	*The Role of Entrepreneurial Minded Learning in Project Management* - Presented By: **Brandon Hollenback**, University of Illinois Urbana-Champaign, Champaign, Illinois, USA; Brandon Hollenback, Travis Johnson, Molly Goldstein, Paul Davidson
4	2501166	*Consumer Preferences and Willingness to Buy Value-added Goat Meat Products in the Southern United States* - Presented By: **Nalini Pattanaik**, Fort Valley State University, Fort Valley, Georgia, USA; Mohammed Ibrahim, Brou Kouakou, Nalini Pattanaik, Benjamin Onyango

ES - Energy Systems

303 Techno-Economic and Life Cycle Assessment of Biomass Conversion and Agricultural Systems

Wednesday, 7:30am - 10:00am

Location: Willow Center

Technical Community: ES - Energy Systems

Session Type: Oral Technical Session

Description: This session invites abstracts dealing with sustainability analysis using process modeling (techno-economic analysis) or life cycle assessment of agricultural and bioenergy systems, including the production of biofuels, energy, bio-products, bio-feedstocks. Abstracts related to LCA methodologies and assumptions affecting the results are also welcomed.

Organizer: Mi Li, mli47@utk.edu

Sponsoring Committee: ES-220 Bio-based Energy, Fuels and Products

Moderators: Brendan Higgins

Time	Pres. ID	Presentation Title, Presenter, & Authors
7:35am	2500080	*LIFE CYCLE ASSESSMENT OF BIOENERGY PRODUCTION FROM ANAEROBIC CO-DIGESTION OF COW DUNG WITH RICE STRAW* - Presented By: **Chayan Kumer Saha**, Bangladesh Agricultural University, Bangladesh; Chayan Kumer Saha, Mst. Lucky Khatun, Md. Monjurul Alam
7:50am	2501245	*Comparative techno-economic analysis of renewable gas production for on-farm and centralized anaerobic digestors for dairy farms* - Presented By: **Camila Valderrama**, The Pennsylvania State University; Elmin Rahic, Juliana Vasco-Correa
8:05am	2500568	*Unlocking the economic and sustainability potential of cover crops in the Pacific Northwest by hydrothermal liquefaction pathway for biofuels production* - Presented By: **Daniel Santosa**, Pacific Northwest

National Laboratory, Richland, Washington, USA; Francesca Pierobon, Dilara Goreke, Teal Potter, Steven Norberg, Doug Collins, Chad Kruger, Jonathan Male

8:20am 2500700 *Life Cycle Assessment of Small- and Craft-Scale Bourbon Distilleries* - Presented By: **Tyler Barzee**, University of Kentucky, Lexington, Kentucky, USA; Yosselin Castro Islas, Tyler Barzee, Czarena Crofcheck, Bradley Berron

8:35am *BREAK*

8:45am 2500943 *Co-processing hydrothermal liquefaction bio-oil with vacuum gas oil (VGO) in a conventional hydroprocessing unit for transportation fuels* - Presented By: **Arun Sreekumar**, University of Alberta, Edmonton, Alberta, Canada; Arun Sreekumar, Jubil Joy, Amit Kumar

9:00am 2501607 *Techno-economic analysis of bioplastic and bio-oil co-production from forest residue biomass using hybrid conversion process* - Presented By: **Md Shahadat Hossain**, SUNY College of Environmental Science and Forestry, Syracuse, New York, USA; Md Shahadat Hossain, Chang G. Yoo, Sushil Adhikari, Obste Therasme, Timothy A. Volk, Tristan Brown, Deepak Kumar

ITSC - Information Technology, Sensors & Control Systems

304 Machine Vision for Precision Animals and Field Robotics-LIGHTNING PANEL

Wednesday, 7:30am - 10:00am

Location: Linden

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Lightning Oral Technical Session

Description: Focuses on all machine vision innovation and applications in Precision Animals and Field Robotics.

Organizer: Daeun Choi, dana.choi@ufl.edu

Sponsoring Committee: ITSC-312 Machine Vision

Moderators: Magni Hussain

Time Pres. ID Presentation Title, Presenter, & Authors

7:35am 2501588 *A Machine Vision Based Variable Rate Robotic Application for Individual Tree Level Nitrogen Management in Apple Orchard* - Presented By: **Manoj Karkee**, Washington State University, Prosser, Washington, USA; Achyut Paudel, Jostan Brown, Deven Biehler, Priyanka Upadhyaya, Atif Bilal Asad, Safal Kshetri, Joseph R. Davidson, Cindy Grimm, Ashley Thompson, Manoj Karkee

7:42am 2500780 *Advancing Agricultural Monitoring: Automated Detection and Water Use Estimation of Poultry AFOs Using Deep Learning* - Presented By: **Savannah Jobkar**, University of Tennessee Knoxville, Knoxville, Tennessee, USA; Savannah Jobkar, Emine Fidan, Shawn Hawkins, Hao Gan

7:49am 2501156 *An Intelligent Robot Based on Optimized YOLOv11l for Weed Control in Lettuce* - Presented By: **Xue-Chen Li**, University of Minnesota, Saint Paul, Minnesota, USA; Rui-Feng Wang, Yu-Hao Tu, Xue-Chen Li, Zi-Qiu Chen, Chang-Tao Zhao, Ce Yang, Wen-Hao Su

7:56am 2500594 *Monitoring chicken farms using rail surveillance system and deep learning* - Presented By: **Kai-Rong Chang**, Department of Biomechatronics Engineering, National Taiwan University, Taiwan; Kai-Rong Chang, Yan-Fu Kuo

8:03am *DISCUSSION*

8:10am 2500221 *Precision Detection of the Real-Time Health and Welfare Conditions of Pigs Using Deep Learning Techniques* - Presented By: **Melvin Hagonob**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Melvin D. Hagonob, B.Sc., Alvin C. Alvarado, M.Sc., Bernardo Z. Predicala, Ph.D.

8:17am 2501396 *Remote Animal Health Management with Server-side AI-ML Developed Application of Streamed RFID-supported Movement-Signal Telemetry* - Presented By: **Sudhanshu Panda**, University of North Georgia, Oakwood, Georgia, USA

8:24am 2501558 *Development and Testing of a Seed Placement Data Collection System for Wheat Drill Row Units Using Computer Vision* - Presented By: **Benjamin Vail**, Kansas State University, Manhattan, Kansas, USA; Benjamin Vail, Dr. Ajay Sharda, Dr. Brian McCornack

8:31am 2501619 *Strawberry pose estimation using knowledge distillation for automatic harvesting system* - Presented By: **Seung-Woo Kang**, Department of Agricultural Machinery Engineering, Chungnam National University, Republic of Korea; Seung-Woo Kang, Baek-gyeom Seong, Tae-Sin Lee, Dae-Hyun Lee

8:38am *DISCUSSION & BREAK*

8:50am 2500592 *Automated Detection of Farrowing Events in Commercial Pig Farms Using Deep Learning* - Presented By: **Wen-Liang Chu Wang**, Department of Biomechatronics Engineering, National Taiwan University, Taipei, Taiwan; Wen-Liang, Chu Wang, En-Chung, Lin, Yan-Fu, Kuo

8:57am 2501165 *Beetle Detection using YOLOv5-Based machine vision mounted on sprayer on-the-go* - Presented By: **Imran Hassan**, Dalhousie, Truro, Nova Scotia, Canada; Imran Hassan, Ahmad Al-Mallahi, Ali Shirzadifar, Humphrey Maambo

9:03am 2501456 *Enhancing precision and adaptability of image-based cattle identification: A multi-scale feature fusion and efficient training optimization-based method* - Presented By: **Wenlong Yin**, China Agricultural University, Beijing, China; Gang Liu, Chong Yao

9:10am 2500679 *Deployment of Instance Detection Models on Edge Devices to Enable Precision Weed Spot Spraying* - Presented By: **Ameyassh Nagarajan**, Oregon State University, Corvallis, Oregon, USA; Mohammad Amir Eshraghi, Pete Berry, Jing Zhou

9:17am *DISCUSSION*

305 Simulation-aided Agricultural Design and Optimization-LIGHTNING PANEL

Wednesday, 7:30am - 10:00am

Location: Willow East

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Lightning Oral Technical Session

Description: This session focuses on numerical simulation-based decision-making and design/ system optimization on various agricultural and biological engineering problems.

Organizer: Douglas Cook, d.cook@byu.edu

Sponsoring Committee: ITSC-217 Computational Methods, Simulations & Applications

Moderators: Douglas Cook, Darren Drewry

Time Pres. ID Presentation Title, Presenter, & Authors

7:35am 2500008 *Predicting wear in agricultural machinery tools with artificial intelligence approaches* - Presented By: **Shirin Ghatrehsamani**, Pennsylvania State University, USA; Sahar Ghatrehsamani, Mohammad Silani, Saleh Akbarzadeh, Shirin Ghatrehsamani

7:42am 2500303 *In-silico Evaluation of Peptide Targeting Novel Therapeutic Target for Citrus Greening Disease: Type I Signal Peptidase of Candidatus Liberibacter asiaticus* - Presented By: **Aadhil Haq**, Texas A&M University, College Station, Texas, USA; Aadhil Haq, Maria Santibanez Prado, Samavath Mallawarachchi, Sonia Irigoyen, Ivantha Nawaratna, Kranthi Mandadi, Sandun Fernando

7:49am 2500558 *A semi-analytical time integration scheme for accoustic wave propagation in maize stalk* - Presented By: **Haruka Tomobe**, Saitama University, Japan; Haruka Tomobe, Taiken Nakashima, Yuri Harasawa, Takumi Morigaki, Yoichiro Kato

7:56am 2500579 *Enhancing Tractor Stability Through Active Suspension: A Comparative Study of Actuator Heights* - Presented By: **Jinho Son**, Kyungpook National University, Republic of Korea; Jinho Son, Seokho Kang, Hyunggyu Park, Yujin Han, Juhee Lee, Wonyeol Choi, Yushin Ha

8:03am *DISCUSSION*

8:10am 2501153 *Development of a Deep Learning Model for Tractor Launch Shifting Quality Prediction* - Presented By: **Kim Junhyeok**, Chonnam National University, Gwangju, Republic of Korea; Jooseon Oh, Jin-woong Lee, Jinkam Park, Hyeon Sim

8:17am 2501218 *Quadruped Robot Walking Stability and Korean Melon (Chamoe) Damage Risk during Transport in Simulated Greenhouse Environment using Bullet Physics Engine* - Presented By: **DongSeok Shin**, Sejong University, Seoul, Korea; Hyeonji Park, EunGyu Lee, SoonDuk Kwon, DongSeok Shin, Jinwon Kim, Seoung Taek Sung, Chang Hyeon Baek, Dongkyu Lee, Hyun Kwon Suh

8:24am 2500254 *Generation of Synthetic Image Data in a Simulated Agricultural Environment Using MAVS: A Case Study and Evaluation on Deep Learning-Based Cotton Boll Detection* - Presented By: **Kodai**

Watanabe, Mississippi State University, Starkville, Mississippi, USA; Kodai Watanabe, Dr. Xin Zhang, Dr. Chris Goodin, Parastou Ahadpour Bakhtiari, Madison Dixon

8:31am 2501000 *Observational and Computational Analysis of the Structural Failure Process of Maize Stalk Lodging* - Presented By: **Douglas Cook**, Brigham Young University, Provo, Utah, USA

8:38am *DISCUSSION & BREAK*

8:50am 2501420 *Virtual Farm Environments and Sim-to-Real Transfer in Agricultural Robotics Using NVIDIA Omniverse* - Presented By: **Yogesh Chawla**, University of Nebraska–Lincoln, Lincoln, Nebraska, USA

8:57am 2500971 *Analyzing the static and dynamic stability of a 110 kW hydrogen fuel cell tractor using simulation* - Presented By: **Seokho Kang**, Department of Smart Bio-Industrial Mechanical Engineering, College of Agriculture and Life Science, Kyungpook National University, Daegu, South Korea; Yujin Han, Seokho Kang, Jinho Son, Juhee Lee, Hyunggyu Park, Wonyeol Choi, Yushin Ha

9:03am 2500667 *Leveraging high-resolution geospatial data for systematic blocking in precision agricultural experiments* - Presented By: **J. V. Krogmeier**, Purdue University, West Lafayette, Indiana, USA; Sneha Jha, J. V. Krogmeier, Yaguang Zhang

9:10am *DISCUSSION*

306 Spectroscopic Sensing and Imaging for Quality Assessment in Agricultural Commodities - LIGHTNING PANEL

Wednesday, 7:30am - 10:00am

Location: Cedar

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Lightning Oral Technical Session

Description: Development and applications of spectroscopic sensing and imaging technologies for agrifood uses.

Organizer: Micah Lewis, micah.lewis@usda.gov

Sponsoring Committee: ITSC-348 Electromagnetics & Spectroscopy

Moderators: Maryam Mohammadi-Aragh

Time Pres. ID Presentation Title, Presenter, & Authors

7:35am 2500637 *Optical propagation characteristics and micronaire assessment of cotton fibers* - Presented By: **Sanhui Wang**, College of Mechanical and Electrical Engineering, Shihezi University, Shihezi City, Xinjiang; Sanhui Wang, Mengyun Zhang, Xiang Qiu, Shicheng Hong

7:42am 2500240 *Optical properties of Cotton and foreign materials in the wavelength range from 400 to 2400 nm* - Presented By: **Xiang Qiu**, College of Mechanical and Electrical Engineering, Shihezi University, Shihezi City, Xinjiang Province, China; Xiang Qiu, Sanhui Wang, Zhenxuan Zhao, Shicheng Hong, Mengyun Zhang

7:49am 2500501 *Corn flood severity evaluation by integrating UAV-based multispectral image* - Presented By: **Mohammed Kamruzzaman**, Department of Agricultural and Biological Engineering at the University of Illinois at Urbana-Champaign, Urbana, Illinois, USA; Di Song, Mohammed Kamruzzaman

7:56am 2500891 *Deploying and Assessing Field Sensing Systems for Nutrients in Potato Plants Based on spectroscopy* - Presented By: **Yosr Khadrani**, Dalhousie, Truro, Nova Scotia, Canada; Yosr Khadrani, Ahmad Al-Mallahi, Reem Abukmeil, Felipe Campelo

8:03am *DISCUSSION*

8:10am 2500765 *Site Specific Management of Iron Deficiency Chlorosis in Soybean* - Presented By: **Cooper Little**, Mississippi State University, Starkville, Mississippi, USA

8:17am 2500541 *Spectral Signature Analysis for Rapid, Non-Destructive Diagnosis of Pest-Induced Stress in Strawberries* - Presented By: **Carter Freeman**, Auburn University Department of Biosystems Engineering, Auburn, Alabama, USA; Carter Freeman, Hasibur Rahman, Sushan Ru, Tanzeel Rehman

8:24am 2501178 *Rapid Detection of Protein Content in Mycelium Using Near-Infrared Spectroscopy and Chemometrics* - Presented By: **Mohammed Kamruzzaman**, University of Illinois Urbana- Champaign, Urbana, Illinois, USA; Jin-Jua Qiao, Ding-Rong Kang, Mohammed Kamruzzaman, Douglas F. Barbin, Wen-Hao Su

8:31am 2500357 *Prediction of Protein Content in Paddy Rice Using Near-Infrared Spectroscopy and Machine Learning/Deep Learning Techniques* - Presented By: **Gyumin Kim**, Seoul National University, Seoul, South Korea; Gyumin Kim, Harin Jang, DongHyeon Seong, Mingyu Baek, Minhyun Kim, Ghiseok Kim

8:38am *DISCUSSION & BREAK*

8:50am 2500444 *Decoupling and Separation of Ractopamine and Clenbuterol Raman Signals in Mixtures Based on Peak Coupling Effects* - Presented By: **Tianzhen Yin**, China Agricultural University, Beijing, China; Tianzhen Yin, Yankun Peng, Yongyu Li, Kuanglin Chao, Jianwei Qin, Mingjuan Xie

8:57am 2500123 *Diagnosis of soft rot disease in Kimchi cabbage with bioimpedance spectroscopy using wearable gold electrode* - Presented By: **Daesik Son**, Seoul National University, Seoul, South Korea; Daesik Son, Serim Lee, Jiwon Yang, Jae Joon Kim, Soo Chung

9:03am 2501299 *A Prediction Model for Total Glycoalkaloid Accumulation in Yukon Gold potatoes using SWIR Hyperspectral Imaging* - Presented By: **Chandra Singh**, Lethbridge Polytechnic, Lethbridge, Alberta, Canada; S. Ramalingam, D. Singla, M. Chowdhury, M. Konschuh, C.B. Singh

9:10am *DISCUSSION*

MS - Machinery Systems

308 UAS Applications in Precision Agriculture, Natural Resources, and Vector Control

Wednesday, 7:30am - 10:00am

Location: Dominion North

Technical Community: MS - Machinery Systems

Session Type: Oral Technical Session

Description: This session highlights the breadth of novel Uncrewed Aerial Systems (aka UAS or drones), within our entire professional society.

Organizer: Daniel Martin, dan.martin@usda.gov

Sponsoring Committee: MS-60 Unmanned Aerial Systems

Moderators: Daniel Martin

Time Pres. ID Presentation Title, Presenter, & Authors

7:35am 2501130 *High Plains Wheat Mosaic Virus (HPWMoV) in sweet corn using multispectral imagery a[illegible]r* - Presented By: **Sandeep Dhakal**, The Ohio State University, Columbus, Ohio, USA; Sandeep Dhakal, Erik W. Ohlson, Jennifer Wilson, Sami Khanal

NO SHOW

7:50am 2501144 *Foundational Interaction Research for Manipulating Drones* - Presented By: **Joshua Peschel**, Iowa State University, Ames, Iowa, USA; Mitchell L. Bailey, Sierra N. Young, Joshua M. Peschel

8:05am 2500616 *Identifying yellow hawkweed in wild blueberry fields using drone images for site-specific herbicide application* - Presented By: **Chloe Toombs**, Dalhousie University, Truro, Nova Scotia, Canada; Chloe L. Toombs, Travis J. Esau, Qamar U. Zaman, Yunfei Jiang, Lily Calderwood

8:20am 2500880 *RY SENSE: AN AUTOMATED TOOL FOR RAPID YIELD PREDICTION OF UAV-BASED REMOTELY SENSED DATA FOR FIELD-BASED BREEDING PROGRAMS* - Presented By: **Aashvi Dua**, Kansas State University, Manhattan, Kansas, USA; Aashvi Dua, Ajay Sharda, William Schapaugh, Rene Hessel

8:35am *BREAK*

8:45am 2500657 *UAS Seeding Uniformity of Cover Crops* - Presented By: **Austin Warren**, University of Georgia, Tifton, Georgia, USA; Wesley Porter, Nicholas Basinger, Jodi Johnson-Maynard

9:00am 2500872 *[illegible]rly Diagnosis Method of Alfalfa Root Rot Based on Low-altitude Remote Sensing* - P[illegible]**Wang**, China Agricultural University, Beijing, China; Mengyuan Lu, Maishan Ji, Weijian Yu, Nan Shang, Zhao Zhang, Tianyi Wang

NO SHOW

9:15am 2500352 *Application Rate and Distribution Uniformity of Cover Crop Seeding with an Unmanned Aerial System (UAS)* - Presented By: **Jacob Sizemore**, Auburn University, Auburn, Alabama, USA; Jacob Sizemore, Simerjeet Virk, Audrey Gamble, Steve Li

9:30am 2500879 *Automated tool for rapid data analytics of remotely sensed data for phenotypic and precision agriculture applications* - Presented By: **Aashvi Dua**, Kansas State University, Manhattan, Kansas, USA; Aashvi Dua, Ajay Sharda, William Schapaugh, Rene Hessel

NRES - Natural Resources & Environmental Systems

309 Advances in Irrigation Management: Irrigation Systems and Sensors

Wednesday, 7:30am - 10:00am

Location: Simcoe

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Advances in irrigation management, particularly irrigation systems such as mobile drip, drip irrigation, center pivot irrigation, soil moisture sensing techniques, and other sensors used for irrigation management, have shown a potential to improve crop water use efficiency. Adopting these technologies is essential for optimizing water usage, reducing wastage, reducing leaching, and promoting healthier plant growth, leading to increased crop yields and enhanced agricultural productivity.

Organizer: Stacia Conger, sdavis@agcenter.lsu.edu

Sponsoring Committee: NRES-24 Irrigation; **Co-Sponsors:** NRES-244 Irrigation Management

Moderators: Stacia Conger

Time	Pres. ID	Presentation Title, Presenter, & Authors
7:35am	2501266	*Leveraging Technology for Enhancing Irrigation Management in The Colorado River Basin of Utah for a Water-Secure-Future* - Presented By: **Silas Ekadu**, Utah State University, Logan, Utah, USA; Matt Yost, Burdette Barker, Elisa Flint
7:50am	2500328	*Modeling the adoption of water management strategies and their impact on watershed-scale water resources using ABM influenced by socio-economic factors* - Presented By: **Adel Shirmohammadi**, University of Maryland, College Park, Maryland, USA; Mohammad Reza Yazdi-Samadi, Emma Gray, Adel Shirmohammadi, Masoud Negahban-Azar
8:05am	2500315	*Modeling Sub-Daily Root Zone Soil Moisture Dynamics to Fill Enhancing Satellite Observation Intervals* - Presented By: **Ziwen Yu**, University of Florida, Gainesville, Floirda, USA; Chi, Zhang, Ziwen Yu, Jasmeet Judge, Laura Almendra Martin
8:20am	2500129	*Digging into DIRT: Decision Support Webtool for Furrow Irrigators in Louisiana* - Presented By: **Stacia Conger**, LSU AgCenter, Bossier City, Louisiana, USA; S. L. D. Conger, M. A. Rahim, S. Mithila, A. Garcia, M. Franks, R. V. Rohli, C. J. Friedland
8:35am		*BREAK*
8:45am	2500860	*Measurement and Simulation of Moisture Dynamics in Calcareous Soils* - Presented By: **Haimanote Bayabil**, University of Florida, USA; Haimanote Bayabil, Girma Awoke, Saddam Hussain, Mulatu L. Berihun, Fitsum T. Teshome, Niguss S. Hailegnaw
9:00am	2500779	*Assessing the Effect of Temperature, Moisture, and Procedure on Stability of a Capacitive Soil Moisture Sensor Calibration* - Presented By: **Robel Fikadu Alemayehu**, Department of Biological Engineering, University of Idaho, Moscow, Idaho, USA; Robel Alemayehu, Jaycee Johnson, Dev Shrestha, Milo Flint, Daniel Strawn, Russell Qualls
9:15am	2501042	*Analysis of Irrigation Challenges for Mechanized Garlic Cultivation in South Korea* - Presented By: **Hyung Gyu Park**, Kyungpook National University, Daegu, Republic of Korea; Park Hyung Gyu, Choi Won Yeol, Son Jin Ho, Han YuJin, Lee JuHee, Kang Seok Ho, Ha Yu Shin

311 AI, Data-Driven and Remote Sensing Approaches in Irrigation Management

Wednesday, 7:30am - 10:00am

Location: Civic Ballroom South

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: The role of AI, and remote sensing is crucial in efficient irrigation management. As larger efficiency in irrigation water use is always desirable, these technologies can play a key role in developing precise management zones and strategies to achieve that. A lot of new research focuses on these technologies to predict plant water stress and it would be great to dedicate a separate session to their applications in irrigation management.

Organizer: Vivek Sharma, vsharma1@ufl.edu

Sponsoring Committee: NRES-24 Irrigation; **Co-Sponsors:** NRES-241 Sprinkler Irrigation, NRES-244 Irrigation Management

Moderators: Burdette Barker

Time	Pres. ID	Presentation Title, Presenter, & Authors
7:35am	2500701	*Integration of Remote Sensing and Machine Learning for Mapping Irrigated Areas in an Agricultural Watershed in the Texas High Plains* - Presented By: **Ayushi Pandey**, Texas A&M University, College Station, Texas, USA; Ayushi Pandey, Hardev Singh, Sayantan Samanta, Jourdan Bell, Salvatore Calabrese, Srinivasulu Ale
7:50am	2501296	*Assessing the Impact of Soil Water Deficit and Irrigation Scenarios on Ohio's Maize and Soybean Yields in Ohio Using Machine Learning Models* - Presented By: **Rajveer Dhillon**, Central State University, Wilberforce, Ohio, USA; Rajveer Dhillon, Susanta Das, Vinayak Shedekar, Vivek Sharma
8:05am	2500140	*Approach to Potato Crop Coefficient (Kc) Prediction: Traditional Techniques and Machi* NO SHOW ed By: **Saad Cheema**, Canadian Center for Climate Change and Adaptation, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada; Aitazaz Ahsan Farooque, Mehdi Jamei
8:20am	2501118	*spectral and thermal indices for early crop water stress detection in maize under dryland an* NO SHOW - Presented By: **Vaishali Sharda**
8:35am		*BREAK*
8:45am	2500929	*PyIrrigationDRL: A Deep Reinforcement Learning Irrigation Decision Support Python Package to Optimize Crop Water Use* - Presented By: **Adarsha Neupane**, Clemson University, Clemson, South Carolina, USA; Lisa Umutoni, Vidya Samadi, George Vellidis, Charles Privette, III, Jose Payero, Bulent Koc, Adarsha Neupane
9:00am	2501572	*Globally Available, Locally Tailored Crop ET Forecasts through Canopeo App and Web Services* - Presented By: **Jeff Sadler**, Oklahoma State University, Stillwater, Oklahoma, USA
9:15am	2500694	*Remote Sensing in Soil Management Zones Delineation for Site-Specific Fertigation* NO SHOW **e Benjamin Bantchina**, University of Florida, Gainesville, Floirda, USA; Bere Benjamin Bantchina, Kemal Sulhi Gündoğdu, Yücel Tekin, Selçuk Arslan, Yahya Ulusoy, Abdul Mounem Mouazen, Vivek Sharma
9:30am	2501547	*Scalable Machine Learning Frameworks for Dynamic Irrigation Scheduling in Commercial Crop Fields* - Presented By: **Derek Heeren**, Department of Biological Systems Engineering, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Precious N. Amori, Derek M. Heeren, Yeyin Shi, Guillermo R. Balboa, Ivo Z. Goncalves, Daran Rudnick

312 Emerging Contaminants, Pathogens, and Antibiotics Resistance

Wednesday, 7:30am - 10:00am

Location: City Hall

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Emerging contaminants (i.e., personal care products, antibiotics, pesticides, PF AS, microplastics) have become ubiquitous in freshwater ecosystems due to land use practices. These contaminants have critical environmental (i.e., antibiotic resistance) and human health implications. Further, pathogens continue to be a challenge particularly in rural communities, where water infrastructure investments are often limited. Therefore, this session will include and assess detection, fate and transport, and treatment of emerging contaminants, pathogens, and antibiotics resistance in water systems.

Organizer: Emily Nottingham Byers, emilyrnottingham@gmail.com

Sponsoring Committee: NRES-25 Streams, Reservoirs, and Wetlands Group; **Co-Sponsors:** NRES-28 Ecological Engineering, NRES-22 Soil Erosion and Water Quality, NRES-224 Sediment and Associated Pollutants, NRES-242 Surface Irrigation & Water Supply, NRES-25 Streams, Reservoirs, and Wetlands Group, NRES-262 Onsite Water Reuse

Moderators: Emily Nottingham Byers, Michelle Soupir

Time	Pres. ID	Presentation Title, Presenter, & Authors
7:35am	2501352	*Exploring Urban vs Rural Contexts in the Application of Wastewater Surveillance for Antibiotic Resistance: A systematic review* - Presented By: **Sarah Price**, Virginia Tech, Blacksburg, Virginia, USA; Sarah Price, Loc Nguyen, Vineeth Manthapuri, Kyra Sigler, Petra Choi, Clayton Markham, Amanda Darling, Ivan Odur, Leigh-Anne Krometis
7:50am	2500927	*A quantitative review of PFAS in agricultural systems: Implications for future management* - Presented By: **Noah Rudko**, University of Arkansas, Fayetteville, Arkansas, USA; Noah Rudko, Rebecca Muenich, Kerry Hamilton, Ronewa Netshithothole, Clinton Williams
8:05am	2500850	*Occurrence of Per and Poly-Fluoroalkyl Substances (PFAS) in the Stormwater Systems of Four Virginia Coastal Communities* - Presented By: **Ava DiVita**, Virginia Tech, Blacksburg, Virginia, USA; Ava DiVita, Natasha Bell, Savanna Blackburn, Michael Harrison, Leigh-Anne Krometis, David Sample, Stephen Schoenholtz, Wendy Stout, Kang Xia
8:20am	2500643	*Geospatial trends of per- and polyfluoroalkyl substances (PFAS) incidence in private drinking water in Virginia* - Presented By: **Nick McLelland**, Virginia Tech, Blacksburg, Virginia, USA; Nick McLelland, Leigh-Anne Krometis, Erin Ling, Kathleen Hohweiler, Kang Xia
8:35am		*BREAK*
8:45am	2500967	*Plant based non toxic polymers as treatment agents in removal of microplastics from aquatic systems* - Presented By: **Rajani Srinivasan**, Tarleton State University, Stephenville, Texas, USA; Rajani Srinivasan, Rajita Bhuju, Victoria Chraibi, Mihaela C. Stefan, Nguyen Hien, Damla Ustundag, Jeri La Neice Gill, Nikolas Rasmussen, Blake Saurenmann, Joe Bracerra, Michael Fowler, Hailey White, Marconi Azadah
9:00am	2501234	*Effect of Media Composition and Sulfamethoxazole on Duckweed Health and Exudates* - Presented By: **Katherine McCullen**, Michigan State University, East Lansing, Michigan, USA; Katherine McCullen, Dawn Dechand, Molly Robles

PAFS - Plant, Animal, & Facility Systems

315 Measurement and Modeling of Air Emissions from Agricultural Production Systems

Wednesday, 7:30am - 10:00am

Location: Dominion South

Technical Community: PAFS - Plant, Animal, & Facility Systems

Session Type: Oral Technical Session

Description: This session convenes researchers, educators, and industry experts to discuss current challenges and research updates on addressing air pollution issues in livestock and poultry facilities through measurement, mitigation, and modeling methods.

Organizer: Yang Zhao, yzhao@utk.edu

Sponsoring Committee: PAFS-50 Environmental Air Quality

Moderators: Mindy Spiehs

Time	Pres. ID	Presentation Title, Presenter, & Authors
7:35am	2500669	*Effect on air quality of a water sprinkling strategy implemented to alleviate heat stress in fattening pigs* - Presented By: **Araceli Dalila Larios Martinez**, IRDA, Québec, Canada; A. Dalila Larios-Martinez, Valérie Létourneau, Rémi Quirion, Caroline Duchaine, Nyckie Albert, Vicki Clouet-Côté, Sébastien Fourrnel, Stéphane Godbout
7:50am	2500534	*Monitoring ammonia deposition around a beef cattle feedyard in the Southwest U.S.* - Presented By: **Erin Cortus**, University of Minnesota, St Paul, Minnesota, USA; Jacek A. Koziel, William Willis, Heather Robbe, Anna C. Ortiz, Daniel Miller, Mindy Spiehs, John T. Walker

8:05am 2501462 *Impact of fertilization strategies and meteorological conditions on Greenhouse Gas and Ammonia Emissions from the soil* - Presented By: **Laura Daniela Mila Saavedra**, Research and development institute for the agri-environment, Québec, Canada; Laura Daniela Mila Saavedra, Patrick Brassard, Stéphane Godbout, Joahnn Palacios

8:20am 2501117 *A Dual-Platform Approach to Methane Emission Monitoring in Feedlots Using Open-Path Lasers and UA Vs* - Presented By: **Sushree Dash**, McGill University, Montreal, Quebec, Canada; Sushree Sangita Dash, Trevor W. Coates, Chandra A. Madramootoo

8:35am *BREAK*

8:45am 2501286 *Direct Air Emission Measurements using small-Unmanned Aircraft Systems (sUAS) from Livestock Pastures in Wisconsin* - Presented By: **Doee Yang**, University of Wisconsin-Madison, Madison, Wisconsin, USA; Neslihan Akdeniz

PRS - Processing Systems

316 Management of Food, Organic Wastes, and Byproducts for Improving Circularity I

Wednesday, 7:30am - 10:00am

Location: Huron

Technical Community: PRS - Processing Systems

Session Type: Oral Technical Session

Description: Organic wastes and byproducts may cause environmental damage or economic loss without careful management and treatment. Further, many of these materials have unexploited value. This session will focus on engineering solutions for waste and byproduct streams from agriculture, food, municipal, and bioenergy operations.

Organizer: Toufiq Reza, treza@fit.edu

Sponsoring Committee: PRS-707 Food & Organic Waste Management & Utilization; **Co-Sponsors:** CBSI-Circular Bioeconomy Systems Institute

Moderators: Deandrae Smith, Toufiq Reza

Time Pres. ID Presentation Title, Presenter, & Authors

7:35am 2500207 *Micro-aeration-enhanced Anaerobic Digestion for the Stabilization of Coffee-Processing Wastewater* - Presented By: **Kayode Taiwo**, University of Georgia, Athens, Georgia, USA; Kayode J. Taiwo, Samuel O. Ogundipe, Joon Hyuk Suh, Ronald B. Pegg, William Kerr, Joseph G. Usack

7:50am 2500222 *Upcycling sugar beet waste: Natural pigment extraction, characterization, encapsulation, and stability assessment* - Presented By: **Valerie Orsat**, McGill University, Canada; Nushrat Yeasmen, Md. Hafizur Rahman Bhuiyan, Yvan Gariepy, Ali R. Taherian, Marie-Josée Dumont, Hosahalli Ramaswamy, Valérie Orsat

8:05am 2500496 *Estimating Food Waste Disposal in Industrial, Commercial, and Institutional (ICI) sectors: A Monte-Carlo Approach to Assessing Spatial Uncertainty* - Presented By: **Xiaowen Ni**, McGill University, Montreal, Quebec, Canada; Xiaowen Ni, Graham MacDonald, Michael Boh, Grant Clark

8:20am 2500939 *dstock Quality of Non-recycled Municipal Solid Waste Toward Thermoche* NO SHOW resented By: **M M Mahdi Hasan**, University of Kentucky, Lexington, Kentucky, USA; M M Mahdi Hasan, Jian Shi

8:35am *BREAK*

8:45am 2501083 *Production of 3-Hydroxyvalerate-Enriched Bioplastics from Food Waste Pretreated with Arrested Anaerobic Digestion and Microbial Electrolysis Cells* - Presented By: **Zhiwu Wang**, Virginia Tech, Blacksburg, Virginia, USA; Xueyao Zhang, Naresh Kumar Amradi, Martin Moore, Amro Hassanein, Rebecca L Mickol, Emily L McCoy, Brian J Eddie, Jamia S Shepard, Jiefu Wang, Stephanie Lansing, Matthew D Yates, Young-Teck Kim, Zhi-Wu Wang

9:00am 2501511 *Valorization of Apple Pomace through Anaerobic Digestion: Effect of Thermal, Microwave, Ultrasonic, and Alkaline Pretreatments* - Presented By: **Anjaly Paul**, McGill University, Montreal, Quebec, Canada; Anjaly Paul, Idaresit Ekaette, Bernard Goyette, Rajinikanth Rajagopal

9:15am 2501051 *Utilization of non-conventional biomass in the development of bio-based film* - Presented By: **Benedicta Njinnam Biyimba**, McGill University, Montreal, Quebec, Canada; Benedicta Njinnam Biyimba, Idaresit Ekaette

317 PRS-Processing Systems POSTER SESSION

Wednesday, 7:30am - 10:00am

Location: Exhibit Hall

Technical Community: PRS - Processing Systems

Session Type: Poster Technical Session

Description: This poster session includes all topics related to the processing systems technical community. The processing systems community has the following sub-communities such as physiochemical properties of biological products, crop and feed processing and storage, food processing, bioconversion and bioprocesses, food and organic waste management and utilization. Poster sessions allow one-to-one interaction between the presenter and the audience.

Organizer: Janie McClurkin Moore, Janie.Moore@ag.tamu.edu

Sponsoring Committee: PRS-01 POSTER SESSION

Moderators: Janie McClurkin Moore

Poster# Pres. ID Presentation Title, Presenter, & Authors

5 2501423 *A multiphase non-saturated media model to analyze poromechanics of cooking meat at high temperature* - Presented By: **Ashim Datta**, Cornell University, Ithaca, New York, USA; Debmalya Ghosh, Ashim Datta

6 2500128 *pseed protein adhesives with enhanced properties and performance* - Presented By: **Roselle** NO SHOW te University, Manhattan, Kansas, USA; Roselle Barretto, Guangyan Qi, Bipin Rajpurohit, Christopher Jones, Xiuzhi S. Sun, Yonghui Li, Donghai Wang

7 2500154 *Characteristic analysis of deep-bed cooling and drying of pelleted feed based on non-equilibrium model* - Presented By: **Shaochun Ma**, College of Engineering, China Agricultural University, Beijing, China; Wei Wang, Hongying Wang, Liangju Wang, Shaochun Ma

8 2500853 *Developing a model food for large yellow croaker muscle by adjusting the concentration of components in gelatin gels* - Presented By: **Yuxiao Mao**, College of Biosystems Engineering and Food Science, Zhejiang University, Hangzhou, Zhejiang, China; Yuxiao Mao, Hosahalli S. Ramaswamy, Ting Xiao, Hongyue Li, Yong Yu, Songming Zhu

9 2500092 *Development of 3G Rice-Soy Snacks: Effects of Extrusion and Frying Conditions on Physical, Chemical, and Thermal Properties* - Presented By: **Mayowa Sanusi**, University of Ilorin, Ilorin, Kwara State, Nigeria; Abdulkareem Bamidele Bello, Micheal Olumuyiwa Salako, Ibrahim Omobolaji Ibrahim, Toheeb Babatunde Olaniran, Musiliu Olushola Sunmonu

10 2500479 *hesis of Organic Solvent Precursors via Fermentation in L. lactis* - Presented By: **Nathan Rin** NO SHOW ate University, Raleigh, North Carolina, USA; Nathan Ring, Sara Siegel, Kurt Selle

11 2501264 *Eco-friendly extraction and characterization of terpenoids as functional food ingredients: A review* - Presented By: **Ameen Hammed**, McGill University, Canada; Ameen Hammed, Nushrat Yeasmen, Valerie Orsat

12 2500556 *Effect of Radio Frequency Cold Plasma on Secondary Structure of Pea Protein Isolate* - Presented By: **Jawadul Misir**, Department of Food Science and Nutrition- University of Minnesota, St Paul, Minnesota, USA; Jawadul Misir, Kumar Mallikarjunan

13 2500219 *Development of a cranberry yield estimation model using microwave resonance* - Presented By: **Alvaro Guerrero**, University of Wisconsin Madison, Madison, Wisconsin, USA; Alvaro Guerrero, Juan Zalapa, Matthew Digman

14 2500220 *Effects of water-soaking temperature on cranberry fruit firmness* - Presented By: **Alvaro Guerrero**, University of Wisconsin Madison, Madison, Wisconsin, USA; Alvaro Guerrero, Héctor López-Moreno, Juan Zalapa, Matthew Digman

15 2500895 *Efficacy of Pulsed UV Light in reducing E. coli on Baby Spinach* - Presented By: **Ajit Mahapatra**, Food Engineering Laboratory, College of Agriculture, Family Sciences, and Technology, Fort

Valley State University, Fort Valley, Georgia, USA; S. Manne, K. Talari, H. L. Degala, R. Gyawali, A. K. Mahapatra

16 2500378 *Reduction of Escherichia coli and Salmonella Typhimurium on romaine lettuce using intense light pulses* - Presented By: **Ajit Mahapatra**, Food Engineering Laboratory, Agricultural Research Station, College of Agriculture, Family Sciences, and Technology, Fort Valley State University, Fort Valley, Georgia, USA; R. Gyawali, H. L. Degala, A. K. Mahapatra

17 2500702 *Electro-fermentation enhances succinic acid production via metabolic shift* - Presented By: **Fan Wu**, North Carolina State University, Raleigh, North Carolina, USA; Jingjing Wang, Wenqiao Yuan

18 2501526 *Enhancing Bioactive Extraction from Cold Brew Spent Coffee Grounds: Optimizing and Quantifying Time-Temperature Combinations for Various Food Production* - Presented By: **Kumar Mallikarjunan**, Department of Food science and Nutrition - University of Minnesota, St Paul, Minnesota, USA; Sai Nisetha, Kumar Mallikarjunan

19 2500120 *Genetic engineering study deciphered that OsCAMTA3b gene of rice functions as a positive regulator under biotic stress and temperature extremities* - Presented By: **Joydeep Banerjee**, Indian Istitute of Technology, Kharagpur, West Bengal, India; Dr. Joydeep Banerjee

20 2501672 *Inactivating pathogens in milk by a continuous liquid-phase plasma process* - Presented By: **Sarah Wu**, University of Idaho, Moscow, Idaho, USA; Yuan Yuan, Shaobo Deng, Haiqing Sheng, Robinson Junior Ndeddy Aka, Ahmad Mukhtar, Ben Morenas, Sarah Wu

21 2500182 *Life Cycle Assessment of Different Beef Recipes and Cooking Methods: Identifying Eco-friendly Options for Canadian-Grown Beef Consumption* - Presented By: **Vincent Abe-Inge**, McGill University, Macdonald Campus, Quebec, Canada; Vincent Abe-Inge, Mariana Moncada de la Fuente, Ebenezer Miezah Kwofie

22 2500439 *Morpho-biochemical vagaries coupled with gene expressional modulations play key role in salt tolerance mechanism of rice* - Presented By: **Shivani .**, Indian Insitute of Technology, Kharagpur, Kharagpur, India; Shivani, Dr. Joydeep Banerjee

23 2500086 **NO SHOW** *rk Pattern Recognition Model for the Physical Characteristics of Ultrasound Treated D ole Fruits* - Presented By: **Mfrekemfon Akpan**, Department of Agricultural and Food Engineering, University of Uyo, Uyo, Nigeria; Mfrekemfon G. Akpan, Uduak D George, Okon J. Esua

24 2500065 *Simultaneous Temperature and Airflow Control in Coffee Drying* - Presented By: **Juan Sanz-Uribe**, Cenicafé - Colombian Coffee Federation, Chinchiná-Manizales, Columbia; Juan Sanz-Uribe, Christian A. González-Salazar, Willy F. Rojas-Botina

25 2500046 *Automated Solar Coffee Dryer with Durable Materials for Enhanced Efficiency* - Presented By: **Eduardo Duque-Dussán**, Postharvest Discipline, National Coffee Research Centre of Colombia - Cenicafé, Manizales, Caldas, Colombia; Eduardo, Duque-Dussán, César A., Ramírez-Gómez, Juan R., Sanz-Uribe

26 2500067 *Development of a Multispectral Real-Time System for Gluten Detection and Quantification in Gluten-Free Products* - Presented By: **Adewale Oloyede**, University of Kentucky, Lexington; Adedeji Akinbode

27 2500152 *A Modified Flux Chamber for Measuring Greenhouse Gases from Composting* - Presented By: **Dennis Dankwa**, McGill University, Montreal, Quebec, Canada; Michael Y. Boh, O. Grant Clark

28 2500475 *Decontamination of Aspergillus flavus and Aflatoxin B1 on Inoculated Raw Peanuts with High Voltage Atmospheric Cold Plasma* - Presented By: **Wei Cao**, University of Guelph, Guelph, Ontario, Canada; Linyi Tang, Wei Cao, Kevin M. Keener

29 2500476 *Quality Assessments of Peanuts Treated with High Voltage Atmospheric Cold Plasma (HVACP)* - Presented By: **Wei Cao**, University of Guelph, Guelph, Ontario, Canada; Wei Cao, Linyi Tang, Kevin M. Keener

30 2500478 *Decontamination of Salmonella enterica Serotype Enteriditis in Liquid Whole Egg with High Voltage Atmospheric Cold Plasma (HVACP)* - Presented By: **Wei Cao**, University of Guelph, Guelph, Ontario, Canada; Wei Cao, Miral Javid, Kevin M. Keener

31 2500483 *Generation and Chemistry of Plasma-Activated Water (PAW) using Air and Modified Air* - Presented By: **Miral Javed**, School of Engineering, University of Guelph, Guelph, Ontario, Canada; Miral Javed, Wei Cao, Kevin Keener

32 2500306 *Evaluating the Feasibility of Nutritional Yeast Cultivation from Poultry Slaughterhouse Dissolved Air Floatation Solids* - Presented By: **Saravanan Ramiah Shanmugam**, Auburn Univeristy, Auburn, Alabama, USA; Owen Lucas, Brendan Higgins

33 2500500 *UV-C assisted Drying of Grape Pomace: Toward Sustainable Waste Valorization* - Presented By: **Dhruv Ghevariya**, North Carolina State University, Raleigh, North Carolina, USA; Deepti Salvi

34 2500318 *Non-destructive Assessment of Fried Chicken Nuggets Texture Based on Spatial Frequency Domain Imaging* - Presented By: **Leshang Bai**, McGill University, Montreal, Quebec, Canada; Leshang Bai, Laura Liu, Michael Ngadi

35 2501524 *Extraction and Analysis of Carotenoids from Haloferax mediterranei as a Co-Product of PHA Production* - Presented By: **Melanie Siu**, University of California, Davis, Davis, California, USA; Melanie Siu, Kelly Graff, Hamed El Mashad, Ruihong Zhang

36 2500548 *Predictive modeling of growth of Salmonella in egg and egg products* - Presented By: **Roja Jeyam**, , Fayetteville, Arkansas, USA; Roja Jeyam, Nanje Gowda N.A, Jeyamkondan Subbiah

37 2501376 *HTL-AP Recirculation and its Influence on Nutrient Recovery* - Presented By: **Dylan Kanner**, University of Illinois, Urbana Champaign, Urbana, Illinois, USA; Barbara Camila Bogarin Cantero, Paul Davidson, Audrey Frost, Dylan Kanner, Marcin Warzecha

38 2500402 NO SHOW *modified Soy and Pea protein Isolates combined with Mango Peel Powder to enhance th l properties of plant-based patty* - Presented By: **Srutee Rout**, Indian Institute of Technology Kharagpur, India; Srutee Rout, Prem Prakash Srivastav

39 2500937 NO SHOW *e regulation of Ice I to Ice III phase transition in milk and its effects on bacterial inactivati* **ng Xiao**, Zhejiang University, Hangzhou, Zhejiang, China; Ting Xiao, Yuxiao Mao, Hosahalli S. Ramaswamy, Songming Zhu, Sinan Zhang, Yong Yu

40 2500430 *Characterizing high pressure phase transitions of gelatin gel and assessing properties following pressure shift freezing and Ice I to Ice III phase transition* - Presented By: **Ting Xiao**, Zhejiang University, Hangzhou, Zhejiang, China; Ting Xiao, Yuxiao Mao, Hosahalli S. Ramaswamy, Songming Zhu, Sinan Zhang, Yong Yu

41 2500662 NO SHOW *hart spectral imaging for monitoring canola quality during short and long-term storage co* By: **Thirukumaran Ramesh**, Department of Biosystems Engineering, University of Manitoba, Winnipeg, Manitoba, Canada; Thirukumaran Ramesh, Chyngyz Erkinbaev

42 2500848 *Pretreatment Methods for Enhanced PLA Degradation and Biogas Production in Anaerobic Digestion* - Presented By: **Nadia Bawa Fio Bekoe**, Oklahoma State University, Stillwater, Oklahoma, USA; Douglas W. Hamilton, Ph.D., P.E.

43 2500455 *Inactivation of Listeria monocytogenes in RTE Smoked Salmon: Antimicrobial Efficacy and Physicochemical Characterization of a Custom-Designed DBD Plasma System* - Presented By: **Lamin Kassama**, Alabama A&M University, Normal, Alabama, USA; Manikanta Sri Sai Kunisetty, Armitra Jackson-Davis, Srinivasa Rao Mentreddy, Gabriel Xu, Bhagirath Ghimire, Lamin S. Kassama

44 2500456 *Enhancing Meat Analog Manufacturing: Correlating Rheological Properties with 3D-Printable Ink Formulation* - Presented By: **Lamin Kassama**, Alabama A&M University, Normal, Alabama, USA; Sai Vinay Kumar Madala, Lamin S. Kassama

45 2500981 *Measuring Methane Emissions from Landfills in Temperate Climates: Combining Static Chamber and Eddy Covariance Data* - Presented By: **Samson Ndukwe**, Department of Bioresource Engineering, McGill University, Ste-Anne-de-Bellevue, Montreal, Quebec, Canada; Samson Kelechi Ndukwe, Michael Yongha Boh, Osborne Grant Clark

46 2500664 *Assessment of granular starch hydrolysis enzyme on ethanol yield From partially swollen sorghum starch and analysis of extracted protein properties* - Presented By: **Thomas Weiss**, Kansas State University, Manhattan, Kansas, USA; Thomas Weiss, Shan Hong, Ruoshi Xiao, Xiaorong Wu, Yonghui Li, Michael Tilley, Donghai Wang

47 2500744 *Cheese waste stream for Ethanol Fermentation by Kluyveromyces marxianus* - Presented By: **Victoria Loomis**, Michigan State University, East Lansing, Michigan, USA; Victoria Loomis, Dr. Yan (Susie) Liu

48 2500691 *Characterizing and predicting the solubility and foam properties of Non-Fat-Dry-Milk powder using non-destructive Hyperspectral Imaging technique* - Presented By: **Abiy Dadi**, University of Minnesota, St Paul, Minnesota, USA; Abiy Dadi, Kumar P. Mallikarjunan

49 2500861 *Development of cultured meat using 3D-printed fat scaffolds* - Presented By: **Sangbae Park**, Department of Biosystems Engineering, College of Agriculture and Life Sciences, Seoul National University, Seoul, Republic of Korea; Jinhyun Kim, Woobin Choi, Yuseung Choi, Hyunsu Choi, Yong-Ro Kim, Sangbae Park

50 2501072 *Effect of Microwave-assisted Pre-drying and Deep-Fat-Frying Conditions on Some Quality Attributes of Akara Ogbomoso* - Presented By: **Akinbode Adedeji**, University of Kentucky, Lexington, Kentucky, USA; Abiodun James Adeyanju, John Oluranti Olajide, Akinbode Adeyemi Adedeji, Deborah Adeola Adesina, Ifeoluwa Rachael Raji

51 2500976 *Effect of charging material type on protein-starch electrostatic separation* - Presented By: **Ganapathy Subramanian M**, Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Ganapathy Subramanian M, Roghayeh Najafi, Parnia Nikkhah, Tolu Emiola-Sadiq, Sahar Zamani, Lifeng Zhang, Venkatesh Meda

52 2501055 *...hing Temperature and Ripening Stages on the Functional and Pasting Properties ... radisiaca) flour* - Presented By: **Rasheed Busari**, Department of Food and Agricultural Engineering, Kwara State University, Ilorin, Nigeria; Ogunniran, O. M., Ola, F. A., Abdulsalam, I. A., Manta, I.H. George, M., Busari, R.A., Akande, F. B.

NO SHOW

53 2501546 *Aeration Strategies for Grain Temperature and Moisture Management of Stored Wheat in Silos Located at Key Cities in India* - Presented By: **Johnselvakumar Lawrence**, AGI (Ag Growth International), Lenexa, Kansas, USA; Johnselvakumar Lawrence, Dirk E. Maier, George Obeng-Akrofi

54 2501552 *Natural Air Drying of Maize (Corn) in Silos (Bins) at Various Places in India* - Presented By: **Johnselvakumar Lawrence**, AGI (Ag Growth International), Lenexa, Kansas, USA; Johnselvakumar Lawrence, Dirk E. Maier, George Obeng-Akrofi

55 2501112 *Enzyme-Assisted Extraction of Navy Bean Proteins: Insights into Structural and Functional Modifications* - Presented By: **Md. Junaeid Khan**, School of Engineering, University of Guelph, Guelph, Ontario, Canada; Md. Junaeid Khan, Sindhu Chaudhary, Annamalai Manickavasagan

56 2501308 *Simultaneous isolation and modification of pinto bean starch through ultrasound, and microwave-assisted methods* - Presented By: **Prudhvi Pasumarthi**, University of Guelph, Guelph, Ontario, Canada; Prudhvi Pasumarthi, Annamalai Manickavasagan

57 2501380 *Reimaging Food Waste: Role of Fruit Leather and Kropeck in a Sustainable Circular Economy* - Presented By: **Bethany Grace Calixto**, Mariano Marcos State University, City of Batac, Ilocos Norte, Philippines; Bethany Grace S. Calixto

58 2501439 *Methane biofiltration efficiency assessed using a bank of biofiltration system* - Presented By: **Camila Gonzalez Arango**, The Pennsylvania State University, University Park, Pennsylvania, USA; Camila Gonzalez-Arango, Tate Greiger, Juliana Vasco-Correa

59 2501455 *The Sequential Extraction of Bioactive Compounds from Ascophyllum nodosum by pH-Responsive Switchable Deep Eutectic Solvents* - Presented By: **Desheng Ji**, Dalhousie University, Halifax, Nova Scotia, Canada; Marianne Su-Ling Brooks

60 2501514 *Effect of kraft lignin in pectin/carboxymethyl cellulose biopolymer composite films for food packaging* - Presented By: **Ndidiamaka Oseafiana**, Dalhousie University, Halifax, Nova scotia, Canada; Ndidiamaka Oseafiana, Marianne Su-Ling Brooks, Alison Scott

61 2501537 *Advancement in nanocarriers development for plant protection and sustainable agriculture* - Presented By: **Taveena Jindal**, University of Guelph, Guelph, Ontario, Canada; Dr. Ashutosh Singh, Jayasankar Subramanian

62 2501497 *A Digital Twin of an Anaerobic Biofilter-Microalgae Symbiotic System for Recycling Agricultural Wastewater and Algal Production* - Presented By: **Lijun Wang**, North Carolina A&T State University, Greensboro, North Carolina, USA; Lijun Wang, Jewel Das

63 2500227 *Aerodynamics Properties of Silflower Seed (Silphium integrifolium): Effects of Varying Moisture Content and Wing Features* - Presented By: **Ewumbua Monono**, North Dakota State University, Fargo, North Dakota, USA; Pa Tamba Jammeh, Brent Hulke, Jarrad Prasifka, Xin Sun, Ewumbua Monono

64 2500912 *Comparative Analysis of Plasma Jet and Surface Dielectric Barrier Discharge Systems for Optimized Plasma-Activated Water Production* - Presented By: **Dushyanth Kumar Tammineni**, North Carolina State University, Raleigh, North Carolina, USA; Manasa Saldapuram, Duncan Trosan, Praj Kuntal Patel, Zhujun Gao, Katharina Stapelmann, Aaron Mazzeo, Deepti Salvi

ASE - Applied Science & Engineering

318 ASE-Applied Science and Engineering POSTER SESSION

Wednesday, 10:15am - 12:15pm

Location: Exhibit Hall

Technical Community: ASE - Applied Science & Engineering

Session Type: Poster Technical Session

Description: Posters related to forest engineering, sustainability, and other applied science and engineering topics not fitting within other communities.

Organizer: Catherine Brewer, cbrewer@nmsu.edu

Sponsoring Committee: ASE-01 POSTER SESSION

Moderators: Catherine Brewer, Lori Duncan

Poster#	Pres. ID	Presentation Title, Presenter, & Authors
1	2500163	*Understanding Climate Variability Impacts on Senegalese Farmers' Resilience through Nutrition, Economic Stability, and Risk Management* - Presented By: **Kieron Moller**, Michigan State University, East Lansing, Michigan, USA; Kieron Moller, A. Pouyan Nejadhashemi, Mohammad Tirgaris, Nilson Vieira Junior, Ana Julia Paula Carcedo, Ignacio Ciampitti, P. V. Vara Prasad, Amadiane Diallo
2	2501405	NO SHOW *ield Study: Enhancing Soil Health and Reducing Greenhouse Gas Emissions with Syner ompost Applications in Agriculture* - Presented By: **Muhammad Saif Ullah**, University of Prince Edward Island, Canada; Muhammad Saif Ullah, Aitazaz A. Farooque, Seyyed Ebrahim Hashemi Garmdareh
3	2500406	*Knowledge-Guided Internal LAI Assimilation for Enhanced Maize Phenotyping in DSSAT* - Presented By: **Zhou Zhang**, Department of Biological Systems Engineering, University of Wisconsin-Madison, Madison, Wisconsin, USA; Zezhong Tian, Jiahao Fan, Natalia de Leon, Shawn M. Kaeppler, Zhou Zhang
4	2500337	*A Grid-resolution Hydrologic Modeling Tool for Precision Application of Pesticide* - Presented By: **Feng Pan**, Purdue University, West Lafayette, Indiana, USA
5	2500768	NO SHOW *essment of Climate-Induced Soybean yield and economic variabilities in Brazil* - Presented University of Nebraska-Lincoln, Lincoln, Nebraska, USA
6	2501064	*Response of Soybean to Variable Irrigation Levels in Eastern Nebraska* - Presented By: **Anmol Singh**, Department of Biological Systems Eng., University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Saleh Taghvaeian, Yufeng Ge, Derek Heeren, Frank Bai
7	2501480	NO SHOW *mputer Vision and Machine Learning Framework for Canola Oil Quality and Yield Predi* **Maheshika Jayasinghe**, Department of Biosystems Engineering, University of Manitoba, Winnipeg, Manitoba, Canada; Maheshika Jayasinghe, Angshuman Thakuria, Chyngyz Erkinbaev
8	2501641	*Evaluating Mechanical Damage in Canola Seeds Using X-ray Radiography and Deep Learning Models* - Presented By: **Mohammad Nadimi**, University of Manitoba, Winnipeg, Manitoba, Canada; Mridula Buragohain, Taran Singh, L. G. Divyanth, Jitendra Paliwal, Mohammad Nadimi
9	2500738	*Measuring the Effects of the Leaves and Leaf Sheaths on the Strength and Dynamic Behavior of Corn Plants* - Presented By: **Douglas Cook**, Brigham Young University, Provo, Utah, USA; Douglas Cook, Grant Ogilvie
10	2500639	*Chemical-Assisted Osmotic Dehydration: A Strategy to Enhance Water Loss and Preserve the Quality of Wild Blueberries* - Presented By: **Shokoofeh Norouzi**, Department of Bioresource Engineering, McGill University, Canada; Shokoofeh Norouzi, Valerie Orsat
11	2501181	*Leveraging Blender-Synthesized Data and Depth Information for High-Precision Instance Segmentation of Chicken Carcasses* - Presented By: **Yihong Feng**, University of Arkansas, Fayetteville, Arkansas, USA; Yihong Feng, Chaitanya Pallerla, Xiaomin Lin, Pouya Sohrabipour Sr, Ramesh Bahadur Bist, Siavash Mahmoudi, Amirreza Davar, Dongyi Wang
12	2501544	NO SHOW *Health and Bell Pepper Productivity with Forage Maize Biochar under Irrigation M* ed By: **Seyyed Ebrahim Hashemi Garmdareh**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada; Akram HosseinNejad, Sasan Faramarzmanesh, Seyyed Ebrahim Hashemi Garmdareh

13 2501098 *Empirical Correlation for Particle Degradation in Pipeline Hydro Transport of Wheat Straw Slurries: A Laboratory-Scale Study* - Presented By: **Kashif Javed**, University of Alberta, Edmonton, Alberta, Canada; Kashif Javed, Russel Flores, Aidan Richardson, Amit Kumar

14 2501003 *Effects of Biochar and Biofertilizer on Corn Production under Greenhouse Conditions* - Presented By: **Shamiul Alam**, South Dakota State University, Brookings, South Dakota, USA; Shameful Alam, Lin Wei, Ozor Tochukwu, Anne Cidreira, Manish Shrestha

15 2501004 *Develop Biochar-based Nitrogen Fixing Biofertilizers for Sustainable Corn Production* - Presented By: **Saurav Marahatta**, South Dakota State University, Brookings, South Dakota, USA; Saurav Marahatta, Lin Wei, Yajun Wu, Volker Brozel

16 2501323 *Comparative Analysis of Phenolic Compounds in Different Dill Seed Varieties* - Presented By: **Sunday Olakanmi**

17 2501247 *Screening of Rhodosporidium toruloides Strains for Enhanced Production of Microbial Carotenoids* - Presented By: **Lachi Wankhede**, York University, Toronto, Ontario, Canada; Carlos Osorio, Satinder Kaur Brar

18 2500737 *Development of Biodegradable Packaging from Dairy Proteins for Extending the Shelf life of Dairy Products* - Presented By: **Kumar Mallikarjunan**, University of Minnesota, Saint Paul, Minnesota, USA; Phanatchakorn Sutham, Kumar Mallikarjunan

19 2501331 *Production of Volatile Fatty Acids from Organic Wastes: A Meta-Analysis for Process Optimization* - Presented By: **Reema Kumar**, York University, Toronto, Ontario, Canada; Reema Kumar, Guneet Kaur, Satinder Kaur Brar

20 2501167 *Adaptation of surface filtration for washing water management in vegetable production: optimization and specific design parameters* - Presented By: **Elizabeth Alvarez**, IRDA, Quebec, Canada; Heidi Dayana Pascagaza-Rubio, Joahnn H. Palacios, Stéphane Godbout

21 2500815 *Upcycling of Agri-food Resources into Packaging Material and Vegan Leather using Fungal Mycelium: A Flexible Biomanufacturing Platform* - Presented By: **Malvika Sharma**, University of Guelph, Guelph, Ontario, Canada; Malvika Sharma, Sophie Robertson, Loong-Tak Lim, Guneet Kaur

22 2500540 *Bioconversion of Agri-food Side Streams into High-Value Fungal Mycelium as Sustainable Alternative Proteins* - Presented By: **Himashree Ponrajan**, University of Guelph, Canada; Himashree Ponrajan, Guneet Kaur

23 2501391 *Integrating Machine Learning and Robotics for Sustainable Pest Management in Potato Farming* - Presented By: **Yuvraj Gill**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada; Yuvraj Singh Gill, Charanpreet Singh, Aitazaz A Farooque, Gurjit Randhawa

24 2501659 NO SHOW *r Requirements of Wild Blueberries in Atlantic Canada: Insights from Historical Cl re Projections* - Presented By: **Atif Zahoor**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada; Aitazaz A. Farooque, Masoud Karbasi

25 2500857 *Growing Precision Engineering Systems for Muscadine Grape Vineyards to Aid Climate-smart Agriculture* - Presented By: **Jingqiu Chen**, Florida A&M University, Tallahassee, Florida, USA; Tsolova, Violeta M., Wei-zhen Liang, Xin Qiao

26 2501082 *Evaluation of Radar Based Irrigation with Artificial Intelligence (AI-Radar) to Address Water Challenges in Kansas* - Presented By: **Udit Debangshi**, Kansas State University; Udit Debangshi, Prasad Jayant Deshpande, Ignacio Ciampitti, Susan Metzger, Vaishali Sharda, PV Vara Prasad, Gaurav Jha

27 2501523 *Automated Weed Pressure Measurement System Evaluation for Unmanned Aerial Vehicles* - Presented By: **Cengiz Koparan**, University of Arkansas, Fayetteville, Arkansas, USA

28 2501350 *Preliminary Analysis of Computer Vision for Blackberry Flower Quantification* - Presented By: **Cengiz Koparan**, University of Arkansas, Fayetteville, Arkansas, USA; Akwasi Tagoe, Ramesh Bahadur Bist, Cengiz Koparan , Donald Johnson, Dongyi Wang, Margaret Worthington, Aurelie Poncet

29 2500277 *Machine Learning Models for Estimating Optimum Top-Dressing Amount from NDVI, Weather Data, and Projected Yield and Grain Qualities* - Presented By: **Oyetayo Oyebode**, Institute of Agricultural Machinery, National Agriculture and Food Research Organization, Saitama, Japan; Oyetayo Olukorede Oyebode, Masamoto Chiba, Takashi Yokoi, Hisato Katayama, Hiroyuki Nakagawa, Yusuke Yanagisawa

30 2501685 *Learning Approach Towards NDVI Prediction Using the UAV Based RGB Imagery Da* **NO SHOW** **obasherah Falak**, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada

31 2500079 *In-silico design of antimicrobial peptides targeting BamA protein of Pseudomonas aeruginosa* - Presented By: **Aadhil Haq**, Texas A&M University, College Station, Texas, USA; Samavath Mallawarachchi, Aadhil Haq, Maria King, Sandun Fernando

32 2500304 *Role of Nano Bio-Stimulants for Agricultural Production and Plant Protection* - Presented By: **EmilY Younghans**, University of Guelph, Guelph, Ontario, Canada; Emily Younghans, Ashutosh Singh

33 2501587 *Design and Verification of a Fed-Batch Model to Improve Production of Functionalized Biopolymers* - Presented By: **Ben Martens**, University of Manitoba, Winnipeg, Manitoba, Canada; Ben Martens, Dr. Warren Blunt, Christina Rogalsky

34 2501124 *Selectively Breeding Duckweed for Biobutanol Production* - Presented By: **Hannah Wall**, North Carolina State University, Raleigh, North Carolina, USA; Hannah Wall, Jay Cheng, Ryan Sartor

35 2501520 *ulose based sustainable adsorbents through the valorization of switch grass* - Presented By: **NO SHOW** **my Ravikumar**, School of Engineering, University of Guelph, Guelph, Ontario, Canada; Charles Wroblewski, Rahul Islam Barbhuiya, Prasad Daggupathi, Ashutosh Singh

36 2501518 *Fabrication of sustainable adsorbents through the valorization of cellulose-rich waste for pollutant removal* - Presented By: **Sivaranjani Palanisamy Ravikumar**, School of Engineering, University of Guelph, Guelph, Ontario, Canada; Charles Wroblewski, Rahul Islam Barbhuiya, Prasad Daggupathi, Ashutosh Singh

37 2501460 *Sustainable Protein and Coproducts from C1 Compounds Using Paracoccus denitrificans* - Presented By: **Ayesha Sultana**, Department of Biosystems Engineering, University of Manitoba, Winnipeg, Manitoba, Canada; Ayesha Sultana, Stefan Bardal, Warren Blunt

38 2500503 *Unravelling the Impact of Climatic Variables on Fall Shoulder Cover Crops* - Presented By: **Emmanuel Agyapong**, University of Manitoba, Winnipeg, Manitoba, Canada; Emmanuel Agyapong, Afua Mante, Francis Zvomuya, Yvonne Lawley

39 2500900 *Design and Fabrication of Ergonomic Auxiliary Handles for Agricultural Tools* - Presented By: **Felix Michael Oguche**, University of Missouri, Columbia, Missouri, USA; Felix Michael Oguche, Jianfeng Zhou, Karen E. Funkenbusch, Marcia C. Shannon, Noel Aloysius, Teng Teeh Lim

40 2501249 *Real-Time Assessment of Canola Seed Quality Using Near-Infrared Hyperspectral Imaging: Focus on Free Fatty Acid Content* - Presented By: **Asanka Ekanayake**, Department of Biosystems Engineering, University of Manitoba, Winnipeg, Manitoba, Canada; Asanka Ekanayake, Maheshika Jayasinghe, Chyngyz Erkinbaev

41 2501261 *Impacts of Cereal Grains on the Environmental Footprint of Extruded Aquatic Feed* - Presented By: **Tucker Graff**, Kansas State University, Manhattan, Kansas, USA; Tucker Graff, Dr Sajid Alavi, Dr Trisha Moore

42 2501636 *Environmental Impacts of Pre-cooked Pasta and Ready-to-Eat Snack Produced Using Extrusion with Intermediate Wheatgrass and Sorghum as Sustainable Ingredients* - Presented By: **Tucker Graff**, Kansas State University, Manhattan, Kansas, USA; Tucker Graff, Julia Rivera, Sajid Alavi, Trisha Moore

43 2501368 *Process engineering and modelling-enabled strategies for efficient rhamnolipid biosurfactant production* - Presented By: **Makary Nasser**, University of Guelph, Guelph, Ontario, Canada

45 2501258 *Quantifying Greenhouse Gas Emissions in Nebraska Irrigated Corn-Soybean Systems* - Presented By: **Melina Petenatti Munoz**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Melina Petenatti Munoz, Christopher Neale, Adam Liska, Randall Ritzema, Andy Suyker, Ashish Mashi

CBS - Circular Bioeconomy Systems

319 CBSI-Circular Bioeconomy Systems Research, Education, and Outreach-POSTER SESSION

Wednesday, 10:15am - 12:15pm

Location: Exhibit Hall

Technical Community: CBS - Circular Bioeconomy Systems

Session Type: Poster Technical Session

Description: This poster session facilitates information sharing and networking related to circular bioeconomy systems (CBS). It is organized into three focus areas: research, education, and outreach. Research topics could be related to constituent systems of production, processing, packaging, and supply of bioproducts, entire value chains, and waste recovery and use, including examples that describe work completed or analyses of proposed systems that would increase circularity relative to existing systems. Education topics could include curricular innovations that embed sustainability and bioeconomy concepts into engineering programs. Share your experiences, methods, and outcomes in preparing students to excel in a sustainable, bio-based future. Outreach topics could include programming designed to advance CBS concepts and technologies among producers and industry.

Organizer: Alicia Modenbach, alicia.modenbach@uky.edu

Sponsoring Committee: CBSI; **Co-Sponsors:** ASE-16 Engineering for Sustainability, EOPD-203 Undergraduate & Graduate Instruction, EOPD-205 Engineering Technology & Management Education, EOPD-208 Extension

Moderators: Alicia Modenbach, Ed Barnes

Poster#	Pres. ID	Presentation Title, Presenter, & Authors
44	2501369	*g and modelling-enabled strategies for efficient rhamnolipid biosurfactant production* - P **NO SHOW** **Nasser**, University of Guelph, Guelph, Ontario, Canada
46	2500341	*The Circular Bioeconomy Systems Institute (CBSI) Mission, Vision and How to Get Involved* - Presented By: **Edward Barnes**, Cotton Incorporated, Cary, North Carolina, USA; Erin Webb, John Reid, Chad Yagow
47	2501321	*Interdisciplinary Certificate - Skills for Circular Bioeconomy Systems Workforce* - Presented By: **John Classen**, Biological & Agricultural Engineering, NC State University, Raleigh, North Carolina, USA; John Classen, Praveen Kolar, Alison Deviney, Mary Leigh Wolfe
48	2501067	*Assessing the impact of substrate on hydroponic microgreen yield* - Presented By: **Tim Pfeiffer**, University of Illinois Urbana-Champaign, Urbana, Illinois, USA; Tim Pfeiffer, Liam Reynolds, Dr. Paul Davidson
49	2500497	*Optimizing Marine Aquaponics with Kale, Salicornia, Striped Bass and Sturgeon: Salinity, Nutrients and Carbon Findings* - Presented By: **Steven Hall**, NCSU Biological and Agricultural Engineering, Raleigh, North Carolina, USA; Christopher Pascual, Steven Hall, Stevee McBee, Jackson Evans
50	2500353	*Evaluation of the Fate of Food-borne Pathogens during Black Soldier Fly Larvae Cultivation on Post Consumer Food Waste* - Presented By: **Saravanan Ramiah Shanmugam**, Department of Biosystems Engineering, Auburn University, Auburn, Alabama, USA; Nusrat Jahan, Saravanan Ramiah Shanmugam, Dianna Bourassa, Brendan Higgins
51	2501645	*Advancing Food and Packaging Systems Circularity Through Digital Twins* - Presented By: **Ziynet Boz**, University of Florida, Gainesville, Floirda, USA; Ziynet Boz, Mert Canatan, Rafael Munoz Carpena, Gregory Kiker
52	2500612	*Current State of Greenhouse Waste Biomass Disposal Methods* - Presented By: **Robyn Jadischke**, University of Guelph, Guelph, Ontario, Canada; Robyn Jadischke, Dr. William David Lubitz
53	2500868	*Phosphorus fertilizer replacement value and heavy metal dynamics in biosolids and biosolids-biochar amended soil* - Presented By: **Bernadette McCabe**, Centre for Agricultural Engineering, University of Southern Queensland, Toowoomba, Queensland, Australia; Serhiy Marchuk, Diogenes L. Antille, Bernadette K. McCabe
54	2501399	*Glasshouse study assessment of urine-derived fertilizer potential* - Presented By: **Bernadette McCabe**, Centre for Agricultural Engineering, University of Southern Queensland, Toowoomba, Queensland, Australia; Serhiy Marchuk, Diogenes L. Antille, Bernadette K. McCabe
55	2501250	*Converting Agricultural Waste into Pipeline-Quality RNG through Hyperthermophilic Hydrolysis* - Presented By: **Jordan Jenkinson**, University of Guelph Ridgetown Campus, Ridgetown, Ontario, Canada; Jordan Jenkinson, Lucas McNea, Omid Norouzisafsari, Kim Van Overloop, Sasha Rollings-Scattergood, Brandon Gilroyed
56	2501253	*Assessing Biodegradation of Compostable Plastics in Anaerobic Digestion Systems* - Presented By: **Vijay Velusamy**, University of Guelph Ridgetown Campus, Ridgetown, Ontario, Canada; Vijay Velusamy, Mahmoda Akter, Lucas McNea, Kim Van Overloop, Majusri Misra, Brandon Gilroyed

57 2501316 *Screening of Canadian Food Processing Residues Towards Renewable Natural Gas Production via Anaerobic Digestion* - Presented By: **German Castaneda**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; German A. Castaneda Suarez, Venu Babu Borugadda, Ajay K. Dalai

58 2501372 *Advancing Circular Bioeconomy: Value-Added Products from Cellulosic Biomass Waste for Agricultural and Environmental Sustainability* - Presented By: **Hari Singh**, Fort Valley State University, Fort Valley, Georgia, USA; Abanti Howlader, Jaabili Gosukonda, Arlese Owens, Jacquez Smith, Venkata Degala

59 2500298 *Techno-Economic Assessment of Atmospheric Carbon Removal via Anaerobic Digestion of Biomass Waste* - Presented By: **Julia Cunniffe**, North Carolina State University, Raleigh, North Carolina, USA; Julia Cunniffe, Yaojing Qiu, Chloe Lum, Jay Cheng, William Joe Sagues

60 2500404 *Unlocking the Potential of Biomass Pretreatment to Deliver Ready-to-Ferment Hydrolysates for Bioproduct Synthesis* - Presented By: **Jikai Zhao**, Kansas State University, Manhattan, Kansas, USA; Linjing Jia, Mairui Zhang, Jikai Zhao

61 2500641 *Comparing Past and Future Municipal Organic Waste Management Approaches using Life Cycle Assessment* - Presented By: **Sadie MacDonald**, McGill University, Montreal, Quebec, Canada; Sadie MacDonald, Benjamin Goldstein, Grant Clark

62 2501411 *Exploration of Unintended Microbial Growth in a Hostile HTL Wastewater* - Presented By: **Dylan Kanner**, University of Illinois Urbana-Champaign, Urbana, Illinois, USA; Dylan Kanner, Camila Bogarin, Paul Davidson

63 2501404 NO SHOW *Pyrolytic Bio-Oil Aqueous Fraction from Municipal Solid Waste for Polyhydrox ioplastic Production Using Haloferax mediterranei* - Presented By: **Emon Das**, Shaw Institute, Blue Hill, Maine, USA; Emon Das, Yuxuan Zhang, Jian Shi

64 2501334 NO SHOW *g with Hydrophobic Deep Eutectic Solvents* - Presented By: **ASM Sayem**, Departmen gricultural Engineering, University of Kentucky, Lexington, Kentucky, USA; ASM Sayem, Yuxuan Zhang, Jian Shi

65 2501410 NO SHOW *dstock Quality of Non-Recycled Municipal Solid Waste Toward Thermoche* resented By: **M M Mahdi Hasan**, University of Kentucky, Lexington, Kentucky, USA; M M Mahdi Hasan, Jian Shi

66 2500619 *Alkaline Mineral Residues from Pulp Mills as a Sustainable and Economical Alternative to Lime Fertilizers* - Presented By: **Ethan Woods**, North Carolina State University, Raleigh, North Carolina, USA; Ethan Woods, Andrew Trlica, Perry Berlin, Sean Bloszies, Alex Woodley, Rachel Cook, Joe Sagues

67 2501208 *Optimized Catalytic Hydrothermal Carbonization of Biomass for High-Performance Hydrochar Production* - Presented By: **Sanusi Akintunde**, McMaster University, Hamilton, Ontario, Canada; Sanusi Akintunde, Shakirudeen Salaudeen

68 2500505 NO SHOW *nic carbon sources in succinic acid biosynthesis using acid-tolerant engineered yeast* - Pres Mahata, University of Illinois Urbana Champaign, Urbana, Illinois, USA; Chandan Mahata, Somesh Mishra, Vinh G.Tran, Tan Shin,Huimin Zhao, Vijay Singh

69 2500208 *Continuous Liquid-Liquid Extraction of Medium-Chain Fatty Acids from Fermentation Broth Using Hollow-Fiber Membranes* - Presented By: **Kayode Taiwo**, University of Georgia, Athens, Georgia, USA; Kayode J Taiwo, Hubert Nguyen, Joseph G Usack

70 2500018 *Combination of Nanocellulose and Metal-organic Framework for Multi-functional Materials: Adsorbents and Sensors* - Presented By: **Mi Li**, University of Tennessee, Knoxville, Tennessee, USA; Mi Li, Kailong Zhang

71 2501622 *Process Control of a Bench-scale Wastewater Treatment System for Enhanced Ammonia Recovery* - Presented By: **Emilia Maria Emerson**, Michigan State University, East Lansing, Michigan, USA; Emilia M Emerson, Wei Liao, Yan (Susie) Liu

72 2501666 *The Viability of Using Landfill Leachate as an Adequate & Safe Alternative to Commercial Fertilizer for Developing and Water Scarce Regions* - Presented By: **Jorge Del'Angel**, Purdue University, West Lafayette, Indiana, USA; Jorge Del'Angel, Lucas Johnson, Clare Gardner, Anthony Garcia, Kingsly Ambrose, Lori Hoagland, Kurt Ristroph, Caitlin Proctor

73 2501427 *Leaching Potential of Traditional and Bio-binder Asphalt Pavements* - Presented By: **James Oberg**, University of Illinois at Urbana-Champaign, Champaign, Illinois, USA; James Oberg, Dr. Ramez Hajj, Dr. Paul Davidson

74 2501132 NO SHOW *Potential Guayule Availability for Natural Rubber Production in the Continenta* sented By: **Sandeep Dhakal**, The Ohio State University, Columbus, Ohio, USA; Sandeep Dhakal, Katrina Cornish, Ajay Shah, Sami Khanal

ES - Energy Systems

320 Anaerobic Digestion for Clean Power and Co-products Production

Wednesday, 10:15am - 12:15pm

Location: Willow East

Technical Community: ES - Energy Systems

Session Type: Oral Technical Session

Description: Join us to explore the multifaceted benefits of anaerobic digestion technology in advancing sustainable energy solutions. Presenters will also delve into how anaerobic digestion can effectively convert organic waste into clean, renewable power while simultaneously generating valuable co-products such as biofertilizers and biogas.

Organizer: Jaime Thissen, jaimethissen1@gmail.com

Sponsoring Committee: ES-210 Renewable Power Generation Committee

Moderators: Jaime Thissen, Fei Yu

Time	Pres. ID	Presentation Title, Presenter, & Authors
10:20am	2500031	*Biomethane Production Potential from Agricultural Residues in the Canadian Prairies* - Presented By: **Bashu Gautam**, University of Saskatchewan; Bashu Gautam, Edmund Mupondwa, Ajay Kumar Dalai, Bishnu Acharya
10:35am	2501509	*Biochemical Methane Potential and Mitigation of Methane Emissions from Dairy Manure on Quebec Farms Using Anaerobic Digestion* - Presented By: **Anjaly Paul**, McGill University, Montreal, Quebec, Canada; Anjaly Paul, Bernard Goyette, Idaresit Ekaette, Rajinikanth Rajagopal
10:50am	2500647	*Effect of Flush Water Nitrification on Swine Manure Digester Performance* - Presented By: **Mahmoud Sharara**, North Carolina State University, Raleigh, North Carolina, USA; Kristina Jones, Mahmoud Sharara
11:05am	2500601	*METHANOGENIC POTENTIAL OF COCOA PROCESSING WASTE FOR THE PRODUCTION OF RENEWABLE ENERGY AND MITIGATION OF THE ENVIRONMENTAL IMPACT* - Presented By: **Alessandro Chiumenti**, University of Udine, Udine, Italy
11:20am	2501320	*Anaerobic Digestion of Sludge from Recirculating Aquaculture Systems (RAS) Trout Production* - Presented By: **Alessandro Chiumenti**, University of Udine, Udine, Italy
11:35am	2501128	*Nutrient and Water Recovery in Thermophilic Anaerobic Digestion via In-Situ Biogas Stripping Evaporation System for the Dairy Industry* - Presented By: **Teshan Udayanga Habarakada Liyanage**, Department of Biological Systems Engineering, Washington State University, Pullman, Washington, USA; Sarah Witherrite, Liang Yu, Shulin Chen
11:50am	2501333	*Optimizing Biogas Production through Anaerobic Co-Digestion of Poultry Carcasses and Litter* - Presented By: **Zong Liu**
12:05pm	2500914	*Characterization and Biogas Production Potential of Organic Municipal Solid Waste from Diverse Sources* - Presented By: **Zhiwu Wang**, University of Maryland, USA; Maureen N. Nabulime, Christopher H. Molina, Adaline Ruff, Amro Hassanein, Adel Shirmohammadi, Stephanie Lansing, Zhiwu Wang
12:20pm	2501438	*Incorporating Compositional Abundance Data into the ADM1 Model to Simulate Anaerobic Digestion of Switchgrass Under Varied Process Conditions* - Presented By: **Camila Gonzalez-Arango**, The Pennsylvania State University, University Park, Pennsylvania, USA; Camila Gonzalez Arango, Katharine Strandquist, Michael Shreve, Tom Richard, John M. Regan, Juliana Vasco-Correa

321 Biomass Feedstock Supply System and Biorefinery

Wednesday, 10:15am - 12:15pm

Location: Willow Center

Technical Community: ES - Energy Systems
Session Type: Oral Technical Session
Description: 'Biomass Feedstock Supply System and Biorefinery' session includes research related to all the unit operations required to harvest, collect, and move the biomass from the field or forest to the biorefinery, and biorefinery conversion process.
Organizer: Mi Li, mli47@utk.edu
Sponsoring Committee: ES-220 Bio-based Energy, Fuels and Products
Moderators: Deepak Kumar

Time	Pres. ID	Presentation Title, Presenter, & Authors
10:20am	2500978	*Process Water from the Hydrothermal Carbonization of Agri-food Wastes as Biostimulants for Plants* - Presented By: **Nancy Boamah**, McMaster University, Hamilton, Ontario, Canada; Nancy Boamah, Shakirudeen Salaudeen
10:35am	2501232	*ON OF THE FUEL CHARACTERISTICS OF BIODIESEL PRODUCED FROM FL onix regia) AND ROSELLE (Hibiscus sabdariffa L.) SEEDOILS* - Presented By: **Rasheed Busari**, Department of Food and Agricultural Engineering, Kwara State University, Ilorin, Nigeria; Ola, F. A., Akande, F. B., Busari, R.A., Owolabi, A. R
10:50am	2500992	*Climbing the Flow Ladder: Experimental Insights into Maize Stover Hydro Transport through Inclined Pipes* - Presented By: **Kashif Javed**, University of Alberta, Edmonton, Alberta, Canada; Kashif Javed, Amit Kumar
11:05am	2501176	*Advancing Biomass Handling and Logistics: Machine Learning Models for Predicting Biomass Bulk Flow Properties* - Presented By: **Sudhagar Mani**, University of Georgia, Athens, Georgia, USA; Syed Danish Ali, Sudhagar Mani, Osayuwamen Osagie, John Aston, Clark Brophy, Mathew Avarantis, Richard Bergman, Zhou Zhang
11:20am	2500677	*Enzymatic hydrolysis of waste fats, oils and greases using immobilized lipase enzyme on activated biochar to produce biogas* - Presented By: **Ravichandra Patil**, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Venu Babu Borugadda, Bishnu Acharya, Ajay K. Dalai

NO SHOW

ITSC - Information Technology, Sensors & Control Systems

322 Imaging Technologies for High Throughput Phenotyping-LIGHTNING PANEL

Wednesday, 10:15am - 12:15pm
Location: Civic Ballroom North
Technical Community: ITSC - Information Technology, Sensors & Control Systems
Session Type: Lightning Oral Technical Session
Description: Focuses on recent innovations in imaging systems and approaches for high throughput phenotyping for crops and animal production systems.
Organizer: Shih-Fang Chen, sfchen@ntu.edu.tw
Sponsoring Committee: ITSC-312 Machine Vision
Moderators: Hsiao-Mei Wu, Shih-Fang Chen

Time	Pres. ID	Presentation Title, Presenter, & Authors
10:20am	2501069	*Ground-based Robotic Phenotyping of Pod Count and Flowering Phenology in Lima Bean* - Presented By: **Yin Bao**, University of Delaware, Department of Plant and Soil Sciences, Department of Mechanical Engineering, Newark, Delaware, USA; Yin Bao, Ashish Reddy Mulaka, Emmalea Ernest
10:27am	2501158	*Computer vision-based phenotyping and yield prediction in soybean* - Presented By: **Alireza Sanaeifar**, University of Minnesota, Saint Paul, Minnesota, USA; Qi-Yuan Zhang, Lan-Qi Sun, Alireza Sanaeifar, Jin-Hua Qiao, Yao-Yao Fan, Ce Yang, Kai Guo, Wen-Hao Su, Zhixi Tian
10:34am	2500108	*Plant Health Monitoring System Using Multispectral Imaging of UV-Induced Fluorescence* - Presented By: **Ata Rahmani**, McGill University, Montréal, Quebec, Canada; Ata Rahmani, Mark Lefsrud
10:41am	2500822	*Multi-view cotton boll counting using segmentation and monocular depth estimation with synthetic data* - Presented By: **Changying Li**, University of Florida, Gainesville, Floirda, USA; Chenjiao Tan, Rui Xu, Changying Li

10:48am *DISCUSSION*

10:55am 2500502 *Neural Radiance Fields for Plot-level Cotton Crop Three-dimensional Reconstruction and Yield Estimation* - Presented By: **Changying Li**, University of Florida, Gainesville, Floirda, USA; Lizhi Jiang, Changying Li, Peng W. Chee, Longsheng Fu

11:02am 2500183 *Variance-attention diffusion model for UAV images super-resolution in cropland phenotyping applications* - Presented By: **Xiangyu Lu**, Zhejiang University, Hangzhou, Zhejiang Province, China; Jianglin Zhang, Rui Yang, Fei Liu

11:09am 2500178 *Maize Data Synthesis for Morphological Phenotyping* - Presented By: **Zhaocheng Xiang**, Department of Biological Systems Engineering, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Zhaocheng Xiang, Yufeng Ge

11:16am 2500595 *Quantitative Phenotyping of Water-Stressed Tomato Plants Using Frequency-Domain Fluorescence Lifetime Imaging Microscope (FD-FLIM)* - Presented By: **Cheng-Hao Lin**, Department of Biomechatronics Engineering, National Taiwan University, Taiwan (R.O.C.); Cheng-Hao Lin, Jiun-Wei Yi, Hsiao-Mei Wu

11:23am *DISCUSSION*

11:30am 2501494 *Multispectral2thermal: A GAN-base architecture for multimodal color-to-thermal image translation in agriculture field* - Presented By: **Liujun Li**, University of Idaho, Moscow, Idaho, USA; Liyan Wang, Liujun Li, Kwaku Opoku-Ware, Boyu Zhang

11:37am 2501237 *Measurement of Onion Bulb Diameter Using Morphological Image Processing and YOLOv8 Deep Learning Approaches* - Presented By: **Stephen Searcy**, Texas A&M AgriLife Research, College Station, Texas, USA; Md Hamidul Islam, Faizan Ali Khaji, Stephen W Searcy

11:44am 2500469 *Assessing TensorRT Optimization for Real-Time Object Detection in Agriculture* - Presented By: **Adeayo Adewumi**, Agriultural and Biological Engineering, Purdue University, West Lafayette, Indiana, USA; Adeayo Adewumi, Dharmendra Saraswat

11:51am *DISCUSSION*

323 Unmanned Ground and Aerial Robots for Agricultural Applications-LIGHTNING PANEL

Wednesday, 10:15am - 12:15pm

Location: Dominion North

Technical Community: ITSC - Information Technology, Sensors & Control Systems

Session Type: Lightning Oral Technical Session

Description: Focus on unmanned ground and aerial robots applications in agriculture, especially the collaboration and coordination of multiple UAVs and UGVs.

Organizer: Hasan Seyyedhasani, seyyedhasani12@vt.edu

Sponsoring Committee: ITSC-254 Emerging Information Systems

Moderators: Hasan Seyyedhasani, Magni Hussain

Time Pres. ID Presentation Title, Presenter, & Authors

10:20am 2500025 *Advancements in Agrivoltaics: Autonomous LiDAR and GPS-Navigated Robotic Mowing for Vegetation Management* - Presented By: **Shaswati Behera**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Shaswati Behera, Santosh Pitla

10:27am 2500763 *An End-to-End Deep Learning Framework for Multi-Scale Cross-Domain Weed Segmentation* - Presented By: **Nazia Hossain**, McGill University, Montreal, Quebec, Canada; Nazia Hossain, Sadia Tasneem Rahman, Shangpeng Sun

10:34am 2500876 *Cabbage volume estimation and water stress monitoring using combined UAV and ground-based multispectral and thermal imaging approaches* - Presented By: **Sun-Ok Chung**, Department of Agricultural Machinery Engineering, Chungnam National University, Daejeon, Republic of Korea; Md Nasim Reza, Kyu-Ho Lee, Sun-Ok Chung

10:41am 2500508 *Circlegrammetry for Drone Imaging: Evaluating a Novel Technique for Enhanced 3D Mapping* - Presented By: **Mathieu Bilodeau**, Dalhousie University, Truro, Nova Scotia, Canada; Mathieu F. Bilodeau, Travis J. Esau, Qamar U. Zaman, Mason T. MacDonald

10:48am *DISCUSSION*

10:55am 2501401 *High-Resolution Drone Imagery and Machine Learning for Predicting Soybean Grain Quality* - Presented By: **Blessing Ademola**, University of Missouri - Columbia, Columbia, Missouri, USA; Blessing Ademola, Jianfeng Zhou, Tian Fengkia, Guojie Ruan

11:02am 2500216 *An Innovative Multi-UAV System for High-Throughput Phenotyping of Muskmelon Plants in Greenhouses* - Presented By: **Tzu Hsu**, National Taiwan University, Taiwan; Tzu Hsu, Jing-Heng Lin, Ta-Te Lin

11:09am 2500461 *Biomass Estimation of Forages using Inertial Measurement Unit Sensor-based Systems* - Presented By: **Jasanmol Singh**, Clemson University, Clemson, South Carolina, USA; A. Bulent Koc, Matias J. Aguerre, John P. Chastain

11:16am 2500636 *Evaluating the Performance of a Robotic Cotton Harvester and System Optimization Insights* - Presented By: **Joe Mari Maja**, South Carolina State University, Orangeburg, South Carolina, USA

11:23am *DISCUSSION*

11:30am 2501188 *Yield Prediction Through Pod Detection using UAV-RGB Imagery for Individual Soybean Plants* - Presented By: **Gyujin Jang**, Seoul National University, Seoul, South Korea; Yuna Kwon, Yong-Suk Chung, Hak-Jin Kim

11:37am 2501655 **NO SHOW** *evelopment of a Robotic Overhead Camera System for Automated Greenhouse Monitorin* **raz Ahmad**, Auburn University, Auburn, Alabama, USA

11:44am 2501538 *Active Ground Control Points for Georeferencing Automation in UAS-Based Photogrammetry* - Presented By: **Karla Ladino**, University of Kentucky, Lexington, Kentucky, USA; Karla S. Ladino, Luis F. Pampolini, Michael P. Sama

11:51am *DISCUSSION*

MS - Machinery Systems

324 Machine Electrification, Machine Learning, and AI-HYBRID SESSION

Wednesday, 10:15am - 12:15pm

Location: Provincial North

Technical Community: MS - Machinery Systems

Session Type: Hybrid Session-submitted abstracts and guest speakers

Description: Speakers will present recent developments in the area of electrically-powered machinery and related applications of automated functionality.

Organizer: Robert Waggoner, robert.waggoner@agcocorp.com

Sponsoring Committee: MS-01 POSTER SESSION

Moderators: Robert Waggoner

Time Pres. ID Presentation Title, Presenter, & Authors

10:20am Guest Speaker *TIM and Autonomy in Ag - What is the AEF up to?* - Presented By: **Andrew Olliver**, AEF (Agriculture Industry Electronics Foundation), Frankfurt, Germany

10:50am 2500770 *Weed Detection in Vegetable Crops using YOLO: A Performance Analysis Under Different Conditions and Settings* - Presented By: **Louie Harris**, Auburn University, Auburn, Alabama, USA; Louie Harris, Tanzeel Rehman, Simerjeet Virk, Wheeler Foshee, David Russell, Kip Balkcom

11:05am 2500884 *The Development of Electric Chrysanthemum Harvester* - Presented By: **Wei Jun Lin**, National Taiwan University, Taipei, Taiwan

11:20am 2500231 *Development of a Machine Learning Model for Emission Factors Based on Tractor Engine Load Rate* - Presented By: **Yi-Seo Min**, Kyungpook National University, Daegu, Republic of Korea

325 Machinery Systems and Task Optimization Through System Analysis

Wednesday, 10:15am - 12:15pm

Location: Cedar

Technical Community: MS - Machinery Systems

Session Type: Oral Technical Session

Description: This session will be about the collection of data and its analysis while considering a machine or system. This data collection and analysis can be for a component, machine, or machine process.

Organizer: Ed Brokesh, ebrokesh@ksu.edu

Sponsoring Committee: MS-49 Crop Production Systems, Machinery, and Logistics

Moderators: Alireza Sanaeifar

Time	Pres. ID	Presentation Title, Presenter, & Authors
10:20am	2500365	*Structural Safety Evaluation of an Agricultural Front-End Loader Under Various Load Conditions* - Presented By: **Jeong-Hun Kim**, Kangwon National University, Chuncheon, Republic of Korea; Jeong-Hun Kim, Dong-Hyeon Gim, Chan-Young Lee, Ju-Seok Nam
10:35am	2500366	*Regression Model for Maximum Static Friction Force of Front-End Loaded Tractor on Paved Road* - Presented By: **Kwang-Mo Kim**, Kangwon National University, Chuncheon, Republic of Korea; Kwang-Mo Kim, Dong-Hyeon Gim, Jeong-Hun Kim, Ju-Seok Nam
10:50am	2501637	*AI-Driven Model for Optimizing Fuel Use During Grain Harvest* - Presented By: **Robert Bench**, Ohio State University, Columbus, Ohio, USA; Robert Bench, Christopher Dean, Chris Tkach, Andrew Klopfenstein, Alex Parsio, Rohit Anand, Scott Shearer
11:05am	2500747	*Development of an embedded system for managing operations with agricultural tractors* - Presented By: **Ronald Barbosa**, IFMG, Betim - MG. Brazil; Delorme Corrêa Junior, Carlos Eduardo Silva Volpato, Ronald Leite Barbosa, Diego José Carvalho Alonso
11:20am	2501152	*Development of a Simulation Model of the Driving Platform of a Self-Propelled Two-Row Radish Harvester according to Collector Load* - Presented By: **Min-Jae Park**, Dept. of Smart Agricultural Systems, Chungnam National University, Daejeon, Republic of Korea; Min-Jae Park, Min-Jong Park, Cheol-Woo Yang, Beom-Hyuk Kim, Yong Joo Kim
11:35am	2500426	*Simulation of Acquired Torque During Path Tracking for 4WS Orchard Monitoring Platform using Matlab simulink* - Presented By: **CheolWoo Yang**, Chungnam National University, Daejeon, Republic of Korea; Min-Jong Park, Jong-Dae Park, Ho-Joon Kang, Yong-Joo Kim

NRES - Natural Resources & Environmental Systems

327 Agricultural Conservation Practices: Sediment and Nutrient Loss Reduction

Wednesday, 10:15am - 12:15pm

Location: Civic Ballroom South

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Globally freshwater bodies are threatened by increases in sediment and nutrient losses from agricultural fields. Significant knowledge is added regarding agricultural conservation practices for protecting the water bodies, however, continued eutrophication and hypoxia persist in the waters. This session aims to provide a platform for presentation and discussion of the latest research on agriculture conservation practices and their impact on the environment.

Organizer: Laxmi Prasad, laxmi.prasad@ndsu.edu

Sponsoring Committee: NRES-22 Soil Erosion and Water Quality; **Co-Sponsors:** NRES-23 Drainage Group

Moderators: Laxmi Prasad, Vinayak Shedekar

Time	Pres. ID	Presentation Title, Presenter, & Authors
10:20am	2500931	*Evaluating the Impact of Agricultural Best Management Practices on Sediment and Phosphorus Reduction in the Canadian Lake Erie Basin* - Presented By: **Pranesh Paul**, University of Guelph, Guelph, Ontario, Canada; Pranesh Kumar Paul, Prasad Daggupati, Pradeep Goel, Ramesh Rudra
10:35am	2501024	*Soil pore characterization using X-ray computed tomography as influenced by biochar incorporation and crop rotations* - Presented By: **Ranveer Singh**, Auburn University, Auburn, Alabama, USA; Jasmeet Lamba, Thomas R. Way, Audrey Gamble, Hemendra Kumar

10:50am	2500904	*Quantifying the impact of In-Situ rainwater harvesting systems on erosion in Rwanda* - Presented By: **Derek Heeren**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA; Jean Niwenshuti, Aaron Mittelstet, Derek Heeren, Jill Motschenbacher, Mark Stone
11:05am	2500866	*INTEGRATED APPROACH FOR NUTRIENT LOSS REDUCTION AND WASTE MANAGEMENT USING A PAIRED MODIFIED BOTTOM ASH AND WOODCHIP BIOREACTOR SYSTEM* - Presented By: **Rabin Bhattarai**, University of Illinois at Urbana Champaign, Champaign, Illinois, USA; Hongxu Zhou, Rabin Bhattarai, Haribansha Timalsina
11:20am	2500554	*Evaluating the Effect of Tillage Practices and Traffic (Tire-Track) on Soil Physical Functions* - Presented By: **Umar Javed**, Department of Agricultural & Biosystems Engineering, South Dakota State University, Brookings, South Dakota, USA; John McMaine, Todd Trooien
11:35am	2501487	*Natural Hydrogel Increases Green Pepper Yield and Reduces Nutrient Losses* - Presented By: **Joba Purkaystha**, McGill University, Montreal, Quebec, Canada; Joba Purkaystha, Shiv Prasher, Muhammad Tabassum Afzal, Yixiang Wang, Jaskaran Dhiman, Christopher Nzediegwu
11:50am	2501507	**NO SHOW** *tato Phosphorous Fertilizer BMP with Hydrologic Considerations in Florida* - Presented Agricultural and Biological Engineering Department, University of Florida, Southwest Florida Research and Education Center, Immokalee, Florida, USA; Vijay P. Santikari, Ibukun T. Ayankojo, Mehran Homayounfar, Nikolay Bliznyuk, Sanjay Shukla

329 Conservation Drainage Practices – Current and Future Innovations

Wednesday, 10:15am - 12:15pm

Location: Maple East/West

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Surface and subsurface drainage is crucial for the sustenance and profitability of agroecosystems in humid and arid climates. The shifting agro-climatic zones and expanding soil degradation issues have posed newer water management challenges for the conventional drainage infrastructure. Furthermore, by being a major hydrologic pathway of water in intensively drainage landscapes, agricultural drainage plays a major role in the transport of nutrients, sediment, and other pollutants to downstream water bodies. Within field, edge-of-field, and stream-level conservation drainage practices have emerged for solving the water management and environmental quality issues. This session invites submissions focused on current and future innovations in conservation drainage practices. Authors are encouraged to submit presentations based on (but not limited to) the following topics:

- Innovative conservation drainage approaches to address water quality issues at field-to-watershed scales (examples include controlled drainage, drainage water recycling, saturated buffers, woodchip bioreactors, phosphorus removal structures, two-stage ditch design etc.).
- Stacking of conservation practices to enhance efficacy, environmental impact, and/or economic feasibility.
- Case studies showing unique application of conservation drainage practices to address specific local/regional issues (e.g. practices for addressing legacy phosphorus losses).
- Model applications and/or improvements focused on conservation drainage practices assessment.

Organizer: Chandra Madramootoo, chandra.madramootoo@McGill.Ca

Sponsoring Committee: NRES-23 Drainage Group; **Co-Sponsors:** NRES-21 Hydrology Group, NRES-225 Conservation Systems, NRES-25 Streams, Reservoirs, and Wetlands Group, NRES-262 Onsite Water Reuse, NRES-28 Ecological Engineering

Moderators: Chandra Madramootoo, Ella Nichols

Time	Pres. ID	Presentation Title, Presenter, & Authors
10:20am	2500725	*Recycling Drainage Water For Crop Production and Nutrient Reduction: Projecting Irrigation Benefits In Iowa* - Presented By: **Eric Henning**, Iowa State University, Ames, Iowa, USA; Matthew Helmers, Chris Hay

10:35am 2500687 *Effect of Phosphorus Hotspot and Controlled Drainage on Phosphorous Loss* - Presented By: **Babak Dialameh**, The Ohio State University, Columbus, Ohio, USA; Babak Dialameh, Kevin King, Jed Stinner, Chad Penn, Mark Williams, Margaret Kalcic, Manal Askar, Vinayak Shedekar

10:50am 2500005 *Design and evaluation of saturated buffers using a DRAINMOD-based decision-support tool* - Presented By: **Ehsan Ghane**, Michigan State University, East Lansing, Michigan, USA; Ehsan Ghane, Yousef AbdalAal, Josue Kpodo, Amirpouyan Nejadhashemi, Mohamed Youssef, Falasy Anamelechi

11:05am 2500743 *Field Assessment of a Dual-Line Saturated Buffer: Hydraulic and Nitrate Load Removal Performance* - Presented By: **Gabriel Johnson**, Iowa State University, Ames, Iowa, USA; Gabriel M. Johnson, Thomas M. Isenhart

11:20am 2500988 *Economic Analysis of Drainage Water Recycling Systems: Costs, Benefits, and Next Steps* - Presented By: **Chris Hay**, Hay Water Solutions, LLC, Ankeny, Iowa, USA; Chris Hay, Spencer Pech, Chuck Brandel

11:35am 2501532 *Evaluating Greenhouse Gas Fluxes Under Controlled Drainage Systems in Northwestern Ohio* - Presented By: **Ella Nichols**, The Ohio State University, Columbus, Ohio, USA; Ella Nichols, Yanlan Liu, Steve Lyon, Manal Askar, Babak Dialameh, Mary Henry, Ziyang Tan and Sam Gill, Vinayak Shedekar

11:50am 2500555 *Evaluating soil water distribution and root water uptake using Hydrus (2D/3D) under subsurface irrigation through tile drainage systems* - Presented By: **Komlan Koudahe**, University of Manitoba, Winnipeg, Manitoba, Canada; Komlan Koudahe, Ramanathan Sri Ranjan

330 Ecological Engineering and Harmful Algal Blooms

Wednesday, 10:15am - 12:15pm

Location: Simcoe

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: Harmful algal blooms (HABs) are on the rise in reservoirs, estuaries, and rivers. These blooms affect ecological systems and human health. They are an important topic of research, and many state and federal agencies are funding this research.

Organizer: Jay Martin, martin.1130@osu.edu

Sponsoring Committee: NRES-28 Ecological Engineering; **Co-Sponsors:** NRES-21 Hydrology Group, PRS-280 Bioconversion and Bioprocesses, ES-220 Bio-based Energy, Fuels and Products

Moderators: Anna Linhoss

Time Pres. ID Presentation Title, Presenter, & Authors

10:20am 2501701 *Efficacy of a Restored Ohio Wetland in Mitigating Nitrogen and Phosphorus from Legacy Phosphorus Field Runoff* - Presented By: **Autumn Sylvestri**, The Ohio State University, Columbus, Ohio, USA; Jay Martin, Nathan Stoltzfus, Mike Brooker, Matthew Romanko

10:35am 2500841 *Nutrient Dynamics and Retention in Fire-Affected Soils Treated with Engineered Fungal Mycelia Growth* - Presented By: **Emmanuel Salifu**, Arizona State University, Tempe, Arizona, USA; Lune Martin, Henry Nakaana, Emmanuel Salifu

10:50am 2501110 *Phytoremediation of roadside deicing salt by plant accumulation* - Presented By: **Yuanhang Zhan**, Department of Bioproducts and Biosystems Engineering, University of Minnesota, Saint Paul, Minnesota, USA; Yuanhang Zhan, Bo Hu, Leif van Lierop, Sarman Gultom

11:05am 2500037 *Improving Harmful Algal Bloom Forecasts through Machine Learning and Data Assimilation Integration* - Presented By: **Debabrata Sahoo**, Clemson University, Pendleton, USA; Ibrahim Busari, Narendra Das

11:20am 2500061 *Assessment of single and stacked conservation practices on edge-of-field nutrient losses using DRAINMOD-P* - Presented By: **Manal Askar**, The Ohio State University, Columbus, Ohio, USA; Kevin W. King, Mohamed A. Youssef, Vinayak S. Shedekar

11:35am 2500148 *The effect of flow on harmful algal blooms in a river system* - Presented By: **Anna Linhoss**, Auburn University, Auburn, Alabama, USA

11:50am 2501417 *Watershed and Lake Integrated Modeling Approach to Explore Characteristics Influencing Cyanobacterial Harmful Algal Blooms in a Eutrophic Reservoir System* - Presented By: **Trisha Moore**, Kansas State University, Manhattan, Kansas, USA; Laura Krueger, Trisha Moore, Aleksey Sheshukov

12:05pm	2501575	*Location, Design, and Results from Conservation Practices to Manage Legacy Phosphorus Fields* - Presented By: **Jay Martin**, Ohio State University, Columbus, Ohio, USA
12:20pm	2500369	*Watershed Management Approach Integrating the SWAT-C Model and Machine Learning* - Presented By: **Changyeom Kim**, Interdisciplinary Program in Earth Environmental System Science & Engineering, Republic of Korea; Sangjoon Bak, Jeongho Han, Yong Hun Choi, Gwanjae Lee, Kyoung Jae Lim

332 Winter Hydrology and Water Quality Challenges in the Great Lakes Region

Wednesday, 10:15am - 12:15pm

Location: City Hall

Technical Community: NRES - Natural Resources & Environmental Systems

Session Type: Oral Technical Session

Description: The United States and Canada have formally committed to reducing nutrient loadings into the Great Lakes through the Great Lakes Water Quality Agreement (GLWQA). This agreement aims to restore and protect the Great Lakes by tackling the increasing problems of eutrophication and water quality impairment.

The proposed session invites presentations on recent research, outreach, and policy efforts focused on:

• Assessing management practices for reducing agricultural pollution and controlling erosion.

• Addressing legacy pollutants, including phosphorus and nitrogen.

• Monitoring and assessing current state of pollution caused by nutrients, sediments, and other toxic chemicals (including pesticides, heavy metals, PCBs, etc.).

• Identifying and mitigating emerging contaminants not removed by conventional wastewater treatment.

• Developing and applying field-to-watershed scale models for predicting and managing water quality.

• Evaluating the impacts of climate change on effectiveness of management practices.

• Emerging data sources, use, and limitations to address water quality issues.

• Examining the effectiveness of existing regulatory frameworks and policy measures in addressing water quality issues.

The goal of this session is to discuss science-based findings and current efforts to improve water quality across the Great Lakes region, from field-to-watershed-to-regional scales.

Organizer: Asmita Murumkar, murumkar.1@osu.edu

Sponsoring Committee: NRES-21 Hydrology Group; **Co-Sponsors:** NRES-22 Soil Erosion and Water Quality, NRES-23 Drainage Group, NRES-26 Sustainable Land Resources

Moderators: Asmita Murumkar, Femeena Valappil

Time	Pres. ID	Presentation Title, Presenter, & Authors
10:20am	2500257	*Contribution of new and old Phosphorus from Organic and Inorganic Fertilizers in Subsurface-drained Fields Using Machine Learning* - Presented By: **Dr. Ehsan Ghane**, Michigan State University, Michigan, USA; Emeka Aniekwensi, Dr. Ehsan Ghane
10:35am	2501063	*Do fields with elevated soil test phosphorus disproportionately contribute to Western Lake Erie Basin dissolved phosphorus loading?* - Presented By: **Emily Byers**, Kentucky Water Research Institute, University of Kentucky, Lexington, Kentucky, USA; Laura T. Johnson, Kevin W. King, Chad J. Penn, Mark R. Williams
10:50am	2501498	*Geospatial Approach for Selecting Structural Conservation Practices to Improve Water Quality in the Western Lake Erie Basin, USA* - Presented By: **Asmita Murumkar**, The Ohio State University, Columbus, Ohio, USA; Asmita Murumkar, Mahesh Tapas, Anna Apostel, Margaret Kalcic, Jay Martin
11:05am	2501076	*Identification of Threshold Events Responsible for Sediment and Phosphorus Loads in Agricultural Watersheds* - Presented By: **Manpreet Kaur**, University of Guelph, Canada; Manpreet Kaur, Ramesh Rudra, Prasad Daggupati, Pradeep Goel, Pranesh Paul
11:20am	2501606	*Integrating Novel Soil Temperature Estimation Routine with SWAT for Improved Winter Hydrological and Nutrient Modeling for Lake Erie Sub-basin* - Presented By: **Jaskaran Dhiman**, McGill University, Montreal, Quebec, Canada; Jaskaran Dhiman, Rituraj Shukla, Ramesh Rudra, Shiv Prasher, Prasad Daggupati, Pradeep Goel

11:35am	2500377	NO SHOW *e Future of Agricultural Water: Predicting Spring Soil Thermal and Hydrolog arming Manitoba* - Presented By: **Ziwei Li**, Hohai University, Nanjing, Jiangsu; Ziwei Li, Birk Li, Zhiming Qi, Ward Smith, Jianyun Zhang, Junliang Jin
11:50am	2500758	*Integrating Machine Learning and Remote Sensing for Spatiotemporal Water Quality Monitoring in Great Lakes* - Presented By: **Hamid Mohebzadeh**, University of Guelph, Guelph, Ontario, Canada; Trevor Boston, Vasuki Lolla, Steven French, Prasad Daggupati

PAFS - Plant, Animal, & Facility Systems

333 R.S. Gates Memorial Lecture Series

Wednesday, 10:15am - 12:15pm

Location: Dominion South

Technical Community: PAFS - Plant, Animal, & Facility Systems

Session Type: Guest Speaker Session

Description: Throughout his distinguished 40-year career as an agricultural engineer, Richard S. Gates, PhD, PE, ASABE Fellow, and recipient of the Henry Giese Structures and Environment Award, made an indelible impact. His pioneering work and innovative contributions significantly advanced plant and animal production systems engineering, leaving a profound legacy within the PAFS community. This memorial session honors Dr. Gates' life, career, and service by celebrating the contributions of others who continue to innovate and advance our profession.

Organizer: Yijie Xiong, yijie.xiong@unl.edu

Sponsoring Committee: PAFS-40 Facilities & Systems Group; **Co-Sponsors:** PAFS-20 Structures Group, PAFS-30 Plant Systems Group, PAFS-40 Facilities & Systems Group, PAFS-50 Environmental Air Quality

Moderators: Yijie Xiong, Hanwook Chung

Time	Pres. ID	Presentation Title, Presenter, & Authors
10:15am	Guest Speaker	*The Impact of Digital Revolution on Controlled Environment Agriculture* - Presented By: **Qiang Zhang**, University of Manitoba, Winnipeg, Manitoba, Canada
10:45am	Guest Speaker	*The Enduring Value of ASABE Professional Relationships* - Presented By: **Robert Burns**, The University of Tennessee, Knoxville, Tennessee, USA
11:15am	Guest Speaker	*Best Practices for Advancing PAFS Community Contribution to the Journal of ASABE* - Presented By: **Shafiqur Rahman**, Central State University, Wilberforce, Ohio, USA
11:45am	Guest Speaker	*Learning and Leading with Purpose: My ASABE Journey in Air Quality, Animal Housing, and Interdisciplinary Innovations* - Presented By: **Lingjuan Wang-Li**, North Carolina State University, Raleigh, North Carolina, USA

PRS - Processing Systems

334 Biochemical Conversion and Bioprocess Modeling

Wednesday, 10:15am - 12:15pm

Location: Linden

Technical Community: PRS - Processing Systems

Session Type: Oral Technical Session

Description: This session will be focused on bioprocessing and bioconversion of biomass into biofuel, biochemical, and biomaterials, as well as covering research on the modeling of the bioconversion processes.

Organizer: Ashish Manandhar, manandhar.5@osu.edu

Sponsoring Committee: PRS-280 Bioconversion and Bioprocesses

Moderators: Senthikumar Thiruppathi

Time	Pres. ID	Presentation Title, Presenter, & Authors

10:20am 2500245 *Production of Polyhydroxyalkanoates (PHA) from Cheese Byproducts by Halophilic Microbes* - Presented By: **Kelly Graff**, University of California, Davis, Davis, California, USA; Kelly Graff, Melanie Siu, Keith Young, Alex Hobby, Hamed El Mashad, Ruihong Zhang

10:35am 2500982 *Innovative Co-culture Systems for Sustainable Solvent Production and CO_2 Utilization* - Presented By: **Mari Chinn**, Oklahoma State University, Stillwater, Oklahoma, USA; Manoj Gyawali, Thaddeus Ezeji, Mari S. Chinn, Hasan Atiyeh

10:50am 2500665 *Assessment of granular starch hydrolysis enzyme on ethanol yield from partially swollen sorghum starch and analysis of extracted protein properties* - Presented By: **Thomas Weiss**, Kansas State University, Manhattan, Kansas, USA; Thomas Weiss, Shan Hong, Ruoshi Xiao, Xiaorong Wu, Yonghui Li, Michael Tilley, Donghai Wang

11:05am 2500477 *Direct Biosynthesis of Organic Solvent Precursors via Fermentation in L. lactis* - Presented By: **Nathan Ring**, North Carolina State University, Raleigh, North Carolina, USA; Nathan Ring, Sara Siegel, Kurt Selle

11:20am 2500652 *Towards optimizing the product-process efficiency of dry fractionation of pea proteins* - Presented By: **Derrick Allotey**, McGill University, Sainte Anne de Bellevue, Quebec, Canada; Derrick Allotey, Ebenezer Kwofie, Rani Ramchandran

11:35am 2501302 *Development of a Solid-State Pure Mycelium Material Production System for Sustainable Textiles from Agricultural Byproducts* - Presented By: **Tyler Barzee**, University of Kentucky, Lexington, Kentucky, USA; Zachary Byrd, Michael P. Sama, Tyler Barzee

11:50am 2500345 *Modeling the inactivation of Salmonella by cold plasma treatment in water* - Presented By: **Muthukumarappan Kasiviswanathan**, South Dakota State University, Brookings, South Dakota, USA; Tejaswi Boyapati, Ren Yang, Kasiviswanathan Muthukumarappan

12:05pm 2500393 *Homologous expression of formate dehydrogenase from Methylobacterium extorquens for carbon utilization technologies* - Presented By: **William Sagues**, North Carolina State University, Biological and Agricultural Eng, Raleigh, North Carolina, USA; Vanessa Rondon Berrio, Cameron Hunter, Thuan Nguyen, William Joe Sagues, Amy Grunden, Greg Burham, Nathan Crook, Douglas Call, Nisha Jangir, Sonja Salmon

335 Management of Food, Organic Wastes, and Byproducts for Improving Circularity II

Wednesday, 10:15am - 12:15pm

Location: Huron

Technical Community: PRS - Processing Systems

Session Type: Oral Technical Session

Description: Organic wastes and byproducts may cause environmental damage or economic loss without careful management and treatment. Further, many of these materials have unexploited value. This session will focus on engineering solutions for waste and byproduct streams from agriculture, food, municipal, and bioenergy operations.

Organizer: Toufiq Reza, treza@fit.edu

Sponsoring Committee: PRS-707 Food & Organic Waste Management & Utilization; **Co-Sponsors:** CBSI-Circular Bioeconomy Systems Institute

Moderators: Deandrae Smith, Toufiq Reza

Time Pres. ID Presentation Title, Presenter, & Authors

10:20am 2500083 *Io T Based Smart Hybrid HortiCool Solution for increasing shelf life of Fruits and Vegetables in Bangladesh* - Presented By: **Chayan Kumer Saha**, Bangladesh Agricultural University, Bangladesh; Chayan Kumer Saha, Saikat Biswas, Md. Abu Yousuf Prodhan, Sahabuddin Ahamed, Surajit Sarkar

10:35am 2500429 *Solids content of dissolved air flotation (DAF) solids governs toxicity of thermal hydrolysate toward microbial fermentation* - Presented By: **Brendan Higgins**, Auburn University, Auburn, Alabama, USA; Brendan Higgins, Edward Drabold, Melissa Boersma

10:50am 2500542 *Comparison of essential oils from hedge apple, hemp, and guayule for repellency of mosquitoes* - Presented By: **Catherine Brewer**, New Mexico State University, Las Cruces, New Mexico, USA; Catherine E. Brewer, Jacarthie Kim Brazil, Gloria Hernandez, Hailey Luker, Gabriel Borg, Immo A. Hansen

11:05am 2500889 *Development of sustainable packaging films from agricultural waste* - Presented By: **Ma Cristine Ignacio**, University of the Philippines Los Banos, Philippines; Ronaniel Almeda, Mary Grace Pagatpatan

11:20am 2501053 *Factors Influencing Efficiency of Biofiltration Systems to Reduce Greenhouse Gas Emissions from Livestock Facilities* - Presented By: **Johannes Ali**, The Pennsylvania State University, State College, Pennsylvania, USA; Johannes Ali, Camila Gonzalez Arango, Juliana Vasco-Correa

11:35am 2501290 *Enhancing 3D Printing of Plant Protein-Based Materials Using SPI-WG-EGCG Complexes* - Presented By: **Michael Ngadi**, McGill University, Montreal, Quebec, Canada