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SUSHANT MEHAN, Ph.D.
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EDUCATION

Purdue University, West Lafayette, Indiana, USA   Aug 2018
Ph.D., Agricultural and Biological Engineering
Dissertation Title: Impact of Changing Climate on Water Resources in the Western Lake
Erie Basin Using SWAT (Read here)

Punjab Agricultural University, Ludhiana, India   Aug 2014
Master of Technology (Major: Soil & Water Engineering | Minor: Civil Engineering)
Thesis Title: Studies on the Effect of Colored Mulches on Yield and Quality of Bell Pepper
(*Capsicum annuum* L.) (Read here)

Punjab Agricultural University, Ludhiana, India   Jul 2011
Bachelor of Technology (Agricultural Engineering)

PROFESSIONAL EXPERIENCE

Aug 2023 - Present	Assistant Professor and Extension Water Resource Engineer Specialist, South Dakota State University, Brookings, SD
Jan 2023 – Aug 2023	Postdoctoral Fellow, Colorado State University, Fort Collins, CO - PI (Dr. Kyle R. Mankin)
Mar 2022 – Jan 2023	Postdoctoral Research Associate, University of Wisconsin, Madison, WI - PI (Dr. Margaret M. Kalcic)
Jun 2020 – Feb 2022	Postdoctoral Scholar, Ohio State University, Columbus, OH - PI (Dr. Margaret M. Kalcic)
Oct 2018 – May 2020	Agricultural Engineer, Formation Environmental LLC, Sacramento, CA
Jan 2016 – Aug 2018	Graduate Research Assistant, Purdue University, West Lafayette, IN
Jan 2015 – Dec 2015	Graduate Research Assistant, South Dakota State University, Brookings, SD
Jan 2012 – May 2012	Lecturer, Northwest Institute of Engineering and Technology, Punjab, India

SNAPSHOT OF IMPACT

- Number of Publications: Peer-reviewed Journal Articles (including accepted publications)/Book Chapters/U.S. Patents/Popular Articles/Datasets & Codes/Preprints — 33/5/2/22/5/5
- Amount in Dollars ($) funded in grants as Primary Applicant/Co-PI (in total) – Since Aug 2023 — $3M
- Number of Citations/h-index/i10-index — 811/15/22
- Number of students mentored: undergraduates/graduates (M.S. & Ph.D.) */Postdocs — 4/15/1
- Review Services: Number of Journal Articles/Number of Grant Cycles — 200/6
- Number of workshops facilitated: Data Science/Professional Development — 11/3
- Number of years of industrial experience — 2
- Number of conference presentations/posters (as a primary author/co-author/invited) — 125
- Number of open-source self-paced courses published — 2
- Number of professional awards and recognitions (since 2023): self/lab members — 10/10

   *M.S. & Ph.D. include students for whom I served as a committee member

RESEARCH EXPERIENCE

Assistant Professor and Extension Water Resource Engineer Specialist   Aug 2023 - Present
Agricultural and Biosystems Engineering Department
South Dakota State University, Brookings, SD

- Advance understanding and management of water resources in water-limited and cold-region agricultural systems, with emphasis on the Great Plains, Midwest, and comparable agroecosystems
- Quantify hydrologic variability, climate extremes, and long-term trends in precipitation, temperature, drought, aridity, streamflow, and groundwater dynamics
- Improve process representation in hydrologic and agrohydrologic models (e.g., surface runoff, soil moisture, groundwater, cold-season processes) to enhance prediction accuracy and transferability
- Develop and evaluate process-based, statistical, and hybrid machine-learning models for soil moisture, evapotranspiration, groundwater depth, and water table dynamics under data-limited conditions
- Integrate remote sensing, geospatial analysis, and multi-source data fusion to assess crop water use, vegetation health, and landscape-scale hydrologic responses
- Assess the environmental, hydrologic, and economic impacts of drainage water management, riparian area management, and conservation practices in agricultural watersheds
- Investigate nutrient and water quality dynamics, including phosphorus and nitrogen mobility, surface water quality, and interactions between land management and downstream water resources
- Design and apply AI-driven and non-contact methods for rapid assessment of surface water quality and environmental conditions
- Support precision agriculture and decision-making by linking hydrologic processes to agronomic outcomes such as yield variability, crop productivity, and water use efficiency
- Develop scalable, user-friendly decision support tools that translate advanced modeling and analytics into actionable guidance for producers, agencies, and water managers
- Conduct community- and stakeholder-informed research that aligns hydrologic science with producer needs, extension programming, and policy-relevant water management decisions
- Advance open-source workflows, reproducible modeling frameworks, and transparent analytics to improve accessibility and adoption of hydrologic tools
- Mentor graduate researchers in applied hydrologic modeling, remote sensing, and machine learning, resulting in peer-reviewed publications and national conference presentations

Postdoctoral Fellow   Jan 2023 - Aug 2023
USDA-ARS Water Management and Systems Research, Fort Collins, CO
PI – Dr. Kyle Mankin

- Conducted comprehensive review, synthesis, and interpretation of various gridded climate datasets for their application in hydrologic modeling and analysis.
- Assisted and coordinated the work of other students and staff conducting geospatial analyses.
- Assessed and led geospatial analysis and modeling towards understanding and evaluating genetic x environment x management x socioeconomics (GxExMxS) interactions on crop yields, economics, and sustainability in dryland agroecosystems.

Postdoctoral Research Associate   Mar 2022 - Jan 2023
Department of Biological Systems Engineering, University of Wisconsin, Madison, WI
PI – Dr. Margaret M. Kalcic

- Improved model simulations of freezing-thawing cycles in snow-dominated watersheds to quantify management-practice effectiveness in protecting water quality
- Enhanced the effectiveness of water-quality models to simulate the fate and transport of phosphorus on and below the soil surface in a tile-drained dominated agricultural watershed
- Quantified and assessed the simulation of the control drainage management practice to improve

water-quality issues using the edge-of-field monitoring sites data and hydrologic modeling
- Assessed the soil health and its impact on water quality management using hydrologic modeling and field experiments

Postdoctoral Scholar Jun 2020 - Feb 2022
Department of Food, Agricultural, and Biological Engineering, Ohio State
University, Columbus, OH
PI – Dr. Margaret M. Kalcic
- Improved simulations of in-stream biogeochemical processes to quantify nutrient fate and transport for watershed management using hydrologic modeling and in-field observations
- Evaluated drainage water-management practices using hydrologic modeling and in-situ observations to manage water resources
- Assisted with quantification of soil health practice effects on soil properties and nutrient loss in a watershed-scale hydrologic model
- Planned and managed the observed and modeled data repository for the lab

Agricultural Engineer/Hydrologist Oct 2018 - May 2020
Formation Environmental LLC, Sacramento, California
- Improved crop-growth simulation models for 40 different crops using process-based computer models for California's Central Valley to quantify nitrate leaching loads
- Tested heat-storage components in the existing SEBAL (Surface Energy Balance) CalETa (California Actual Evapotranspiration) mapping program for the state of California to improve the simulation of evapotranspiration
- Applied statistics and data visualization for environmental mapping and design of different ecological/ meteorological variables
- Collaborated on an Industry-University model assessment study to quantify nitrate leaching in tomato-grown fields using the modeling and in-situ measurements

Graduate Research Assistant Jan 2016 - Aug 2017
Department of Agricultural and Biological Engineering, Purdue University,
West Lafayette, Indiana
- Performed univariate and multivariate analysis to compare synthetic climate values with climate data for the Western Lake Erie Basin
- Analyzed long-term climate data simulated by stochastic weather generators to quantify their effectiveness in simulating climate for use in hydrologic models
- Evaluated different methods of bias correction for GCM (General Circulation Model) outputs to create a reliable future climate database
- Quantified nutrient transport in an agricultural tile-drained watershed for assessment of the climate-changing impact on water resources
- Applied remote sensing and data science to study the spatial and temporal extent of algae in Lake Erie

Graduate Research Assistant Jan 2015 - Dec 2015
Department of Plant Science, South Dakota State University, Brookings, SD
- Quantified different types of droughts over long-term climate change for water-resource management planning using a process-based hydrologic model
- Assisted in radio-isotope study to quantify surface/groundwater interactions
- Applied remote sensing and GIS to estimate rainfall distributions over space using different spatial interpolation techniques

University Fellow Jul 2012 - Jul 2014
College of Agricultural Engineering and Technology, Punjab Agricultural
University, Ludhiana, India
- Conducted a field-scale experiment evaluating the impact of different colored biodegradable plastic mulches on plant microclimate
- Performed on-field and in-lab experiments to measure different physical and chemical

properties of the product, along with the end-of-season crop yields
- Applied the application of a passive spectroradiometer to quantify the change in the plant light environment

Graduate Engineer Trainee   Jul 2011 – Dec 2011
John Deere Pune Works (JDPW) Pvt. Ltd, Pune, India
- Learned and applied KAIZEN and SIX SIGMA applications in the off-road vehicles' manufacturing units, including John Deere Pune Works Pvt. Ltd, India
- Participated and contributed to identifying and implementing new and innovative ideas to reduce the time and increase the efficiency of a manufacturing line and supply chain
- Designed and conducted a farmer's survey for prototype development

Bharti Field Fresh Undergraduate Scholar   Jul 2007 – Jul 2011
College of Agricultural Engineering and Technology, Punjab
Agricultural University, Ludhiana, India
- Analyzed the impact of different packaging materials and microclimate modifications on minimally processed baby corn on export quality of baby corn
- Quantified the annual land-use change in the Moga District using Remote Sensing and GIS

TEACHING/MENTORING/ADVISING EXPERIENCE

South Dakota State University, Brookings, SD
- ABE 790: Graduate Seminar
  (Number of Students: 17)   Fall 2025
- Guest Lecture: AST 426 Technology Applications for Precision Agriculture
  (Number of Students: 54)   Fall 2024
- Guest Lecture: PRAG 340 Climate Risk Management with Precision Agriculture
  (Number of Students: 50)   Fall 2024, 2025
- Co-Teaching: ABE 790 Seminar
  (Number of Students: 15)   Spring 2024
- Guest Lecture: ABE 434 Natural Resources Engineering
  (Number of Students: 30)   Fall 2023, 2024, 2025
- Guest Lecture: AST 333 Soil and Water Mechanics
  (Number of Students: 15)   Fall 2023
- Guest Lecture: GE 101 Introduction to Engineering and Technology Profession
- (Number of Students: 200)   Fall 2024, 2025
- Guest Lecture: ACS 102 Exploratory Study: Ag, Nat Sc, Eng, Tech, Math
                                                                           Fall 2024, 2025

Department of Food, Agricultural, and Biological Engineering, Ohio State University, Columbus, Ohio
- Technical advisor on a senior design project   Aug 2021 – Feb 2022
  Stormwater Treatment for Algal Bloom Reduction
- Co-technical advisor on a senior design project   Aug 2020 – May 2021
  Rush Run Soil – Bioengineered Stream Restoration
- Co-advised and mentored Ph.D. students

NSF-MSGI Summer Internship
- Mentor to National Science Foundation Mathematical Sciences   Summer 2021
  Graduate Intern from the Department of Mathematics and
  Statistics, College of Arts and Sciences, Washington State
  University, Pullman, WA, (Dr. Priyanka Rao) with Dr. Devendra
  M. Amatya, Research Hydrologist, USDA Forest Service, Santee

Experimental Forest, Center for Forest Watershed Research,
Coredesville, SC

- Mentor to National Science Foundation Mathematical Sciences   Summer 2023
Graduate Intern from the Department of Statistics, University of
Connecticut, Storrs, CT, (Mr. Alokesh Manna) with Dr.
Devendra M. Amatya, Research Hydrologist, USDA Forest
Service, Santee Experimental Forest, Center for Forest Watershed
Research, Coredesville, SC

Formation Environmental LLC, Sacramento, California
- Advised Postdoctoral Scholar at the University of California, Davis, to quantify the impacts of
land use and climate change on crop water use using hydrologic modeling
- Guest Lecture: ABT 182 / HYD 182 Environmental Analysis   Winter 2020
using GIS
(Number of Students: 30)
- Guest Lecture: HYD 110 Irrigation Systems and Water   Spring 2019
Management
(Number of Students: 10)

Department of Agricultural and Biological Engineering (ABE), Purdue University, West Lafayette, Indiana
- Facilitator of the Workshop on R for Beginners: I & II (Number   Fall 2017/Spring 2018
of Students: 40)
- Guest Lecture: ABE 52700 Computer Models in Environmental   Spring 2018
and Natural Resources Engineering (Number of Students: 15)
- Co-Advised/Mentored Summer Undergraduate Research Fellows   Summer 2017
(11-week program in the Summer of every year)

Department of Plant Science, South Dakota State University, Brookings, SD
- Created and facilitated lab modules: PS 723-L Hydrologic   Fall 2015
Modeling
(Number of Students: 15)

Punjab Agricultural University, Ludhiana, Punjab, India
- Tutored SWE 304 Irrigation Engineering   Fall 2014
(Number of Students: 5)

North-West Institute of Engineering & Technology (NWIET), Dhudike, Moga, Punjab, India
- Lectured PE/DE -2.1 Industrial Engineering   Spring 2011
(Number of Students: > 40)

Teaching Experience at Professional Conferences
At the American Society of Agricultural and Biological Engineering (ASABE) Annual International
Meeting (AIM) (Workshop Facilitator / Instructor)
- Graduate Student Presentation Workshop   Jul 2024
(Number of Students: 100)
- Data Analytics Using Python In Agricultural And   Jul 2024
Biological Engineering
(Number of Students: 15)
- Nexus of R and Data in Agricultural and Biological   Jul 2023
Engineering
(Number of Students: 11)
- Advanced Data Analytics for Water Resources   Jul 2022
Management using R
(Number of Students: 11)
- Agricultural and Biological Engineering Data Handling   Jul 2021

Using R
(Number of Students: 40)

- Agricultural and Biological Engineering Data Handling   Jul 2020
Using R
(Number of Students: 80)
- Data Analytics using Python in Agricultural and Biological   Jul 2019
Engineering
(Number of Students: 41)
- Introduction to Data Science in Agriculture with Python   Jul 2018
(Number of Students: 30)

At the South Dakota Student Water Conference (Workshop Facilitator / Instructor)

- Advanced Data Analytics for Natural Resources Management   Oct 2023
using R
(Number of Students: 35)

At the ASA, CSSA, SSSA International Annual Meeting (Workshop Facilitator / Instructor)

- Ethical Use of ChatGPT in Technical Writing and Data Analysis   Nov 2025
(Number of Students: 35)
- Advanced Data Analytics for Natural Resources Management   Oct 2023
using R
(Number of Students: 60)

At the 2025 Great Plains Water Conference (Workshop Facilitator/Instructor)

- Advanced Data Analytics for Water Resources Management   Sep 2025
using R
(Number of Students: 44)

ASSIGNED SERVICE (Extension and Outreach Efforts)

- Chair, Planning Committee for the Annual Drainage Research Forum   2025
organized by Chris Hay, Iowa; Matt Helmers, Iowa State University;
Sushant Mehan, South Dakota State University; Lindsay Pease,
University of Minnesota, and Gary Sands, University of Minnesota on
September 9-10, 2024, in Brookings, SD.
- Leading Water Program in South Dakota (Project Title: Bridging   Since Fall 2024
Community insights and solutions in Water Resources Management: A
Pathway to Water Resources Program in South Dakota)
- Member Planning Committee for the first Ag Cybersecurity Program in   Since Spring 2024
South Dakota (Combined efforts of South Dakota State University and
Dakota State University)
- Member, Planning Committee for the Annual Drainage Research Forum   2024
organized by Chris Hay, Iowa Soybean Association; Matt Helmers, Iowa
State University; Sushant Mehan, South Dakota State University; Lindsay
Pease, University of Minnesota, and Gary Sands, University of Minnesota
on September 5, 2024, in Ames, IA.
- Co-led the Water Quality training during the Concentrated Animal   Since 2024
Feeding Operations (CAFOs) every June and December, at the
Crossroads Convention Center in Huron
- Attending and responding to calls from SD State Local Civilians on   Since Fall 2023
questions related to Water Quality and Quantity

INSTITUTIONAL SERVICE
South Dakota State University, Brookings, South Dakota

- Leading Faculty Retreat Discussion on Departmental Research and   Fall 2024
Outreach Activities
- Reestablished and Organized SD ASABE Section Meeting   Fall 2024/Spring 2025
- Planning Committee Chair, 2024 South Dakota Student Water   Fall 2024
Conference

• Planning Committee Co-Lead, 2024 ASABE North Central Regional Section Meeting at SDSU after more than 25 years of inactivity	Spring 2024
• Vice-Chair & Faculty Member Representative, University Committee for Research, Scholarship, and Creative Activity (RSCA)	Fall 2023 – Fall 2026
• Member of the Awards Committee of the Agricultural and Biosystems Engineering Department.	Since Fall 2023
• Member, Search Committee for SD Water Research Institute Director	Spring 2024 – Fall 2024
• Member, SDSU ABE Recruitment and Retention Planning Committee	Since Fall 2024
• Serving as Co-Advisor to SDSU Indian Student Association	Since Fall 2024

University of Wisconsin-Madison, Madison, Wisconsin

• Communication Director, University of Wisconsin-Madison Postdoctoral Association (UWPA), 2022	Spring 2022- Fall 2022
• Organizing Committee Member - University of Wisconsin-Madison Postdoctoral Association (UWPA) Annual Research Symposium, 2022	Fall 2022
• Advising graduate students' leadership in planning different events and developing the departmental graduate student organization	Spring 2022- Fall 2022

The Ohio State University, Columbus, Ohio

• Only Postdoc representatives from all agricultural disciplines on Commercialization Training Module for Postdoc - A pilot program to promote entrepreneurship opportunities among academic scientists	2020-2021
• Member of the Organizing Committee of The Annual Postdoc and Ph.D. Career Expo	2020-2021

Purdue University, West Lafayette, Indiana

• ABE-GSA (Agricultural and Biological Engineering - Graduate Student Association)	
• President	2017-2018
• Professional Development Chair	2016-2017
• Graduate Student Ambassador from Agricultural and Biological Engineering on a College of Agriculture Graduate Student Advisory Board, May 2016-April 2017	May 2016- Apr 2017
• Executive Member - Purdue Climate Change Research Center (PCCRC) Post-Doc, Graduate Students Group (2016-2018)	2016-2018
• Alpha Epsilon (AE) Honors Society, Purdue University Chapter	2017-2018
• Member at Large (MAL); Professional Development Community	

ACADEMIC SERVICE
- Program Evaluator (PEV) for Accreditation Board for Engineering and Technology (ABET) Engineering Accreditation Commission (EAC)
- Associate Editor: Soil Science Society of America (SSSA) Journal
- Associate Editor: Natural Resources & Environmental Systems (NRES), ASABE Journals
- Topic Editor for a special collection on "Climate change impacts on agriculture and natural resources along with adaptation options with a focus on extreme events" in Frontiers in Environmental Science. For more details, click here.
- Guest Associate Editor for "Digital Water: Computing Tools, Technologies, and Trends" in the 2024 issues of the Journal of the ASABE and Applied Engineering in Agriculture. For more details, click here
- Special Issue Editor for "Precision Management of Water Resources under Changing Climate and Weather Dynamics: Data, Simulation, Modeling, and Sustainability" in Sustainability (MDPI). For more details, click here
- Reviewer Board: Sustainability, Water, Climate, Remote Sensing, Agronomy

- Proposal Reviewer: USDA – NIFA, 2022; 2023, 2024, 2025
- Proposal Reviewer: National Science Foundation, 2023, 2024, 2025
- Proposal Reviewer: Nazarbayev University Research Proposal Reviewer, 2018; 2019.
- Proposal Reviewer: National Science Center, Poland
- Peer Reviewer for the following Journals: *Science Bulletin, Irrigation and Drainage, Journal of Natural Resources and Agricultural Ecosystems, Water Research, Journal of Hydrology, Journal of Soil and Water Conservation (JSWC), Journal of Environment Quality(JEQ), Natural Hazards (NHAZ), Science of the Total Environment (STOTEN), Ecology and Evolution, Journal of the American Water Resources Association (JAWRA), Journal of Water and Climate Change (JWC), Earth's Future, Agricultural Water Management (AGWAT), ISPRS International Journal of Geoinformation, Journal of the ASABE (old name: Transactions of the ASABE), CATENA, Applied Engineering in Agriculture, Big Earth Data, Journal of Applied Meteorology and Climatology (JAMC), Sustainability, Agriculture, Water, Climate, Precision Farming, Remote Sensing, Journal of Plant and Agricultural Research.*

STUDENT COMPETITION SERVICE (Served as a Judge)

Jacksrabbit BEST Robotics	2023 & 2024
ASABE North Central Regional Meeting	2024
South Dakota Student Water Conference (Oral and Poster Presentations)	2023
Diversity Poster Contest organized by the ACS DEI Committee at the 2023 ASA-CSSA-SSSA Annual Meeting.	2023
3MT Thesis Competition at Graduate Student Industrial Symposium (GRIS) organized by Graduate Student Association, Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, IN.	2022
NCEES Land Surveying Special Award: Ohio Region Future City Competition, organized by Future City Ohio Board.	2022
35th Annual Edward F. Hayes Graduate Research Forum.	2021
The Ohio Academy of Science State Science Day, organized by The Ohio State Chapter of Sigma Xi.	2021
Spellman HV (Heating Ventilation) Clean Tech Competition – International Sustainability Innovation Competition.	2021; 2022
ABE 205: Computations for Engineering Systems (Sophomore Course) Final Project at Purdue University, West Lafayette, IN (Course Offered Fall 2021)	2021
UCD Ag/Env Sciences (FFS) Field Day - AgriScience Fair	2019
Lafayette Regional Science and Engineering Fair, Undergraduate Research and Poster Symposium at Purdue University, Senior Capstone Project, and Big Ten Poster Competition.	2016; 2017; 2018
Visual Presentation Contest ASA-CSSA-SSSA Tri Society Annual Meeting.	2016; 2017
The Lafayette Regional Science and Engineering Fair	2016; 2017; 2018
UC Davis Field Day: AgriScience Fair	2020
Undergraduate Research and Poster Symposium at Purdue University	2016
Undergraduate Capstone Project	2016; 2017; 2018

LEADERSHIP AND SERVICE AT THE PROFESSIONAL SOCIETIES
American Society of Agricultural and Biological Engineers (ASABE) [Click here and learn more about ASABE](#)

Co-led revisions on "X526.5 Soil and Water Terminology." With Dr. Derek Heeren	2023-2024
Vice Chair NRES-21 (Hydrology)	2024-2025
Secretary NRES-21 (Hydrology)	2023-2024
Member, NRES-02 (NRES Steering Committee)	Since 2024
Member, NRES-05 Publications Review	Since 2022

• Member, NRES-06 Paper Awards	Since 2022
• Vice Chair, NRES-07 (Nomenclature)	2023-2024
• Chair, Young Professional Community (YPC)	2022-2024
• Vice Chair, Young Professional Community (YPC)	2021-2022
• Publications Council Rep, Young Professional Community (YPC)	2019-2021
• Members-at-large, Young Professional Community (YPC)	2017; 2018; 2019
• Chair, P-120 Student Organizations	2024-2026
• Vice Chair, P-120 Student Organizations	2023-2024
• Chair, P-121 G.B. Gunlogson Student Environ Design Competition	2022-2023
• Vice Chair, P-121 G.B. Gunlogson Student Environ Design Competition	2021-2022
• Competition Coordinator, P-121 G.B. Gunlogson Student Environ Design Competition	Since 2019
• Member, E-2050 Global Engagement	Since 2023
• Member, E-20 Finance Committee	2023-2024
• Member, E-05 Marketing and External Communications	Since 2023
• Member, Circular Bioeconomy Systems Institute (CBSI)	Since 2023
• Member of EOPD 204 Engineering & Technology Accreditation	Since 2024
• Member and Vice Chair of P-515 Teaching and Learning Resources Committee	Since 2024
• Member of M-135 - Pharos of Alexandria Award Selection Committee	Since 2024
• Member, P-122 Boyd-Scott Graduate Research Award	Since 2022
• Public Relations Officer: CA/NV ASABE Section	2021-2022
• Awards Chair: CA/NV ASABE Section	2020-2021
• Executive Member: CA/NV ASABE Section, 2019-2020	2019-2020
• Session Chair and Moderator: Next-Gen Agroecosystems Modeling: Integrating AI/ML and Process-based models	Jul 2024
• Session Chair and Moderator: Advances in Agro-Ecosystems Modeling and Data Analytics	Jul 2023
• Session Chair and Moderator: Advances in Hydrologic Modeling of Agroecosystems of various Complexities-HYBRID	Jul 2022
• Session Chair and Moderator: Data and Water Management: Volume, Velocity, and Variety	Jul 2022
• Session Chair and Moderator: Hydrologic and Climate Data: Challenges and Opportunities	Jul 2018; 2019; 2020; 2021
• Adjudicator at ASABE Fountain Wars Design Competition and Open Format ASABE Annual International Meeting	2017; 2018; 2019
• Adjudicator at ASABE Adams and Foundation Engineering Scholarship	Since 2017
• Adjudicator at ASABE John C. Nye Graduate Fellowship	Since 2020

Association of Agricultural, Biological, and Food Engineers of Indian Origin (AABFEIO)

• President	2020-2021
• Vice President	2019-2020
• Secretary	2018-2019

American Geophysical Union (AGU)

• Primary Convenor for the "IN42A. Advancements in Hydrologic Tools and Technologies II." Oral session at AGU Fall Meeting 2025.	2025
• Primary Convenor for the "H42H. Nonpoint Source Pollution Dynamics, Impacts, Management, Control, and Regulatory Efforts in Groundwater and Vadose Zone Systems II." Oral session at AGU Fall Meeting 2025.	2025
• Primary Convenor for the "H33T. Nonpoint Source Pollution Dynamics, Impacts, Management, Control, and Regulatory Efforts in Groundwater and Vadose Zone Systems I." Poster session at AGU Fall Meeting 2025.	2025
• Primary Convenor for the "IN33B. Advancements in Hydrologic Tools	2025

and Technologies I. Poster session at AGU Fall Meeting 2025.	
• Primary Convenor for the "H129-I. The Food-Water-Ecosystem Nexus: Nonpoint Source Pollution Dynamics, Impacts, and Management in Groundwater and the Vadose Zone Systems" session at AGU Fall Meeting 2024.	2024
• Primary Convenor for the session "IN31E - Empowering Earth Science Data Use and Hydrologic Advancements: Showcasing Innovative Tools and Technologies for Broad User Communities Poster" at AGU Fall Meeting 2023	2023
• Primary Convenor and Chair for the session "INV43A - Advancements in Hydrologic Tools and Technologies: A Forum for Demonstration and Discussion I" at AGU Fall Meeting 2023	2023
• Primary Convenor for the session "Hydroinformatics and Data Science: Pathways to Support Reproducible Watershed Modeling" at AGU Fall Meeting 2022	2022
• Lead (Section Champion): AGU The ICON Special Collection specific to hydrology	2021-2022
• AGU Hydrology Section Coordinator for Outstanding Student Presentation Awards (OSPA)	Since 2024
• Member of AGU Digital User Group	Since 2021
• Member of AGU Water Quality Technical Committee	Since 2022

Soil Science Society of America (SSSA)

• Member, ACS Visual Presentation Contest Committee	2016-2017
• Member, America-New Zealand Soil Science Professional Exchange Award Committee	2023
• Chair, America-New Zealand Soil Science Professional Exchange Award Committee	2024
• Member, Soil Science Industry and Professional Leadership Award Committee	2024-2025

Others

• Moderated the main session (a panel discussion) titled "Adapting Ag Water and Nutrient Management to Weather Extremes in the Great Plains" at the 2025 Great Plains Water Conference. Thursday, September 18, 2025	2025
• Moderated the main session (oral session) titled "Session C2: Sensitivity, Calibration, and Uncertainty" at the 2025 SWAT International Conference, Wednesday, October 22, 2025	2025

FUNDING (Research and Extension)

• PD. South Dakota Nutrient Research and Education Council (SD NREC). Scaling Automated Controlled Tile Drainage from Plot to Watershed and Quantifying Water Storage, Nutrient Retention, and Yield Return in South Dakota Cropping Systems. **$92, 111 Awarded**	2026
• PD. South Dakota Corn Utilization Council (SDCUC). Evaluating Controlled and Automated Tile Drainage Systems for Yield, Water Management and Profitability in South Dakota Corn Fields. **$ 92, 000 Awarded**	2025
• PD. South Dakota Nutrient Research and Education Council (SD NREC). Precise Management of Phosphorus in South Dakota Agricultural Soils. **$ 92, 185 Awarded**	2025
• Co-PD. Field Monitoring of Precision Controlled Drainage for Water Quality and Yield Improvement- Phase 2. **$ 60,713 Awarded**	2025
• PD. SDSU Extension Seed Grant. Bridging Community insights and solutions in	2024

Water Resources Management: A Pathway to Water Resources Program in South Dakota. **$ 99, 514 Awarded**	
• PD. United States Geological Survey (USGS) 104 (b). Integrated Remote Sensing and Water Quality Analysis for Spatiotemporal Assessment of Surface Water Quality in Eastern South Dakota. **$15,000 Awarded**	2024
• Co-PD. United States Geological Survey (USGS) 104 (b). Development of a non-contact, AI-driven method for rapid assessment of surface water quality based on imagery and smells. **$12,372 Awarded**	2024
• PD. East Dakota Water Development District. Assessing the Environmental and Economic Efficacy of the SRAM Program in the Big Sioux River Watershed. **$120,553 Awarded.**	2024
• Co-PD. 2024 South Dakota Nutrient Research and Education Council. Utilization of Laser-Induced Graphene-Based Sensor for Soil NPK Measurements and Development of Nutrients Maps - **$ 63,412 Awarded.**	2024
• Co-PD. National Pork Board. Soil Health Research and Discovery Project – National Swine Manure. **$2,598,354 Awarded**	2023
• PD – USDA ARS (Agricultural Research Service) Non-Assistance Cooperative Agreement. Geospatial Analysis and Modeling of Agrohydrological Variability in the Water-limited Great Plains. **$130,475 Awarded**	2023
• Co-PD - USDA NIFA (National Institute of Food and Agriculture) BNRE (OSU (Ohio State University)) - **$750,000. Awarded (**Advancing knowledge and prediction of phosphorus dynamics in tile-drained landscapes)	2021
• Co-PD - USDA NIFA BNRE area of the Foundational and Applied Science (University of Wisconsin-Madison and OSU) - **$750,000. Awarded (**A multi-scale and regional approach to cold season hydrology and nutrient dynamics in agroecosystems for water quality protection)	2021
• Co-PI - Ohio Department of Higher Education Harmful Algal Bloom Research Initiative – Approx. **$300,000. Awarded** (Evaluating field-and watershed-scale water quality benefits of H2Ohio conservation practices in the Maumee River watershed)	2021
• Co-PI - Ohio Lake Erie Commission – Approx. **$250,000. Awarded** (Evaluating field-and watershed-scale water quality benefits of H2Ohio conservation practices in the Maumee River watershed using watershed modeling)	2021
• Fall Meeting General Student Travel Grant: (Adviser: Dr. Margaret W. Gitau). **$500. Awarded.**	2018
• Blosser Environmental Travel Grant: (Adviser: Dr. Margaret W. Gitau). **$1500. Awarded.**	2018
• Purdue Climate Change Research Center Spring Student Travel Grant: (Adviser: Dr. Margaret W. Gitau). **$1000. Awarded.**	2018
• Purdue Graduate Student Government (PGSG) Student Travel Grant: (Adviser: Dr. Margaret W. Gitau). **$250. Awarded.**	2017
• Purdue Climate Change Research Center Spring Student Travel Grant: (Adviser: Dr. Margaret W. Gitau), $**1100. Awarded.**	2017

PUBLICATIONS *(*Graduate Student, ** Temporary student help, ┼ Serving on committee)*
Peer-Reviewed Published Journal Articles

1. Sahoo, D., **Mehan, S.**, and Hunt, S.L. (2025). Editorial - Digital Water: Computing Tools, Technologies, and Trends. Journal of Natural Resources and Agricultural Ecosystems. *(Accepted for Publication)*

2. Jha, P.K., Jha, P.K., **Mehan, S.**, and Nandi, S. (2025). Editorial - Addressing climate change in agriculture and natural resources with a focus on adaptation and extreme events. Frontiers in Environmental Science. 13:1722615. https://doi.org/10.3389/fenvs.2025.1722615

3. Lamichhane, M.*, **Mehan, S.,** and Mankin, K.R. (2025). Multi-layer root zone soil moisture estimation using field and remote sensing data fusion with machine learning in semi-arid croplands. Vadose Zone Journal, 24 (6). https://doi.org/10.1002/vzj2.70047

4. Ongdas, N., Yapiyev, V., Stefan, C., **Mehan, S.**, Muzdybaev, M., & Hartmann, A. (2025). Lowland transboundary river in a cold, semi-arid steppe: review of the Yesil River basin. Environmental Earth Sciences, 84(17), 1-19. https://doi.org/10.1007/s12665-025-12500-0

5. Jha, A. N., Bhattarai, U., Lamichhane, M., **Mehan, S.**, Ghimire, S., & Bhattarai, P. K. (2025). Assessing hydropower production potential with multisite hydrological modeling in the Koshi River Basin, Nepal. Energy Conversion and Management: X, 101283. https://doi.org/10.1016/j.ecmx.2025.101283

6. Lamichhane, M.*, **Mehan, S.**, & Mankin, K. R. (2025). Soil Moisture Prediction Using Remote Sensing and Machine Learning Algorithms: A Review on Progress, Challenges, and Opportunities. *Remote Sensing*, *17*(14), 2397. https://doi.org/10.3390/rs17142397

7. Loken, L.** and **Mehan, S.** (2025) Private Property vs. Public Access: Socio-Engineering Framework for Managing Non-Meandering Waters in South Dakota's Prairie Pothole Region. The Journal of Undergraduate Research: Vol. 19, Article 1. Available at: https://openprairie.sdstate.edu/jur/vol19/iss1/1

8. Lamichhane, M.*, **Mehan, S.**, & Mankin, K. R. (2025). Surface Soil Moisture Prediction Using Multimodal Remote Sensing Data Fusion and Machine Learning Algorithms in Semi-Arid Agricultural Region. Science of Remote Sensing, 100255. https://doi.org/10.1016/j.srs.2025.100255

9. Macdonald, J.A., Barnard, D.M., Mankin, K.R., Miner, G.L., Erskine, R.H., Poss, D.J., **Mehan, S.,** Mahood, A.L., and Mikha, M.M. (2025). Topographic Position Index Predicts Within-Field Yield Variation in a Dryland Cereal Production System. *Agronomy*, 15(6), p.1304. https://doi.org/10.3390/agronomy15061304

10. Shrestha, E., Poudyal, S., Ghimire, A., Maharjan, S., Lamichhane, M.*, and **Mehan, S.** (2025). Evaluating empirical and machine learning approaches for reference evapotranspiration estimation using limited climatic variables in Nepal. *Results in Engineering*, 104254. https://doi.org/10.1016/j.rineng.2025.104254

11. Mankin, K. R., **Mehan, S.**, Green, T. R., & Barnard, D. M. (2025). Review of gridded climate products and their use in hydrological analyses reveals overlaps, gaps, and the need for a more objective approach to selecting model forcing datasets. *Hydrology and Earth System Sciences*, 29(1), 85-108. https://doi.org/10.5194/hess-29-85-2025

12. Lamichhane, M.*, Chapagain, A. R., **Mehan, S.**, Ames, D. P., & Kafle, S. (2024). Integrating solar-induced chlorophyll fluorescence with traditional remote sensing and environmental variables for enhanced rice yield prediction in Nepal using machine learning. *Remote Sensing Applications: Society and Environment*, 36, 101371. https://doi.org/10.1016/j.rsase.2024.101371

13. Amatya, D. M., Williams, T. M., Skaggs, R. W., Nettles, J. E., & **Mehan, S.** (2024). Silvicultural

practices and water table dynamics of coastal forested wetlands. *Journal of Natural Resources and Agricultural Ecosystems*, 2(4), 191-211. https://doi.org/10.13031/jnrae.15933

14. Sharma, A., **Mehan, S**., McDaniel, R., Arnold, J., Trooien, T., Sammons, N., and Amegbletor, L. (2024). Assessing SWAT+ Performance in Simulating Drainage Water Management and Parameter Transferability for Watershed-Scale Applications. *Journal of Hydrology, 637,* https://doi.org/10.1016/j.jhydrol.2024.131338. (https://www.sciencedirect.com/science/article/pii/S0022169424007339)

15. Lamichhane, M.*, Phuyal, S., Mahato, R., Shrestha, A., Pudasaini, U., Lama, S.D., Chapagain, A.R., **Mehan, S.,** and Neupane, D. (2024). Assessing Climate Change Impacts on Streamflow and Baseflow in the Karnali River Basin, Nepal: A CMIP6 Multi-Model Ensemble Approach Using SWAT and Web-Based Hydrograph Analysis Tool. *Sustainability*, 16(8), p.3262. https://doi.org/10.3390/su16083262

16. Sharma, Y., Sidana, B. K., Kumar, S., Kaur, S., Sekhon, M. K., Mahal, A. K., and **Mehan, S.** (2023). Pre and Post Water Level Behaviour in Punjab: Impact Analysis with DiD Approach. *Sustainability*, 15(3), 2426. https://doi.org/10.3390/su15032426

17. Hoffman, I.R., Miller, K., Paul, G., Yimam, Y., **Mehan, S.**, Dickey, J., Harter, T., and Kisekka, I. (2022). Modeling water and nitrogen dynamics from processing tomatoes under different management scenarios in the San Joaquin Valley of California. *Journal of Hydrology: Regional Studies*, 43, https://doi.org/10.1016/j.ejrh.2022.101195

18. Kushwaha, N. L., Elbeltagi, A., **Mehan, S.**, Malik, A., and Yousuf, A. (2022). Comparative study on morphometric analysis and RUSLE-based approaches for micro-watershed prioritization using remote sensing and GIS. *Arabian Journal of Geosciences*, 15(7), 1-18. https://doi.org/10.1007/s12517-022-09837-2

19. Acharya, B., Ahmmed, B., Chen, Y., Davison, J., Haygood, L., Hensley, R., Kumar, R., Lerback, J., Liu, H., **Mehan, S.**, Mehana, M., Patil, S., Persaud, B., Sullivan, P., and URycki, D. (2022). Hydrological Perspectives on Integrated, Coordinated, Open, Networked (ICON) Science. *Earth and Space Science Open Archive (ESSOAr)*. https://doi.org/10.1029/2022EA002320

20. Evenson, G., Osterholz, W. R., Shedekar, V. S., King, K., **Mehan, S.**, and Kalcic, M. (2022). Representing soil health practice effects on soil properties and nutrient loss in a watershed-scale hydrologic model. *Journal of Environmental Quality*. https://doi.org/10.1002/jeq2.20338

21. Kumar, M., Dogra, R., Narang, M., Singh, M., and **Mehan, S.** (2021). Development and Evaluation of Direct Paddy Seeder in Puddled Field. *Sustainability*, 13(5), 2745. https://doi.org/10.3390/su13052745

22. Schull, V. Z., **Mehan, S.**, Gitau, M. W., Johnson, D. R., Singh, S., Sesmero, J. P., and Flanagan, D. C. (2021). Construction of Critical Periods for Water Resources Management and Their Application in the FEW Nexus. *Water*, *13*(5), 718. https://doi.org/10.3390/w13050718

23. Schull, V. Z., Daher, B., Gitau, M. W., **Mehan, S.,** and Flanagan, D. C. (2020). Analyzing FEW nexus modeling tools for water resources decision-making and management applications. *Food and Bioproducts Processing*, 119, 108-124. https://doi.org/10.1016/j.fbp.2019.10.011

24. **Mehan, S.**, Aggarwal, R., Gitau, M.W., Flanagan, D.C., and Frankenberger, J. (2019). Assessment of hydrology and nutrient losses in a changing climate in a subsurface-drained watershed. *Science of the Total Environment*, 688, 1236-51. https://doi.org/10.1016/j.scitotenv.2019.06.314

25. Kannan, N., Santhi, C., White, M.J., **Mehan, S.**, Arnold, J.G., and Gassman, P.W. (2019). Some challenges in hydrologic model calibration for large-scale studies: A case study of SWAT Model application to Mississippi-Atchafalaya River Basin. *Hydrology*, 6(1), 17. https://doi.org/10.3390/hydrology6010017

26. **Mehan, S.**, Gitau, M.W., and Flanagan, D.C. (2019). Reliable future climatic projections for sustainable hydro-meteorological assessments in the Western Lake Erie Basin. *Water*, 11(3), 581. https://doi.org/10.3390/w11030581

27. Gitau, M. W., **Mehan, S.**, and Guo, T. (2018). Weather generator effectiveness in capturing climate extremes. *Environmental Processes*, 5(1), 153-165. https://doi.org/10.1007/s40710-018-0291-x

28. Gitau, M.W., **Mehan, S.**, and Guo, T. (2017). Weather generator utilization in climate impact studies: Implications for water resources modelling. *European Water*, 59(3), 69-75. Click and read it here

29. Guo, T., **Mehan, S.**, Gitau, M. W., Wang, Q., Kuczek, T., & Flanagan, D. C. (2018). Impact of number of realizations on the suitability of simulated weather data for hydrologic and environmental applications. *Stochastic environmental research and risk assessment*, 32(8), 2405-2421. https://doi.org/10.1007/s00477-017-1498-5

30. **Mehan, S.**, Neupane, R.P., and Kumar, S. (2017). Coupling of SUFI 2 and SWAT for improving the simulation of streamflow in an agricultural watershed of South Dakota. *Hydrology Current Research*, 8 (3).280 (available at hilarispublisher.com/open-access/coupling-of-sufi-2-and-swat-for-improving-the-simulation-of-streamflow-in-an-agricultural-watershed-of-south-dakota-2157-7587-1000280.pdf)

31. Neupane, R. P., **Mehan, S.**, and Kumar, S. (2017). Use of geochemical tracers for estimating groundwater influxes to the Big Sioux River, eastern South Dakota, USA. *Hydrogeology Journal*, 25(6), 1647-1660. https://doi.org/10.1007/s10040-017-1597-x

32. **Mehan, S.**, Guo, T., Gitau, M.W., and Flanagan, D.C. (2017). Comparative study of different stochastic weather generators for long-term climate data simulation. *Climate*, 5(2), 26. https://doi.org/10.3390/cli5020026

33. **Mehan, S.**, Kannan, N., Neupane, R.P., McDaniel, R., and Kumar, S. (2016). Climate change impacts on the hydrological processes of a small agricultural watershed. *Climate*, 4(4), 56. https://doi.org/10.3390/cli4040056

Preprint
1. Malhotra, A., Forbes, B., Gary, S. F., Goldman, A. E., Waterman, B. R., Garyburu-Caruso, V., Fluet-Chouinard, E., **Mehan, S.**, Bruen, M., Taylor, M., Ardon, M., Cardenas, M. B., Dodds, W. K., Lønborg, C., McDowell, W. H., Moustapha, M., Myers-Pigg, A. N., Regier, P., Rubin, T., Stewart, R.D., Villa, J., Ward, N.D., Scheibe, T.D., Stegen, J. C. (2025). Harnessing artificial intelligence to automate environmental predictions. bioRxiv. https://doi.org/10.1101/2025.11.06.684583

2. Cox, B., Varilek, B.M., **Mehan, S.**, and Rekabdarkolaee, H.M. (2025). The Impact of Agricultural Pesticides on Cancer Incidence in Midwest, United States. medRxiv preprint doi: https://doi.org/10.1101/2025.06.30.25330578

3. Manna, A., **Mehan, S.**, and Amatya, D. M. (2024). Development of a Statistical Predictive Model for Daily Water Table Depth and Important Variables Selection for Inference. arXiv preprint arXiv:2410.01001. https://doi.org/10.48550/arXiv.2410.01001

4. **Mehan, S.**, Kalcic, M., and Hood, J. (2022). Review of water quality models simulating in-stream nutrient dynamics. Authorea. March 03, 2022. https://doi.org/10.1002/essoar.10510722.1

5. **Mehan, S.**, Kalcic, M., and Hood, J. (2021). Improving and testing in-stream phosphorus cycling in SWAT+. Authorea. December 15, 2021. https://doi.org/10.1002/essoar.10509563.1

Book Chapters

1. **Mehan, S.**, Lamichhane, M.*, & Jha, A. (2025). Shift in Streamflow Regime in Headwater Catchments: Causes and Impacts. In: Nanda, A., Gupta, P.K., Gupta, V., Jha, P.K., Dubey, S.K. (eds) Navigating the Nexus. Water Science and Technology Library, vol 102. Springer, Cham. https://doi.org/10.1007/978-3-031-76532-2_1

2. **Mehan, S.** and Eslamian, S. (2023). Movement of Water in Soil. In Eslamian, S., and Eslamian, F. (Eds.). (2023). *Handbook of Irrigation Hydrology and Management: Irrigation Fundamentals (1st ed.),* pp. 39-67, CRC Press. https://doi.org/10.1201/9780429290114

3. **Mehan, S.** (2020). Transformation of pedagogical skills for 21st century. In George, A. *Education For Future – An Archive of Humanities, Science and Technology for Sustainable Development,* pp. 135-139, Media House Publications, Delhi.

4. Srinivasulu, A., Femeena, P., **Mehan, S.,** and Raj, C. (2019). Environmental Impacts of Bioenergy Crop Production and Benefits of Multifunctional Bioenergy Systems. *Bioenergy with Carbon Capture and Storage*, pp. 195-217, Academic Press.

5. **Mehan, S.,** and Singh, K.G. (2015). Use of Mulches in Soil Moisture Conservation: A Review. *Best Management Practices for Drip Irrigated Crops*, pp. 283 - 293, Apple Academic Press. International Standard Book Number-13: 978-1-4987-1482-2

Popular/Extension articles

1. Nafchi, A.M., Smart, A., Brennan, J., Sellars, S., Vandermark, L., Yang, X., and **Mehan, S.** (2025). *Cybersecurity Planning: Securing the Future.* https://extension.sdstate.edu/cybersecurity-planning-securing-future

2. Yang, X., Nafchi, A.M., Brennan, J., **Mehan, S.,** Vandermark, L., Sellars, S., Smart, A., Chang, Y. (2025). *Protecting Your Data: The Role of Authentication and Encryption in Agricultural Cybersecurity*. https://extension.sdstate.edu/protecting-your-data-role-authentication-and-encryption-agricultural-cybersecurity

3. **Mehan, S.,** Loken, L.**, & Trooien, T. (2025). *Understanding Suspended Solids in South Dakota's Waterways.* https://extension.sdstate.edu/understanding-suspended-solids-south-dakotas-waterways

4. **Mehan, S.,** Loken, L.**, & Trooien, T. (2025). *Private Property vs. Public Access: Managing Non-Meandering Waters in South Dakota's Prairie Pothole Region*. https://extension.sdstate.edu/private-property-vs-public-access-managing-non-meandering-waters-south-dakotas-prairie-pothole

5. **Mehan, S.** & Kringen, D. (2025). *Water Quality Standards in South Dakota.* https://extension.sdstate.edu/sites/default/files/2025-04/P-00329.pdf

6. Brennan, J., Vandermark, L., **Mehan, S.,** Nafchi, A.M, Sellars, S., & Yang, X. (2025). *Be Cyber Aware: text Message Cyber-Attacks (SMS Phishing – Smishing).* https://extension.sdstate.edu/be-

cyber-aware-text-message-cyber-attacks-sms-phishing-smishing

7. **Mehan, S.**, Bergstrom, J., & Dalton, R. (2025). *A Strategic Community-Based Survey of Water Resource Management in South Dakota*. https://extension.sdstate.edu/strategic-community-based-survey-water-resource-management-south-dakota

8. Yang, X., Brennan, J., **Mehan, S.**, Vandermark, L., Sellars, S., Smart, A. (2024). *Choosing the Right Wireless Network Technologies for Agricultural Internet-Of-Things Applications*. https://extension.sdstate.edu/choosing-right-wireless-network-technologies-agricultural-internet-things-applications

9. **Mehan, S.**, Nafchi, A.M., Yang, X., Vandermark, L., Brennan, J., & Sellars, S. (2024). *Ag Cybersecurity and Social Engineering 101*. https://extension.sdstate.edu/ag-cybersecurity-and-social-engineering-101

10. Sellars, S., Nafchi, A.M., **Mehan, S.**, Vandermark, L., Brennan, J., Yang, X. (2024). Cyber Insurance for Agriculture. https://extension.sdstate.edu/sites/default/files/2024-08/P-00306.pdf

11. **Mehan, S.**, Nafchi, A.M., Yang, X., Sellars, S., Vandermark, V., & Brennan, J. (2024). *What should you do before or after any cyber security breaches?* https://extension.sdstate.edu/what-should-you-do-or-after-any-cyber-security-breaches

12. **Mehan, S.**, & Buterbaugh, R. (2024). *Educating about flooding and associated activities*. South Dakota State University Extension. https://extension.sdstate.edu/educating-about-flooding-and-associated-activities

13. **Mehan, S.**, & Buterbaugh, R. (2024). *Understanding Flood Hazards in the United States.* South Dakota State University Extension. https://extension.sdstate.edu/understanding-flood-hazards-united-states

14. **Mehan, S.**, & Buterbaugh, R. (2024). *Flood Preparedness*. South Dakota State University Extension. https://extension.sdstate.edu/flood-preparedness

15. **Mehan, S.**, & Buterbaugh, R. (2024). *Global and U.S. Perspectives on Flooding.* South Dakota State University Extension https://extension.sdstate.edu/global-and-us-perspectives-flooding

16. **Mehan, S.**, & Buterbaugh, R. (2024). *Restoring and Sampling Private Wells in South Dakota.* South Dakota State University Extension. https://extension.sdstate.edu/restoring-and-sampling-private-wells-south-dakota

17. **Mehan, S.**, & Buterbaugh, R. (2024). *Where do floodwaters go and what do they leave behind?* South Dakota State University Extension. https://extension.sdstate.edu/where-do-floodwaters-go-and-what-do-they-leave-behind

18. Yang, X., Nafchi, A.M. & **Mehan, S.** (2024). *Where could cyberattacks occur in a precision agriculture system? An outlook on the system breakup.* South Dakota State University Extension. https://extension.sdstate.edu/where-could-cyberattacks-occur-precision-agriculture-system-outlook-system-breakup

19. Brennan, J., Vandermark, L., Sellars, S., **Mehan, S.**, Nafchi, A.M., & Yang, X. (2024). *The Growing Threat of Cyber Attacks in Agriculture*. South Dakota State University Extension. https://extension.sdstate.edu/growing-threat-cyber-attacks-agriculture

20. Klopp, H., Bly, A., Nunes, V.L.N., **Mehan. S.** (2024). *Carbon to Nitrogen Ratio of Healthy Soils*. South Dakota State University Extension. https://extension.sdstate.edu/carbon-nitrogen-ratio-healthy-soils

21. Nafchi, A. M., Smart, A., Yang, X., **Mehan, S.**, & Brennan, J. (2024). *Cybersecurity vulnerabilities in precision agriculture* (Extension fact sheet P-00303). South Dakota State University Extension. https://extension.sdstate.edu/sites/default/files/2024-07/P-00303.pdf

22. **Mehan, S.** (2022). Digital Water: The Future of Water Resources. Resource, 29 (4), 5. Available at: asabe.org/portals/0/apubs/resource/pdf/resource29-04julyaug2022.pdf

Published Codes and Cited Datasets
1. DiSera, L., Eva, E., Foroutan, E., Igwe, K., Lamichhane, M.*, **Mehan, S.**, Wasik, A. (2024, October 23). GeoAI Applications to Predict Field-Scale Actual Evapotranspiration. https://platform.i-guide.io/notebooks/adcb35f0-a54e-4ec4-ac77-deb5dd0a86ad

2. **Mehan, S.**, and Gitau, M. (2019). Climate Time Series Analysis using R [Data set]. Purdue University Research Repository. https://doi.org/10.4231/R77H1GTX (2460 views; 671 Downloads; 2 Citations as of 11/2025)

3. **Mehan, S.**, and Gitau, M. (2019). Climate Projections for the Western Lake Erie Basin for medium and high emission scenarios for hydrologic modeling assessment studies (Indiana, Ohio, and Michigan) [Data set]. Purdue University Research Repository. https://doi.org/10.4231/R7C53J3W (1136 Views; 289 Downloads; 2 Citations as of 11/2025)

4. **Mehan, S.**, and Gitau, M. (2019). Climate Projection Data for 21st Century for the Western Lake Erie Basin (Indiana, Ohio, and Michigan) [Data set]. Purdue University Research Repository. https://doi.org/10.4231/R7GX48SF (1125 Views; 290 Downloads; 2 Citations as of 11/2025)

5. **Mehan, S.**, and Gitau, M.W. (2019). Spatial-Temporal Climate Projection Data for 21st Century for the Western Lake Erie Basin (WLEB) for Hydrologic Studies [Data set]. Purdue University Research Repository. https://doi.org/10.4231/R73R0R42 (1127 Views; 288 Downloads; 2 Citations as of 11/2025)

Conference Proceedings Paper
1. Gitau. M.W. and **Mehan, S.** (2019). Impacts of Changing Precipitation Patterns on Hydrology and Pollutant Transport in a Subsurface-Drained Watershed. *11th World Congress on Water Resources and Environment (EWRA 2019): Managing Water Resources for a Sustainable Future*." Madrid, Spain, June 25-29. http://ewra.net/pages/EWRA2019_Proceedings.pdf   pp 43-44.

Invited Talks/Panelist
1. **Mehan, S.**, Manna, A., Amatya, D. M., and Adebayo, K.* (2025, December 18). *Simulation of Water Table Depths in a Forested Wetland System in the Carolinas Using Data-Driven Approaches*. Poster presentation (H41L-1405) at the American Geophysical Union Fall Meeting, New Orleans, Louisiana, United States.

2. Malhotra, A., Forbes, B. K., Gary, S. F., Goldman, A. E., Rivera Waterman, B., Garayburu-Caruso, V. A., Bruen, M. P., Fluet-Chouinard, E., **Mehan, S.**, Taylor, M., Ardon, M., Cardenas, M. B., Dodds, W. K., Lønborg, C., McDowell, W. H., Moustapha, M., Myers-Pigg, A., Regier,

P., Rubin, T., Song, H.-S., Stewart, R. D., Villa, J., Ward, N. D., Scheibe, T. D., and Stegen, J. (2025, December 18). *Artificial Intelligence-Guided Iterations Between Observations and Models Significantly Improve Continental-Scale Predictions of Sediment Respiration*. Oral presentation (IN42A-07) at the American Geophysical Union Fall Meeting, New Orleans, Louisiana, United States.

3. **Mehan, S.** (2025). *Managing Finite Water Resources*. Natural Resources Management Department Fall Seminar Series. Hosted by Sean Di Stefano. October 31, 2025. In-Person.

4. **Mehan, S. (2025).** *Managing Finite Water Resources*. A live, interactive webinar organized by Halfmoon Education, Inc., Eau Claire, WI, on Dakota Water Rights & Regulation, Friday, October 24, 2025. Virtual.

5. **Mehan S.** (2025). A panel discussion was organized by the American Society of Agricultural and Biological Engineering Young Professional Committee (ASABE YPC) on "*The Future of Large Language Models (LLMs) in Standards Development.*" March 19, 2025. Virtual

6. **Mehan, S.** (2024). *Drainage Water Management: Fundamentals, Opportunities and Challenges for South Dakota*. December 18, 2024, Agronomy Conference organized by South Dakota Agri-Business Association (SDABA), Sioux Falls, SD. In-Person.

7. Scheibe, T.D., Gary, S., Goldman, A.E., Forbes, B.K., Garayburu-Caruso, V.A., Rexer, E., Malhotra, A., Tylor, M., Torreira, A.V., Waterman, B.R., **Mehan, S.**, Sampson, C., Bruen, M.P., Gonzales, B.I., McKever, S., Renteria, L., Laan, M, Delgado, D., Stegen, J. (2024, December 9-13). *Monthly Model-Experiment Cycles Guided by AI and ICON Science to Understand River Sediment Respiration at the Continental Scale.* Oral presentation at the American Geophysical Union Fall Meeting, Washington, DC, United States.

8. **Mehan, S.** (2024). *What 100 Years of Climate Data Means for Water Resource Practitioners*. A webinar organized by Iowa Learning Farms. September 4, 2024. Virtual.

9. **Mehan, S.** (2024). Cultural Diversity in ASABE: International Perspectives-RAP. A Panel discussion was organized at the Annual International Meeting organized by the American Society of Agricultural and Biological Engineers, Anaheim, CA. July 29, 2024. In-Person.

10. **Mehan, S.** (2024). Land and Water Management to cope up with Climate Change conditions. ICAR - Central Institute of Agricultural Engineering, Bhopal (MP)-462038. January 5, 2024. Virtual.

11. **Mehan, S.** (2023). Rationale behind standards: Why is it important to Young Professionals. ASABE YPC Webinar Series. Virtual Panel Discussion with Jean Walsh, Standards Administrator and Special Projects at ASABE HQ. October 17, 2023. Virtual

12. **Mehan, S.** (2023). Modeling the Hydrologic Nexus: Advancements, Adaptability, and Interdisciplinarity in the Age of Precision Agriculture and Climate Extremes. Eastern South Dakota Water Conference, October 11, 2023. In-Person.

13. **Mehan, S.** (2023). Connecting Water, Carbon and Climate: Fields to Algorithm. Carbon Climate Collaborative Network Webinar Series organized by the Society of Young Agriculture and Hydrologist Scholars in India (SYAHI). September 23, 2023. Virtual.

14. **Mehan, S.** (2023). Email, Curriculum Vitae and Cover letter for academic positions in the USA. All India Agricultural Scientists Association (AIASA) Webinar Series. July 03, 2023. Virtual.

15. **Mehan, S.** (2023). Get Involved with ASABE YPC. Southeastern ASABE Regional Rally,

March 25, 2023, and Midwestern Regional Rally, March 24, 2023. Virtual.

16. **Mehan, S.** (2023). The State of Programming Language, R, in Water Resources Research. The inaugural seminar is in a seminar series organized by the ASABE NRES-21 (Hydrology) committee in 2023. February 3, 2023. Virtual.

17. **Mehan, S.** (2022). Workshop on Soil and Water Assessment Tool (SWAT). Organized by the Society of Young Agriculture and Hydologist scholars in India (SYAHI) and Motilal Nehru College, University of Delhi. August 6 &7, 2022. Virtual.

18. **Mehan, S.** (2022). Adaptation vs. Adoption: Face of Agricultural and Biological Engineering and SARS-CoV-2. Joint Special Session organized by three international communities within ASABE: Association of Overseas Chinese Agricultural, Biological & Food Engineers (AOCABFE), African Network Group of ASABE (ANGASABE), and Association of Agricultural, Biological, and Food Engineers of Indian Origin (AABFEIO) at Annual International Meeting organized by American Society of Agricultural and Biological Engineers at Houston Texas from July 17 - 22, 2022. In-Person.

19. **Mehan, S.** (2021). Data and Humans: A Perspective of an Agrineer. The seminar series was organized by the University of Florida Biocomplexity group. January 19, 2021. Virtual.

20. **Mehan, S.** (2020). Obtaining a Postdoc Position. A panel workshop sponsored by the Graduate Education Office of the College of Engineering at Purdue University. November 17, 2020. Virtual.

21. **Mehan, S.** (2020). Role of science in the post-COVID-19 era. A two-day International Symposium at Gujranwala Guru Nanak Khalsa College, Ludhiana, Punjab, India. May 29, 2020. Virtual

22. **Mehan, S.** (2017). The Grad School vs. Industry. The Purdue Chapter of the Society of Women Engineers organized a group panel session. September 10, 2017. In-Person.

23. **Mehan, S.** (2017). Indian Water Resources under the Face of Climate Change: Issues and Remedial Measures. Indian Institute of Technology, Delhi, India. November 22, 2017. In-Person.

24. **Mehan, S.** (2017). Implications of Changing Climatic Conditions on Indian Water Resources: Future Potential in Water Resource Research. Water Technology Center, Indian Council of Agricultural Research, Delhi, India. November 23, 2017. In-Person.

25. **Mehan, S.** (2017). Keys to Higher Education Overseas. National Institute of Food Technology Entrepreneurship and Management, Sonipat, Haryana, India. November 21, 2017. In-Person.

Conference presentations (* Grad Students, ** undergraduate student, ┼Serving on committee)

1. Javed, U. ┼, McMaine, J., Blann, K., Adalikwu, P., Trooien, T., **Mehan, S.**, and Zhang, H. (2025, December 19). *Field-Based Evaluation of the SCS-Curve Number Method Under Different Tillage Practices to Improve Runoff Estimation and Modeling.* Oral presentation (H51A-08) at the American Geophysical Union Fall Meeting, New Orleans, Louisiana, United States.

2. Pokhrel, T. R.*, **Mehan, S.**, Trooien, T., Gilbertson, J., and Berg, B. (2025, December 18). *Informing Riparian Conservation Through Watershed-Scale SWAT+ Simulation of Nitrate and Sediment.* Poster presentation (H43C-1514) at the American Geophysical Union Fall Meeting, New Orleans, Louisiana, United States.

3. Lamichhane, M.*, **Mehan, S.**, and Douglas-Mankin, K. (2025, December 15). *Identifying and*

Quantifying the Primary Drivers of Sub-Field-Scale Wheat Yield Variability in Drylands Using Interpretive Machine Learning. Poster presentation (GC13F-0716) at the American Geophysical Union Fall Meeting, New Orleans, Louisiana, United States.

4. Movaghatian, A.*, **Mehan, S.**, McMaine, J., Kulkarni, P.*, Bly, A., Thaler, R., and Bauder, S. (2025, November 12). *Impact of Swine Manure and Commercial Fertilizer on Soil Carbon Dynamics and Corn Yield in South Dakota: Lessons Learned from Year 1 of 5 Plot Trials.* Poster presentation at the CANVAS Conference, Salt Lake City, Utah, United States. https://scisoc.confex.com/scisoc/2025am/meetingapp.cgi/Paper/168470

5. Eitemiller, R.*, **Mehan, S.**, Nunes, V. L. N., Klopp, H., Bly, A., Clark, J., Young, C., Jones, N., and Mikha, M. M. (2025, November 12). *A Multi-Model Perspective on Soil Phosphorus Availability in Heterogeneous Agricultural Landscapes in Eastern South Dakota.* Poster presentation at the CANVAS Conference, Salt Lake City, Utah, United States. https://scisoc.confex.com/scisoc/2025am/meetingapp.cgi/Paper/167909

6. **Mehan, S.**, Lamichhane, M.*, and Mankin, K. R. (2025, November 10). *Estimating Sub-Field Root Zone Soil Moisture in Dryland Systems Using Multimodal Remote Sensing Data Fusion and Machine Learning Approaches.* Oral presentation (109-5) at the CANVAS Conference, Salt Lake City, Utah, United States. https://scisoc.confex.com/scisoc/2025am/meetingapp.cgi/Paper/166896

7. Mehan, S. and Pokhrel, T.R.* (2025, October 23). *Identification of Priority Zones for Riparian Buffer Enrollment under the Seasonal Riparian Area Management Program using SWAT+.* Oral Presentation at the 2025 SWAT International Conference, Fort Collins, Colorado, United States.

8. Lamichhane, M.*, **Mehan, S.**, and Mankin, K. (2025, October 14). *Advancing Root Zone Soil Moisture Estimation through Multi-Source Data Fusion and Machine Learning in Diverse Croplands.* Oral Presentation at the 2025 South Dakota Student Water Conference, Brookings, South Dakota, United States.

9. Pokhrel, T. R.*, **Mehan, S.**, Trooien, T., Gilbertson, J., and Berg, B. (2025, October 14). *Assessment of a Nature-Based Solution: Seasonal Riparian Area Management on Ecology and Economy in Skunk Creek, South Dakota.* Oral presentation at the 2025 South Dakota Student Water Conference, Brookings, South Dakota, United States.

10. Adebayo, K.*, **Mehan, S.**, and Mankin, K. (2025, October 14). *Machine Learning and Deep Learning Approaches for Daily Water Table Prediction.* Oral presentation at the 2025 South Dakota Student Water Conference, Brookings, South Dakota, United States.

11. Movaghatian, A.*, **Mehan, S.**, McMaine, J., Kulkarni, P., Bly, A., Thaler, R., and Bauder, S. (2025, October 14). *Tracking Subsoil Nutrient Mobility Under Swine Manure and Commercial Fertilizer Applications in a Corn Production System: Year 1 of 5 Preliminary Assessment.* Poster presentation at the 2025 South Dakota Student Water Conference, Brookings, South Dakota, United States.

12. Shrestha, E.*, **Mehan, S.**, Poudyal, S., Ghimire, A., Maharjan, S., and Lamichhane, M.* (2025, October 14). *Evaluating Empirical and Machine Learning Approaches for Reference Evapotranspiration Estimation Using Limited Climatic Variables in Nepal.* Poster presentation at

the 2025 South Dakota Student Water Conference, Brookings, South Dakota, United States.

13. Lamichhane, M.*, **Mehan, S.**, and Mankin, K. (2025, September 18). *Explaining Within-Field Wheat Yield Variability in Drylands with Interpretive Machine Learning.* Poster Presentation at the 2025 Great Plains Water Conference, Omaha, Nebraska, United States

14. Pokhrel, T. R.*, **Mehan, S.**, Trooien, T., Gilbertson, J., and Berg, B. (2025, October 14). Ecological and Economic Benefits of a Nature-Based Conservation Practice: Seasonal Riparian Area Management in Big Sioux Watershed, South Dakota. Poster presentation at the 2025 Great Plains Water Conference, Omaha, Nebraska, United States

15. Adebayo, K.*, and **Mehan, S.** (2025, October 14). *Machine Learning and Deep Learning Approaches for Daily Water Table Prediction.* Poster presentation at the 2025 Great Plains Water Conference, Omaha, Nebraska, United States.

16. **Mehan, S.** and Pokhrel, T.R.* (2025, September 9-10). *Assessing the Environmental and Economic Efficacy of the SRAM Program in the Big Sioux River Watershed (BSRW) Project Update – Year 1.* Oral presentation at the 24th Annual Tri-State Drainage Research Forum, Brookings, South Dakota, United States.

17. Javed, U.[+], McMaine, J.T., Blann, K., Adalikwu, P., Trooien, T., **Mehan, S.,** and Zhang, H. (2025, July 13-16). *Evaluation of the SCS-Curve Number Method under different tillage practices to enhance estimation and modeling.* Oral presentation at the ASABE Annual International Meeting, Toronto, Canada.

18. **Mehan, S.**, Manna, A., and Amatya, D.M. (2025, June 3-5). *Assessing the Performance of Statistical Modeling for Estimating Water Table Depth in Forested Watersheds in the Carolinas.* Oral presentation at the 2025 UCOWR/NIWR Annual Water Resources, Minneapolis, Minnesota, United States.

19. Pokhrel, T.*, and **Mehan, S.** (2025, June 3-5). *Assessing the Impact of Seasonal Riparian Area Management on Vegetation Health: A Remote Sensing Trend Analysis in the Skunk Creek Riparian Zone.* Poster presentation at the 2025 UCOWR/NIWR Annual Water Resources Conference, Minneapolis, Minnesota, United States.

20. Adebayo, K.* and **Mehan, S.** (2025, June3 – 5). *Spatiotemporal Analysis of Climate Indices Derived from Daily Precipitation and Air Temperature Across the Continental United States.* Poster presentation at the 2025 UCOWR/NIWR Annual Water Resources, Minneapolis, Minnesota, United States.

21. Hafner, J., Antequera, L.A., Prasad, L., Thompson, A., King, K., Osterholz, W., Shedekar, V., **Mehan, S.**, Radatz, A., and Kalcic, M. (2025, May 14). *Simulating Winter Hydrology: Validating an Improved Soil Heat Transfer Equation Against Measured In-field and Edge-of-field Observations in SWAT.* Poster presentation at the 2025 UCOWR/NIWR Annual Water Resources, Minneapolis, Minnesota, United States.

22. Hafner, J., Antequera, L.A., Prasad, L., Thompson, A., King, K., Osterholz, W., Shedekar, V., **Mehan, S.**, Radatz, A., and Kalcic, M. (2025, May 14). *Improving soil moisture and soil temperature dynamics in SWAT: a case study using single field models.* Poster presentation at the

5ᵗʰ Annual Dairy Symposium, UW-Madison, WI.

23. Loken, L.**, and **Mehan, S.** (2025, April 3; 24-25). *Private Property vs. Public Access: Socio-Engineering Framework for Managing Non-Meandering Waters in South Dakota's Prairie Pothole Region.* Poster presentation at the American Society of Agricultural and Biological Engineers North Central Intersectional Conference, North Dakota, United States. And In the American Society of Agricultural and Biological Engineers South Dakota Section Meeting, South Dakota, United States.

24. Movaghatian, A.*, **Mehan, S.**, McMaine, J.T., Kulkarni, P., Bly, A., Thaler, B., Bauder, S. (2025, April 3; 24-25). *Evaluating the Effect of Swine Manure with and without Starter on Soil Organic Carbon and Macronutrient (N & P) Dynamics – Year 1 of 5 Preliminary Assessment.* Poster presentation at the American Society of Agricultural and Biological Engineers North Central Intersectional Conference, North Dakota, United States. And In the American Society of Agricultural and Biological Engineers South Dakota Section Meeting, South Dakota, United States.

25. Pokhrel, T.*, and **Mehan, S.** (2025, April 24 - 25). *Integrated assessment of seasonal riparian area management on vegetation health and water quality.* Oral presentation at the American Society of Agricultural and Biological Engineers North Central Intersectional Conference, North Dakota, United States.

26. Lamichhane, M.*, and Mehan, S. (2025, April 24-25). *Root Zone Soil Moisture Estimation Using Multi-Source Data Fusion and Approaches in Heterogeneous Crop Fields.* Oral presentation at the American Society of Agricultural and Biological Engineers North Central Intersectional Conference, North Dakota, United States.

27. Adebayo, K.*, and **Mehan, S.** (2025, April 24 - 25). *Drought and Aridity Dynamics of the United States.* Poster presentation at the American Society of Agricultural and Biological Engineers North Central Intersectional Conference, North Dakota, United States.

28. Hafner, J., Antequera, L.A., Prasad, L., Thompson, A., King, K., Osterholz, W., Shedekar, V., **Mehan, S.**, and Kalcic, M. (2025, April 10 - 11). *A single-field SWAT model approach to evaluate improvements in process representation for soil moisture and soil temperature dynamics.* Poster presentation at the 48ᵗʰ Annual Wisconsin Section of the American Water Resources Association (AWRA), Wisconsin Dells, WI.

29. Pokhrel, T.*, and **Mehan, S.** (2025, April 10). *Assessing the combined influence of seasonal riparian area management on riparian vegetation and water quality dynamics.* Poster presentation at the Western South Dakota Hydrology Conference, South Dakota, United States.

30. **Mehan, S.,** and Adebayo, K.* (2025, April 10). *Long-Term Climate Trends and Their Impacts on Water Resource Management in the Dakotas.* Oral presentation at the Western South Dakota Hydrology Conference, South Dakota, United States.

31. Adebayo, K.* and **Mehan, S.** (2025, April 3 & 10). *Spatiotemporal Analysis of Growing Season Climate Dynamics Across the Continental United States.* Poster presentation at the Western South Dakota Hydrology Conference, South Dakota, United States. And at the South Dakota ASABE Section Meeting, Brookings, SD.

32. Lamichhane, M.*, **Mehan, S.**, and Mankin, K. (2025, April 11). *Estimating Actual Evapotranspiration in Semi-Arid Dry Croplands Using Machine Learning and Remote Sensing with Flux Footprint Climatology.* Poster presentation at the Western South Dakota Hydrology Conference, Rapid City, SD.

33. Lamichhane, M.*, and **Mehan, S.** (2025, April 3). *Machine Learning Models to Estimate High Resolution Multi-Layer Soil Moisture in Dry Crops Lands.* Poster presentation at the South Dakota ASABE Section Meeting, Brookings, SD.

34. **Mehan, S.** (2025, April 1-3). *South Dakota Drainage Updates.* Oral presentation at the Conservation Drainage Network Annual Meeting, Urbana, IL.

35. Pokhrel, T.*, and **Mehan, S.** (2025, April 3). *Assessing the combined influence of seasonal riparian area management on riparian vegetation and water quality dynamics.* Poster presentation at the South Dakota ASABE Section Meeting, Brookings, SD

36. **Mehan, S.** (2024, December 9-13). *Bridging the data gap using AI/ML approaches for enhanced water quality analysis.* Oral presentation at the American Geophysical Union Fall Meeting, Washington, DC, United States.

37. Lamichhane, M.*, **Mehan, S.**, and Mankin, K. (2024, December 9-13). *Physics Informed Neural Network for Estimating Root Zone Soil Moisture in Semi-Arid Agricultural Fields in Akron, CO.* Poster presentation at the American Geophysical Union Fall Meeting, Washington, DC, United States.

38. **Mehan, S.**, and Lamichhane, M.* (2024, November 10-13). *Application of remote sensing and machine learning approaches in predicting surface soil moisture (SSM) at a field scale*. Oral presentation at the 2024 ASA, CSSA, SSSA Annual Meeting, San Antonio, TX, United States. https://scisoc.confex.com/scisoc/2024am/meetingapp.cgi/Paper/158548

39. DiSera, L., Eva, E., Foroutan E., Igwe, K., Lamichhane, M.*, **Mehan, S.**, Wasik, A. *(2024, October 23). GeoAI Applications to Predict Field Scale Actual Evapotranspiration.* Oral presentation at the NSF I-GUIDE Virtual Consulting Office. (Online Webinar). https://i-guide.io/i-guide-vco/geoai-applications-to-predict-field-scale-actual-evapotranspiration/

40. Adebayo, K.*, and **Mehan, S.** (2024, October 15). *Climate dynamics of the Great Plains of the United States (1924-2023).* Oral presentation at the South Dakota Student Water Conference, Brookings, SD, United States.

41. Manna, A., Amatya, D.M., and **Mehan, S.** (2024, October 16). *Development of a Statistical Model for Daily Water Table Depth and Important Variables Selection for Inference.* Poster presentation at the SC Water Resources Conference, Clemson, SC, United States.

42. Maher, K.**, and **Mehan, S.** (2024, October 15). *Water Quality Analysis of Skunk Creek Using Basic Imputation Methods.* Poster presentation at the South Dakota Student Water Conference, Brookings, SD, United States.

43. Movaghatian, A.*, **Mehan, S.,** McMaine, J.T., Kulkarni, P., Aydogdu, M. (2024, October 15). *Assessment of the Impact of Swine Manure on Wind Erosion Potential Using RCBD Plot Scale Study in Eastern SD.* Poster presentation at the South Dakota Student Water Conference, Brookings, SD, United States.

44. Pokhrel, T.*, Niroula, A., Alam, J., and **Mehan, S.** (2024, October 15). *Water balance of Tamor River Basin using SWAT.* Poster presentation at the South Dakota Student Water Conference, Brookings, SD, United States.

45. Eva, H.S.**, **Mehan, S.**, Bergstrom, J., Dalton, J., Schlecter, P., Kolb, K. (2024, October 15). *Bridging Community Insights and Solutions in Water Resource Management: A Pathway to Water Resources Program in South Dakota.* Poster presentation at the South Dakota Student Water Conference, Brookings, SD, United States.

46. Lamichhane, M.* and **Mehan, S.** (2024, October 15). *Machine Learning Models to Predict Surface Soil Moisture Using Multimodal Remote Sensing Data Fusion in Diverse Crop Fields in Semi-Arid Regions.* Oral presentation at the South Dakota Student Water Conference, Brookings, SD, United States.

47. Sahraei, M.+, Hentegs, M., McMaine, J.T., Trooien, T., **Mehan, S.**, Osterloh, K., Moradi, H.R. (2024, October 15). *Evaluating Nitrate and Dissolved Reactive Phosphorus Concentrations in Subsurface Drainage and Contributing Factors in Eastern South Dakota.* Oral presentation at the South Dakota Student Water Conference, Brookings, SD, United States.

48. Lamichhane, M.*, **Mehan, S.**, and Mankin, K. (2024, July 28 - August 1). *Comparison of hybrid machine learning models with classical machine learning models to predict actual evapotranspiration in semi-arid region [Abstract ID: 2400756].* Oral presentation at the ASABE Annual International Meeting, Anaheim, CA, United States.

49. **Mehan, S.**, Sharma, A., McDaniel, R., Arnold, J. G., Trooien, T., Sammons, N., and Amegbletor, L. (2024, July 28-31). *Evaluating the performance of SWAT+ for simulating drainage water management (DWM) and model parameter transferability spatially in Eastern SD [Abstract ID: 2401216].* Oral presentation at the ASABE Annual International Meeting, Anaheim, CA, United States.

50. Sahraei, M.+, Hentegs, M., McMaine, J., Trooien, T., **Mehan, S.**, Osterloh, K., and Moradi, H. (2024, July 28-31). *Management practices and field characteristics that drive nutrient loss in tile drainage in eastern South Dakota [Abstract ID: 2400904].* Oral presentation at the ASABE Annual International Meeting, Anaheim, CA, United States.

51. Adebayo, K.*, **Mehan, S.**, and Mankin, K. (2024, July 28-August 1). *Analyzing climate change trends in the Great Plains of the United States (1900-2022) [Abstract ID: 2400792].* Oral presentation at the ASABE Annual International Meeting, Anaheim, CA, United States.

52. Bruen, M., Forbes, B., Gary, S.F., Goldman, A.E., Malhotra, A., **Mehan, S.**, Pelly, A.C., Sampson, C., Scheibe, T.D., Stegen, J., Taylor, M.S., Waterman, B. (2024, May 30*).* Integration of Machine Learning & ICON Science to understand River Sediment Respiration at the Continental Scale. Oral presentation at the 2024 HydroML Symposium, Richland, WA, United States.

53. Lamichhane, M.*, **Mehan, S.**, Mankin, K., and Maitinyazi, M. (2024, April 18). *Machine learning models to predict actual evapotranspiration in semi-arid region.* Oral presentation at the 2024 Western South Dakota Hydrology Conference, Rapid City, SD, United States.

54. Adebayo, K.*, and **Mehan, S.** (2024, April 18). *Comprehensive analysis of drought dynamics in South Dakota using the aridity index and standardized precipitation evapotranspiration index.* Poster presentation at the 2024 Western South Dakota Hydrology Conference, Rapid City, SD, United States.

55. Lamichhane, M.*, **Mehan, S.**, and Mankin, K. (2024, April 11-12). *Actual evapotranspiration prediction based on harmonized Landsat sentinel indices with a few weather variables using*

machine learning algorithms in semi-arid regions. Oral presentation at the 2024 ASABE North Central Regional Meeting, Brookings, SD, United States.

56. Adebayo, K.*, **Mehan, S.**, and Mankin, K. (2024, April 11-12). *A comparative analysis of change point detection methods for hydrologic data.* Oral presentation at the 2024 ASABE North Central Regional Meeting, Brookings, SD, United States.

57. Lamichhane, M.*, **Mehan, S.**, and Maimaitijian, M. (2024, April 4). *Soil moisture prediction using multimodal remote sensing data fusion and machine learning algorithms in diverse crop fields.* Poster session presented at the 55th Geography Conference, Brookings, SD, United States.

58. **Mehan, S.** (2024, April 3-5). *Effectiveness of SWAT simulating drainage water management using edge-of-field data in OH.* Oral presentation at the Annual Meeting for the Conservation Drainage Network and NCERA-217: Drainage Design and Management Practices to Improve Water Quality, Westerville, OH, United States.

59. Muehlman, J., Prasad, L., Thompson, A., **Mehan, S.**, Osterholz, W., King, K., Arriaga, F., and Kalcic, M. (2024, April 25-26). *Improving the representation of cold-season hydrology in SWAT.* Poster presentation at the WI AWRA 2024 Annual Meeting, Appleton, WI, United States.

60. Lamichhane, M.*, and **Mehan, S.** (2023, October 10). *Enhancing evapotranspiration (ETa) estimation through machine learning driven satellite image fusion.* Oral presentation at the 2023 South Dakota Student Water Conference, Brookings, SD, United States.

61. Lamichhane, M.*, **Mehan, S.**, and Maimaitijian, M. (2023, November 15). *Machine learning models to predict actual evapotranspiration (ET_a) based on harmonized Landsat Sentinel (HLS) and climate variables in semi-arid regions.* Poster session presented at EROS Center Fall Poster Session, Sioux Falls, SD, United States

62. **Mehan, S.**, and Amatya, D. (2023, December 11-15). *Development of an open-source forest fire prediction tool using machine learning algorithms.* Oral presentation at the American Geophysical Union Fall Meeting, San Francisco, CA, United States.

63. **Mehan, S.**, Mankin, K., Barnard, D., and Green, T. (2023, July 9-12). *GeoSpatial hydrometeorological data in the contiguous U.S.: Sources, characteristics, accessibility, and applicability – A review and synthesis.* Oral presentation at the ASABE Annual International Meeting, Omaha, NE, United States.

64. Mankin, K., Wells, R., Edmunds, D., McMaster, G., Green, T., Kipka, H., **Mehan, S.**, Fox, F., Wagner, L., and Barnard, D. (2023, July 9-12). *Crop phenology modeling and calibration using UPGM for corn, sorghum, wheat, sunflower, and dry bean.* Oral presentation at the ASABE Annual International Meeting, Omaha, NE, United States.

65. Kalcic, M., **Mehan, S.**, Prasad, L. R., and Thompson, A. M. (2023, March 16-17). *Improving watershed model (SWAT) simulation of wintertime nutrient transport.* Oral presentation at the 46th Annual Meeting of the American Water Resources Association-Wisconsin Section, Wisconsin Dells, WI, United States.

66. **Mehan, S.**, Prasad, L. R., Kalcic, M., and Thompson, A. M. (2022, December 12-16). *Improving SWAT simulation of frozen hydrology in cold-region agricultural watersheds.* Oral presentation at the American Geophysical Union Fall Meeting, Chicago, IL, United States.

67. **Mehan, S.**, Kujawa, H., Murumkar, A., Shedekar, V., Kalcic, M., and King, K. (2022, July 17-21). *Using Soil and Water Assessment Tool (SWAT) for simulating drainage water management: Lessons learned.* Oral presentation at the ASABE Annual International Meeting, Houston, TX, United States.

68. **Mehan, S.**, Rao, P. D., and Amatya, D. M. (2022, July 17-21). *Wildfire prediction modeling using fine resolution meteorological data.* Oral presentation at the ASABE Annual International Meeting, Houston, TX, United States.

69. Murumkar, A., Martin, J., Kalcic, M., King, K., Shedekar, V., **Mehan, S.**, and Kujawa, H. (2022, July 17-21). *Simulating the watershed scale water quality impacts of drainage water management in the western Lake Erie basin, USA.* Oral presentation at the ASABE Annual International Meeting, Houston, TX, United States.

70. **Mehan, S.**, Kalcic, M., and Hood, J. M. (2021, December 13-17). *Improving and testing in-stream phosphorus cycling in SWAT+.* Oral presentation at the American Geophysical Union Fall Meeting, New Orleans, LA, United States. *https://doi.org/10.1002/essoar.10509563.1*

71. **Mehan, S.,** King, K., Kujawa, H., Shedekar, V., Murumkar, A., and Kalcic, M. M. (2021, July 12-16). *Evaluating the effectiveness of SWAT (Soil and Water Assessment Tool) in simulating the impact of drainage water management (DWM) system on water quality.* Oral presentation at the ASABE Annual International Meeting, Virtual Meeting.

72. **Mehan, S.**, and Amatya, D. M. (2021, April 1). *Data-driven decision-making matrices assessing fire risk in woody ecosystem: A preliminary feasibility study.* Oral presentation at the Santee Experimental Forest Research Forum 2021, Virtual Meeting.

73. **Mehan, S.**, Kalcic, M., and Hood, J. M. (2020, December 1-17). *Review of water quality models simulating in-stream nutrient dynamics.* Poster presentation at the American Geophysical Union Fall Meeting, Virtual Meeting. https://doi.org/10.1002/essoar.10510722.1

74. **Mehan, S.**, Amatya, D. M., and Aggarwal, R. (2020, July 12-15). *Meteorological data challenges and opportunities in designing matrices relating climatology impacting changes in woodland ecosystems.* Oral presentation at the ASABE Annual International Meeting, Virtual Meeting.

75. Paul, G., Dickey, J., Miller, K., **Mehan, S.**, Hartz, T., Schmid, A., and Kellar, C. (2019, November 10-13). *Declining groundwater quality and quantity in Central Valley California – Assessing impact of crop management practices.* Oral presentation at the ASA-CSSA-SSSA International Annual Meeting, San Antonio, TX, United States.

76. Miller, K., Dickey, J., Paul, G., **Mehan, S.**, Kellar, C., Yimam, Y. T., Cassman, K., Harter, T. K., and Ikemeya, D. (2019, October 28-30). *Site-specific management effects on nitrate leaching.* Poster presentation at the FREP/WPHA Nutrient Management Conference, Fresno, CA, United States.

77. Miller, K., Dickey, J., Paul, G., **Mehan, S.**, Kellar, C., Yimam, Y. T., Cassman, K., Harter, T. K., Ikemeya, D., Geiseller, D., Cahn, M., and Schmid, A. (2019, October 28-30). *Tools for site-specific crop management to maximize recovery of applied nitrogen fertilizer.* Poster presentation at the FREP/WPHA Nutrient Management Conference, Fresno, CA, United States.

78. Hoffman, I. R., **Mehan, S.**, Miller, K., Paul, G., Dickey, J., Hartz, T., Harter, T. K., and Kisekka, I. (2019, October 28-30). *A multi-scale modeling assessment of nitrogen leaching from Central Valley irrigated processing tomatoes.* Poster presentation at the FREP/WPHA Nutrient Management Conference, Fresno, CA, United States.

79. **Mehan, S.**, Miller, K., Paul, G., Yimam, Y. T., Dickey, J., Schmid, A., Hartz, T. K., Schmid, B., and Roberson, M. (2019, December 9-13). *Quantification of nitrate budget from irrigated lands in Central Valley of California using SWAT.* Poster presentation at the American Geophysical Union Fall Meeting, San Francisco, CA, United States.

80. **Mehan, S.**, Paul, G., Yimam, Y. T., Dickey, J., Schmid, A., Hartz, T. K., and Schmid, B. (2019, July 7-11). *Quantification of nitrate leaching from almond fields in Central Valley of California using SWAT.* Oral presentation at the ASABE Annual International Meeting, Boston, MA, United States.

81. **Mehan, S.**, Yimam, Y., Paul, G., Hartz, T., Dickey, J., Cassman, K., and South San Joaquin Valley Management Practices Evaluation Program Team Members. (2018, October 23-24). *Quantifying nitrate leaching from Central Valley irrigated lands using the Soil and Water Assessment Tool (SWAT).* Poster presentation at FREP/WPHA Conference, Seaside, CA, United States.

82. Gitau, M. W., **Mehan, S.**, Sekaluvu, L., Kiggundu, N., Moriasi, D., and Mishili, F. (2018, October 3-6). *Water resources modeling in East Africa: Access and suitability of rainfall data.* Oral presentation at the Global Water Security Conference for Agriculture and Water Resources, Hyderabad, India.

83. **Mehan, S.**, Gitau, M. W., and Flanagan, D. C. (2018, October 3-6). *Impact of changing climate on surface flow and nutrients in an agricultural dominated tile drained watershed for sustainable water resources.* Poster presentation at the Global Water Security Conference for Agriculture and Water Resources, Hyderabad, India.

84. **Mehan, S.**, and Gitau, M. W. (2018, July 29-August 1). *Bias-corrected climate data for Western Lake Erie Basin (WLEB): Implications for hydrologic and water quality modeling for 21st century using SWAT.* Oral presentation at the ASABE Annual International Meeting, Detroit, MI, United States.

85. **Mehan, S.**, Gitau, M. W., and Flanagan, D. C. (2018, June 27-29). *Assessment of changing climatic conditions on nutrients fate and transport in tile drained watershed for sustained water quality.* Oral presentation at the 39th Annual Indiana Water Resources Association (IWRA) Symposium, Bloomington, IN, United States.

86. **Mehan, S.**, and Gitau, M. W. (2018, February 8). *Estimation and correction of bias of long-term simulated climate data from global circulation models (GCMs)-II.* Oral presentation at the 5th Annual ABE-GSA Industrial Research Symposium, West Lafayette, IN, United States.

87. **Mehan, S.**, and Gitau, M. W. (2017, December 11-15). *Estimation and correction of bias of long-term simulated climate data from global circulation models (GCMs).* Poster presentation at the American Geophysical Union Fall Meeting, New Orleans, LA, United States.

88. **Mehan, S.**, Guo, T., Gitau, M. W., and Flanagan, D. C. (2017, July 16-19). *Weather generator performance in representing statistical characteristics of observed data.* Oral presentation at the ASABE Annual International Meeting, Spokane, WA, United States.

89. **Mehan, S.**, Guo, T., Gitau, M. W., Wallace, C., and Flanagan, D. C. (2017, July 16-19). *Hydrologic model performance as related to different realizations of the climate generator simulated weather data.* Poster presentation at the ASABE Annual International Meeting, Spokane, WA, United States.

90. Gitau, M. W., **Mehan, S.**, and Guo, T. (2017, July 5-9). *Weather generator utilization in climate impact studies: Implications for water resources modelling.* Oral presentation at the 10th World Congress on Water Resources and Environment, Athens, Greece.

91. **Mehan, S.**, and Gitau, M. W. (2017, June 28-30). *Quantification of bias from global circulation model outputs and its correction.* Poster presentation at the 38th Annual Indiana Water Resources Association (IWRA) Symposium, Turkey Run State Park, IN, United States.

92. **Mehan, S.**, and Gitau, M. W. (2017, February 16). *Extent of uncertainty in statistically downscaled climate data.* Oral presentation at the 4th Annual ABE-GSA Industrial Research Symposium, West Lafayette, IN, United States.

93. **Mehan, S.**, Guo, T., Gitau, M. W., and Flanagan, D. C. (2016, October 25). *Performance capability of different weather generators in simulating long-term climate data in the Great Lakes region.* Poster presentation at the University and Industrial Consortium at Dows Agro Science, Indianapolis, IN, United States.

94. **Mehan, S.**, Guo, T., Gitau, M. W., and Flanagan, D. C. (2016, July 17-20). *Comparison of stochastic weather generators for long-term climate data simulation in Great Lakes region.* Oral presentation at the ASABE Annual International Meeting, Orlando, FL, United States.

95. **Mehan, S.**, Guo, T., Gitau, M. W., and Flanagan, D. C. (2016, June 8-10). *Effectiveness of stochastic weather generators in simulating long-term climate data.* Poster presentation at the 37th Annual Indiana Water Resources Association Symposium, Angola, IN, United States.

96. **Mehan, S.**, Singh, K. G., and Sharda, R. (2016, February 18). *Effect of colored mulches in mitigating climate change impacts on growth of capsicum under field conditions.* Poster presentation at t*he 3rd Annual ABE-GSA Industrial Research Symposium*, West Lafayette, IN, United States.

97. **Mehan, S.**, Neupane, R. P., and Kumar, S. (2015, November 15-18). *SWAT model calibration, validation and parameter sensitivity analysis using SWAT-CUP.* Oral and poster presentation at the *ASA-CSSA-SSSA International Annual Meeting*, Minneapolis, MN, United States.

98. **Mehan, S.**, Neupane, R. P., and Kumar, S. (2015, October 14-16). *Projecting climate change impacts on surface hydrology of a small agriculture-dominated watershed.* Oral presentation at the International Soil and Water Assessment Tool Conference, West Lafayette, IN, United States.

99. **Mehan, S.**, Kumar, S., and Lin, Y. (2015, November 18). *Application of GIS in analyzing rainfall distribution spatially in the Skunk Creek watershed.* Poster presentation at the USGS EROS-SDSU Student Led Posters, Garretson, SD, United States.

100. Kumar, S., **Mehan, S.**, Neupane, R. P., Mbonimpa, E., Kjaersgaard, J., Jequet, J., Bly, A., Miller, M., and Smalley, S. (2015, July 27-28). *Integrated plan for drought preparedness and mitigation, and water conservation at the watershed scale.* Poster presentation at the NIWQP and AFRI PD Meeting Program, North Carolina, United States.

PATENTS ISSUED
SOY-BASED FILTRATION SYSTEM

1. Smith, A., Huang, A., **Mehan, S.**, and Saadat, S. (2024). Soy based filtration system (U.S. Patent No. 12,090,431). U.S. Patent and Trademark Office. https://patentimages.storage.googleapis.com/4a/d6/4d/e912f0d70a8d30/US12090431.pdf

2. Smith, A., Huang, A., **Mehan, S.**, and Saadat, S. (2023). Soy based filtration system (U.S. Patent No. 11,691,099). U.S. Patent and Trademark Office. https://patentimages.storage.googleapis.com/9f/7d/64/24c9a39b98213c/US11691099.pdf

PROFESSIONAL SOCIETY AFFILIATIONS
- American Society of Agricultural and Biological Engineers (ASABE) — Since 2015
- American Geophysical Union (AGU) — Since 2017
- Soil Science Society of America (SSSA) — Since 2015

- Tau Beta Pi (TBP), The Engineering Honor Society — Since 2017
- Alpha Epsilon (AE) Honors Society, Purdue University Agricultural and Biological Engineering Chapter — Since 2017
- Indian Society of Agricultural Engineers (ISAE) — Since 2024
- National Institute of Water Resources — Since 2024

HONORS AND AWARDS

- ASABE Major Awards: Gale A. Holloway Professional Development Award — 2025
- NSF-I GUIDE (Institute for Geospatial Understanding through an Integrative Discovery Environment) Team Lead — 2024
- HydroLearn Faculty Fellow by Consortium of Universities for the Advancements of Hydrologic Science, Inc. (CUAHSI) — 2024
- ASABE Presidential Citation — 2024
- ASABE Education Aids Blue Ribbon — 2024 and 2025
- SD Discovery Center Science Communication Fellow — 2024
- Trailblazers in Engineering (TBE) Fellow — 2023
- ASABE Outstanding Reviewer (NRES-Natural Resources & Environmental Systems) — 2020; 2023 and 2025
- Early Career Engineer of the Year from the Association of Agricultural, Biological, and Food Engineers of Indian Origin (AABFEIO) — 2022
- Ohio State Post-Doctoral Association Professional Development Award — 2020
- "Highest Likes and Most Watched Video" Winner at ASABE Inspired Video Challenge — 2020
- Top Reviewers in Environment and Ecology (Global Peer Review Awards powered by Publons) — 2019
- Top Reviewers in cross-field (Global Peer Review Awards powered by Publons) — 2019
- Outstanding ABE Ph.D. Student: Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, IN — 2018
- ASABE New Faces: Professional — 2018
- Special Mention Graduate Ag Research Spotlight — 2018
- First Place in Poster Competition, Second Place in Oral Presentation, Second Place in Pitch Your Thesis Competition at 5th ABE GSA Research and Industrial Symposium, Purdue University, West Lafayette, IN — 2018
- Bilsland Dissertation Fellowship, College of Engineering, Purdue University, West Lafayette, Indiana 47907 — 2017-2018
- Indiana Soybean Innovation Competition (Winner of student competition): Team competition- The final product is filed for an International Patent — 2017
- Indian Council of Agricultural Research International Fellowship — 2014
- University Fellow, Punjab Agricultural University, Ludhiana, Punjab, India — 2012-to-2014
- Outstanding Best Student at Undergraduate Level, Punjab Agricultural University, Ludhiana, Punjab, India — 2011
- Nominee of Indira Gandhi National Service Scheme (NSS) National Award — 2011
- Dr. Dalip Singh Deep Memorial State Award — 2010
- College Merit for Literary Events — 2010
- Outstanding Student, Indian Society of Technical Education (ISTE) — 2010
- Best Speaker of the University (Punjab Agricultural University) — 2008 and 2011
- Best Debater of the University (Punjab Agricultural University) — 2007-to-2011
- Swami Vivekananda Youth Award — 2010

• Ajit Matto Award for Outstanding Academic Performance	2010

HONORS and AWARDS (Lab Members)
Azar Movaghatian, PhD Student (2nd Year)

• 2nd position in the student poster competition at the 2025 SD ASABE Section meeting, Brookings, SD, April 3, 2025	2025

Rose Eitemiller, MS Student (1st Year)

• South Dakota Well Drillers Association (SDWDA) Scholarship, awarded at the SDWDA Convention in Deadwood, SD. March 3, 2025	2025

Manoj Lamichhane, PhD Student (2nd Year)

• Selected for 2025 MSU/USDA Graduate Summer Research Experience (SRE) Program in High-Performance Computing and Agriculture at Mississippi State University, Starkville, MS – June 2, 2025 – August 8, 2025	2025
• Best Presentation Award, Remote Sensing Technical Committee (RSTC) at The American Geophysical Union (AGU) Fall Meeting 2024, Washington DC.	2024
• Outstanding Oral Presentation at the 2024 ASABE North Central Regional Section Meeting, Brookings, SD. (April 11-12, 2024)	2024
• NSF-I GUIDE (Institute for Geospatial Understanding through an Integrative Discovery Environment) Team Co-Lead	2024
• 2024 ASABE Annual International Meeting Travel Grant sponsored by the Agricultural and Biosystems Engineering Department at South Dakota State University, Brookings, SD	2024

Kayode Adebayo, PhD Student (2nd Year)

• Selected and funded to participate in a 2-day event, Environmental Data Science Summit, hosted by the National Center for Ecological Analysis and Synthesis, funded by National Science Foundation, at Santa Barbara, California, USA, January 27-29, 2026	2026
• Awarded Travel Grant to attend the American Geophysical Union Fall Meeting, New Orleans, Louisiana, December 14-19, 2025, by Consortium of Universities for the Advancement of Hydrologic Science, Inc.	2025
• Selected for the 2025 Water Prediction Innovators Summer Institute at the University of Alabama, Tuscaloosa, Alabama – June 9 – July 25, 2025	2025
• 3rd position in the student poster competition at the Western Hydrology Conference, South Dakota, April 18, 2024	2024
• 2024 ASABE Annual International Meeting Travel Grant sponsored by the Agricultural and Biosystems Engineering Department at South Dakota State University, Brookings, SD	2024