BIBEK ACHARYA, Ph.D.
Postdoctoral Research Associate
Texas A&M AgriLife Research, Vernon, TX
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EDUCATION

University of Florida — Gainesville, FL
Doctor of Philosophy. Major: Agricultural and Biological Engineering — 08/2020-08/2024

University of Wyoming — Laramie, WY
Master of Science. Major: Plant Sciences — 08/2018-08/2020

Tribhuvan University — Kathmandu, Nepal
Bachelor of Science. Major: Agriculture — 08/2013-08/2017

RESEARCH EXPERIENCE

Postdoctoral Research Associate, Texas A&M AgriLife Research — Vernon, TX
Advisor: Dr. Srinivasulu Ale — 09/2024-Present

- Conducted climate suitability analysis for the Southern Great Plains using FAO ECOCROP and NASA NEX-GDDP projections in Google Earth Engine to identify alternative crops for future rainfed and irrigated systems.
- Simulated the performance of identified alternative crops using the EPIC model to compare potential yield and crop water productivity under projected climate.
- Built a DSSAT plus ML hybrid framework using residual modeling and SHAP to diagnose and reduce systematic errors in cotton yield predictions.
- Contributed to multidisciplinary corn and cotton projects in the water-limited Northern Texas Panhandle funded by the Texas Water Seed Grant and the USDA-ARS Ogallala Aquifer Program.
- Managed field weather stations including sensor maintenance, data acquisition, and QA QC.
- Calibrated and evaluated DSSAT-CSM CERES-Maize and CROPGRO-Cotton for the Texas High Plains using multi-year field datasets.
- Ran long term scenario simulations with the evaluated maize model to quantify plant water stress, yield, and irrigation requirements under growth-stage-based deficit irrigation strategies.
- Applied the evaluated cotton model to compare long term management scenarios (planting date, row spacing, irrigation levels) and develop producer-facing recommendations.
- Prepared grant proposals to state and federal sponsors, including USDA-NIFA AFRI and Cotton Incorporated.
- Advised and mentored graduate students in the research group.
- Participated in extension activities, including grower field days and trainings to interact with growers and extension agents.

This work has resulted in 2 grants (1 accepted, 1 pending), 2 journal articles currently in preparation.

Graduate Assistant, University of Florida Gainesville, FL
Advisor: Dr. Vivek Sharma 08/2020-08/2024

- Contributed to a multidisciplinary Best Management Practices (BMP) project funded by the Florida Department of Agriculture and Consumer Services (FDACS) that evaluated a 16-year rotation trial comparing a conventional rotation (corn, peanut, carrot) with a sod-based rotation (corn, peanut, carrot, bahiagrass). I analyzed the first 4 years of data (2019-2023) on yield, nitrogen dynamics, drainage, and nitrate leaching as part of dissertation research.
- Coordinated the installation and QA/QC of irrigation systems, soil-moisture sensors, and passive wick lysimeters, and conducted lysimeter, soil, plant tissue, and canopy measurements for precision water and nutrient management.
- Compared drainage and leaching estimates from lysimeters with soil water balance and simulation models under high and perched water tables in coarse sandy soils.
- Applied process-based models (DSSAT, HYDRUS-1D, SWAT) to evaluate water quality risks and management tradeoffs.
- Advised and mentored graduate students in the research group.
- Participated in Extension activities, including grower field days and training to engage with producers and County Extension Agents.

This work has resulted in 5 research articles (3 published and 2 under review) and 1 extension article.

Graduate Assistant, University of Wyoming Laramie, WY
Advisor: Dr. Vivek Sharma 08/2018-08/2020

- Implemented energy balance ET models METRIC, SEBAL, SEBS, S-SEBI in ERDAS Imagine and ArcGIS to map crop evapotranspiration from field to regional scales in the Big Horn Basin, Wyoming.
- Coordinated Extension programs and outreach at Powell and Lingle, working with growers, Extension specialists, educators, and County Extension Agents through field days and training sessions.

This work has resulted in 2 research articles.

TEACHING EXPERIENCE

- Served as Teaching Assistant for *ABE 3212C: Irrigation and Drainage Engineering (3 credits)* in the Department of Agricultural and Biological Engineering at the University of Florida. Responsibilities included delivering the evapotranspiration module (lectures and labs) and providing technical support to ensure smooth course operations.
- Trained visiting scholars in the Precision Water Management Lab (University of Florida) and students from Punjab Agricultural University (India) to quantify crop evapotranspiration using Landsat imagery and surface energy-balance workflows.
- Delivered hands-on training on "*Basics of Crop Simulation Modeling with DSSAT*" to undergraduate students at the Agricultural and Forestry University, Nepal (January 2025).

GRANTS AND PROPOSALS [3]

Funded [1]

- Ale, S. and Acharya, B. 2025. *Leveraging machine learning to identify error sources in crop yield predictions. Cotton Incorporated.* ***Role: Co-PI.*** *Status: Funded. ($35,000; 01/2026-12/2026)*

Pending [1]

- Ale, S.; Xue, Q.; Marek, T.; Ufodike, C.; Tabassum, S. 2025. *Partnership: Precision irrigation management in corn - integrating sensors, crop models, and machine learning approaches. USDA-NIFA AFRI Foundational Program.* ***Role: Key personnel****. Status: Pending ($800,000; 04/2026-03/2029).*

Not funded [1]

- Acharya, B. 2022. *Simulation of water and nitrate flow across four different rotational production systems using process-based models*. Grant A. Harris Fellowship. Status: not funded.

PUBLICATIONS

Peer-Reviewed Research Articles [7]

- **Acharya, B.,** Sharma, V., Barrett, C., Dukes, M. D., Zotarelli, L., Bayabil, H., Sharma, L., Hochmuth, R. C, Sidhu, S. S., Crain, A., & Love, J. (**2025**). Comparative analysis of conventional and sod-based rotational production systems: Impacts on yield and nitrogen dynamics. J. Nat. Resour. Agric. Ecosyst., 3(3), 165-186.https://doi.org/10.13031/jnrae.16256

- Das, S., Bhambota, S., Vaddevolu, U.B.P., **Acharya, B**., Colvin, C., Capasso, J.M., Dhillon, R., Sharma, V. (**2025**). Integrating Machine Learning and remote sensing To Determine Leaf Nitrogen Content of Maize. [*Submitted to Journal of ASABE*]

- **Acharya, B.**, Sharma, V. **(2025**). Comparative Analysis of Soil and Water Dynamics in Conventional and Sod-Based Crop Rotation in Florida. *Frontiers in Agronomy.* 7:1552425. https://doi.org/10.3389/fagro.2025.1552425

- **Acharya, B**., Sharma, V., Barrett, C., Dukes, M.D., Zotarelli, L. **(2025**). Comparing Passive Wick Lysimeter Against Soil Water Balance and Simulation Models in High and Perched Water Tables and Coarse Sandy Soils. *Journal of Natural Resources and Agricultural Ecosystems*. 3(1), 37-52. https://doi.org/10.13031/jnrae.16188

- **Acharya, B**., Sharma, V. **(2021**). Comparison of Satellite Driven Surface Energy Balance Models in Estimating Crop Evapotranspiration in Semi-Arid to Arid Inter-Mountain Region. *Remote Sens.* 13, 1822. https://doi.org/10.3390/rs13091822

- **Acharya, B**., Sharma, V., Heitholt, J., Tekiela, D., Nippgen, F. (**2020**). Quantification and Mapping of Satellite Driven Surface Energy Balance Fluxes in Semi-Arid to Arid Inter-Mountain Region. *Remote Sens. 12*, 4019. https://doi.org/10.3390/rs12244019

- **Acharya, B**., and Shrestha, R.K. (**2018**). Nitrogen level and irrigation interval on mitigating Stemphylium blight and downy mildew in onion. *International Journal of Applied Science and Biotechnology. 6(*1), 17-22. https://doi.org/10.3126/ijasbt.v6i1.18795

Peer-Reviewed Extension Article [1]

- **Acharya, B**., Sharma, V., Barrett, C., Sindhu, S.S., Zotarelli, L., Dukes, M.D. **(2022**). Methods to Quantify in-field Nutrient Leaching: AE581/AE581, 12/2022. *EDIS 2022* (6). https://doi.org/10.32473/edis-ae581-2022

In preparation Journal Articles [4]

- **Acharya, B**., Sharma, V. **(**in preparation). Simulated Effects of Crop Rotations on Yield, Nitrogen and Water Dynamics.
- **Acharya, B**., Sharma, V. **(**in preparation). Comparing DSSAT, SWAT and HYDRUS-1D on simulating yield and nitrogen Dynamics in a corn-peanut rotation.
- **Acharya, B.,** Ale, S., Xue, Q., Marek, T., Shrestha, R., Leiva Soto, A., Samanta, S., & Bell, J. (in preparation). Evaluation of crop growth stage-based efficient irrigation strategies for corn production in the Northern High Plains of Texas. Target Journal: *European Journal of Agronomy*
- **Acharya, B**., Ale, S., Bell, J. M., Marek, T., & Porter, D. (in preparation). Simulated Effects of Planting Dates, Plant Population and Irrigation Levels on Cotton Production in the Northern Texas Panhandle. Target Journal: *Field Crops Research*

AWARDS AND RECOGNITIONS [21]

- Awarded **2024 Honorable Mention Emerging Scholar Award** by the Association for Academic Women (AAW) at the University of Florida. This is a university level award for Ph.D. candidates possible through nominations from respective colleges and highlights the ability to articulate the importance and transformative potential of the dissertation work.

- Awarded **2024 Graduate Student Research Paper Award** by the Association of Agricultural, Biological, and Food Engineers of Indian Origin (AABFEIO). This award was presented at the AABFEIO dinner meeting during the 2024 ASABE annual international meeting at Anaheim, California.

- Awarded **Second Place in the 2024 College and University Students' Essay Writing Contest** by the Nepalese Association of Agricultural Professionals of Americas (NAPA) during the 4th Biennial International Scientific Conference in Baltimore, Maryland, USA. This award recognizes excellence in writing on the topic of "Climate-Smart and Innovative Agriculture for Sustainable and Resilient Agri-Food Systems".

- Awarded University of Florida **Graduate Student Council travel grant** to present the research findings at the 2024 American Society of Agricultural and Biological engineers (ASABE) Annual International Meeting held at Anaheim, California.

- Awarded **2023 Florida Stormwater Association Educational Foundation (FSAEF) Scholarship** by the Florida Stormwater Association (FSA). This is a state level award and recognizes the educational interest in stormwater quality and management.

- Awarded **2023 Sanford N. Young Scholarship** by the Florida Section American Water Resources Association (AWRA Florida). This is a state level award and recognizes individuals for work in the area of water resources science, technology, or management.

- Awarded **2023 Educational Aids Blue Ribbon award** by American Society of Agricultural and Biological Engineers (ASABE) for the paper "*Acharya, B., Sharma, V. (2022). Methods to Quantify In-Field Nutrient Leaching".* https://doi.org/10.32473/edis-ae581-2022 ASABE Annual International Meeting Omaha, Nebraska.

- Awarded **top-up fellowship** for academic year 2023-2024 by the University of Florida Agricultural and Biological Engineering Department.

- Awarded **student registration scholarship** by the Center for Land Use Efficiency (CLUE) to attend 2024 University of Florida Water Institute Symposium held in Gainesville, FL.

- Awarded **complimentary conference registration and hotel cost** by the Florida Stormwater Association (FSA) to attend 2023 FSA Winter Conference held in Orlando, FL.

- Awarded **complimentary conference registration and hotel cost** by the Florida Section American Water Resources Association (AWRA Florida) to attend 2023 AWRA Florida annual meeting held in Key West, FL.

- Awarded University of Florida **Water Institute Travel Award Summer 2023** to present the research findings at the 2023 American Society of Agricultural and Biological engineers (ASABE) Annual International Meeting held at Omaha, Nebraska.

- Awarded University of Florida **Institute of Food and Agriculture Science travel grant** to present the research findings at the 2023 American Society of Agricultural and Biological engineers (ASABE) Annual International Meeting held at Omaha, Nebraska.

- Awarded University of Florida **Graduate Student Council travel grant** to present the research findings at the 2023 American Society of Agricultural and Biological engineers (ASABE) Annual International Meeting held at Omaha, Nebraska.

- Awarded **complimentary conference registration and hotel cost** by the Florida Association of Water Quality Control (FAWQC) for student poster presentation in 2023 FAWQC annual conference held in Naples, FL.

- Awarded **McNair Bostick Scholarship** for the academic year 2023 at the University of Florida. This is a departmental level award and recognizes individuals working on modeling and analysis of agricultural systems and natural resources.

- Awarded **Provost annual top-up funding** for the academic year 2022-2023 at the University of Florida.

- Awarded **Grinter Fellowship** for Fall 2020 and Spring 2021 term at the University of Florida. This award is presented to recruit truly exceptional graduate students at the University of Florida.

- Awarded **Brand of Excellence - Y Cross Ranch Graduate Scholarship** for academic year 2018-2019 and 2019-2020 to pursue M.S. in Plant Sciences at the University of Wyoming.

- Awarded **Irrigation Association's E3 Winner grant** to attend Irrigation Show and Education Conference at Long Beach, California, USA. December 2018.

- Awarded four-year undergraduate **merit scholarship** by Institute of Agriculture and Animal Sciences, Tribhuvan University, Nepal. 2013-2017.

ABSTRACTS AND PRESENTATIONS [32]

Oral presentation [21]

- Acharya, B., Ale, S., Xue, Q., Marek, T., Bell, J. M., Shrestha, R., Soto, A.L., & Samanta, S. (**2025**). Evaluation of Crop Growth Stage-Based Efficient Irrigation Strategies for Corn Production in the Northern High Plains of Texas. *CANVAS 2025*, Salt Lake City, UT.

- Acharya, B., Ale, S., Bell, J. M., Marek, T., & Porter, D. (**2025**). Simulated Effects of Planting Dates, Plant Population and Irrigation Levels on Cotton Production in the Northern Texas Panhandle. *CANVAS 2025*, Salt Lake City, UT.

- Samanta, S., Ale, S., Acharya, B., Hudson, D., Bell, J. M., Sheshukov, A., Aguilar, J., Goebel, T. S., & Lascano, R. J. (**2025**) Identification of Climate Resilient Alternative Crops for the Southern Great Plains [Abstract]. *CANVAS 2025*, Salt Lake City, UT.

- Singh, H., Ale, S., Singh, B., DeLaune, P. B., KIM, J., Samanta, S., Acharya, B., Bawa, A., & Mohtar, R. (**2025**). Pasture Cropping as a Regenerative Practice on Grazing Lands: A Field and Modeling Study in North Central Texas. *CANVAS 2025*, Salt Lake City, UT.

- Acharya, B., Ale, S., Bell, J. M., Marek, T., & Porter, D. (**2025**). Evaluation of Ideal Planting Dates, Plant Population and Irrigation Levels for Cotton Production in the Northern Texas Panhandle. American Society of Agriculture and Biological Engineers - Annual international meeting (ASABE - AIM).

- Acharya, B., and Sharma, V. (**2024)**. Simulating Nitrogen and Water Dynamics in a Rotational Production System. Florida Section American Society of Agriculture and Biological Engineers (FL-ASABE).

- S.S. Sidhu, S.S. Bhullar, B. Acharya, and V. Sharma (**2024**). An update on 16-year rotational study: Layering of cropping systems, precision ag. techniques, and BMPs for improving water quality and nutrient management in Northcentral FL. ASA-Southern Regional Branch Annual Meeting, Atlanta, GA.

- Acharya, B., Dukes, D. M., Zotarelli, L., Sidhu, S.S., and Sharma, V. (**2023)**. Comparing the Effectiveness of Four Different Rotational Production on Nitrate Leaching in Sandy Soils of Northern Florida. Agronomy Society of America-Crop Science Society of America-Soil Science Society of America international annual meeting (ASA-CSSA-SSSA).

- Sidhu, S.S., Bhullar, S.S., Acharya, B., Sharma, V., and Kumar. S. (**2023)**. Adopting and Comparing Selective BMPs on Different Cropping System as an Approach for Improving Yield, Water and Nutrient Management. Agronomy Society of America-Crop Science Society of America-Soil Science Society of America international annual meeting (ASA-CSSA-SSSA).

- Acharya, B., and Sharma, V. (**2023)**. Rotational Production for Agricultural Best Management Practice (BMP). American Society of Agriculture and Biological Engineers - Annual international meeting (ASABE - AIM).

- Prasanna, V., Morrow, M., Acharya, B., Voddevolu, U.B.P., Sharma, V. **(2023**). Development of Integrated Precision Irrigation and Nitrogen Management Strategies for Potatoes. American Society of Agriculture and Biological Engineers - Annual international meeting (ASABE - AIM).

- Acharya, B., and Sharma, V. (**2023)**. Rotational Production for Agricultural Best Management Practice (BMP). Florida Section American Society of Agriculture and Biological Engineers (FL-ASABE).

- Acharya, B., and Sharma, V. (**2023)**. Simulating Nitrogen and Water Dynamics in a Rotational Production System. Florida Section American Society of Agriculture and Biological Engineers (FL-ASABE).

- Sidhu, S.S., Morrow, M., Sharma, V., Acharya, B., Hochmuth, C.R., and Sharma. L. (**2022)**. Impacts of Cropping Systems on Crop Yields of FL Water Quality. Agronomy Society of America-Crop Science Society of America-Soil Science Society of America international annual meeting (ASA-CSSA-SSSA).

- Sharma, V., Acharya, B., Barrett, C., Sidhu, S.S., Dukes, D. M., Sharma, L., Zotarelli, L., and Bayabil, H. (**2022)**. Effectiveness of Rotational Production as a Best Management Practice to Reduce Nitrogen Inputs and Irrigation Water use. American Society of Agriculture and Biological Engineers - Annual international meeting (ASABE - AIM).

- Acharya, B., and Sharma, V. (**2022)**. Simulating Nitrogen and Water Dynamics in a Rotational Production System. Florida section of American Society of Agricultural and Biological Engineers (FL-ASABE).

- Sharma, V., and Acharya, B. (**2021**). Comparison of Different Surface Energy Balance Models in Estimation of Crop Evapotranspiration Semi-arid to Arid Inter-Mountain Terrain. American Society of Agricultural and Biological engineers - Annual international meeting (ASABE - AIM).

- Acharya, B. (**2021**). Comparing the Effectiveness of Crop Rotation on Nitrate Leaching in Sandy Soils of Northern Florida. A 3-minute Thesis competition at Agricultural and Biological Engineering Department, University of Florida.

- Acharya, B., and Sharma, V. (**2020**). Comparison of Different Satellite-based Image Processing Models on Estimating Surface Energy Balance Fluxes in Semi-arid to Arid Region of Wyoming. American Society of Agricultural and Biological engineers - Annual International Meeting (ASABE - AIM), Virtual and On Demand.

- Acharya, B. (**2017**). Nitrogen level and irrigation interval on mitigating Stemphylium blight and downy mildew in onion. International Conference on Mountains in the Changing World (MoChWo) in Kathmandu, Nepal.

- Acharya, B. **(2017**). Nitrogen level and irrigation interval on mitigating Stemphylium blight and downy mildew in onion. 4th Symposium on Undergraduate Practicum Assessment, Lamjung, Nepal.

Poster presentation [12]

- Acharya, B., Ale, S., Bell, J., Marek, T., Porter, D. **(2025**). Evaluation of Ideal Planting Dates, Plant Population and Irrigation Levels for Cotton Production in the Northern Texas Panhandle. Ogallala Aquifer Program (OAP) Research Planning Workshop, Lubbock, TX.

- Acharya, B., and Sharma, V. (**2024)**. Nitrogen and Water Dynamics in Conventional vs. Sod-based Crop Rotations. Agricultural and Biological Engineering Department Poster Symposium, University of Florida.

- Acharya, B., and Sharma, V. (**2023)**. Simulating Nitrogen and Water Dynamics in a Rotational Production System. Agronomy Society of America-Crop Science Society of America-Soil Science Society of America international annual meeting (ASA-CSSA-SSSA).

- Acharya, B., and Sharma, V. (**2023)**. Simulating Nitrogen and Water Dynamics in a Rotational Production System. American Society of Agriculture and Biological Engineers - Annual international meeting (ASABE - AIM).

- Acharya, B., and Sharma, V. (**2023)**. Comparing the Effectiveness of Four Different Rotational Production Systems on Nitrate Leaching in Sandy Soils of Suwannee River Basin. Florida Association for Water Quality Control (FAWQC).

- Acharya, B., and Sharma, V. (**2023)**. Simulating Nitrogen and Water Dynamics in a Rotational Production System. Agricultural and Biological Engineering Department Poster Symposium, University of Florida.

- Prasanna, V., Morrow, M., Acharya, B., Voddevolu, U.B.P., Sharma, V. **(2023**). Development of Integrated Precision Irrigation and Nitrogen Management Strategies for Potatoes. School of Natural Resources and Environment Poster Symposium, University of Florida.

- Acharya, B., and Sharma, V. (**2022)**. Simulating Nitrogen and Water Dynamics in a Rotational Production System. American Society of Civil Engineers- Environmental and Water Resource Institute (ASCE-EWRI).

- Acharya, B., and Sharma, V. (**2020)**. Quantification and Mapping of Crop Evapotranspiration using Remote Sensing Based Surface Energy Balance Models in the Inter Mountain Terrain. Agricultural and Biological Engineering Department Virtual Poster Symposium, University of Florida.

- Acharya, B., and Sharma, V. (**2020**). Quantification and Mapping of Surface Energy Balance Fluxes using METRIC algorithm in the Semi-arid to Arid region of Wyoming. American Society of Agricultural and Biological engineers- Annual International Meeting (ASABE - AIM), Virtual and On Demand.

- Acharya, B., and Sharma, V. (**2019**). Quantification of Actual Crop Evapotranspiration using Satellite Remote Sensing in Southeast Wyoming and Nebraska Panhandle. Sustainable Agricultural Research and Extension Center (SAREC), Lingle, WY.

- Acharya, B., and Sharma, V. (**2019**). Quantification of Actual Crop Evapotranspiration using Satellite Remote Sensing in Big-Horn Basin of Wyoming. Powell Research and Extension Center (PREC), Powell, WY.

ACADEMIC SERVICE AND OUTREACH

- Served as a manuscript reviewer for research articles submitted to various journals: *Agronomy Journal (ASA-CSSA-SSSA), Journal of Natural Resources and Agricultural Ecosystems (ASABE), Journal of Geophysical Research (AGU), the International Agricultural Engineering Journal (AAAE), Agriculture Ecosystem and Environment (AGEE), and Agricultural Water Management (AGWAT).*

- Served as a proposal reviewer for the 2025 *Undergraduate Research Thesis Program* at Texas A&M University.

- Served as Judge in various student competitions, including 11 oral and 6 poster presentations at CANVAS 2025.

- Served as a volunteer for the oral sessions at the 9th University of Florida Water Institute Symposium, Gainesville, FL (February 2024).

- Co-Trainer, 'Transfer of Technology' Training Program - National Youth Council & District Youth Committee, Lamjung, Nepal (August 2017).

LEADERSHIP AND SERVICE

- *Satellite Campus Officer, The Texas A&M Postdoctoral Association* Jan 2025-Present
  - Serve as the point of contact for postdocs from satellite campuses.
  - Arrange virtual events, such as virtual write and share sessions and virtual coffee talks
- *Executive Student Member, Student Coordination Committee, Nepalese Agricultural Professionals of Americas (NAPA)* May 2022-May 2024
  - Actively contributed to the strategic planning and coordination of activities for agricultural professionals within the Americas region.
- *Executive Member, Nepalese Student Association, University of Florida* 2022-2023
  - Played a key role in organizing cultural and educational events, fostering community engagement among Nepalese students.
- *Organizer & Participant, COVID-19 Relief Fund, Nepal* June-July 2020
  - Led and participated in fundraising initiatives to support healthcare and community needs during the COVID-19 outbreak in Nepal.
- *Dormitory Captain, Tribhuvan University* 2015-2016
  - Oversaw residential life operations and served as a liaison between students and university administration, enhancing dormitory living experience.
- *Class Representative, Tribhuvan University* 2015-2016
  - Represented student interests, coordinated academic discussions, and facilitated communication between faculty and students.
- *Volunteer, Nepal Earthquake Relief Program* April-May 2015
  - Engaged in on-ground support and relief activities in response to the 2015 Nepal earthquake, contributing to community recovery efforts.

MENTORSHIP AND ADVISING

- Mentored one graduate student at Texas A&M AgriLife Research on field and lab methods, including data collection and lab measurements.

- Mentored one graduate student at the University of Florida, helping them acclimate to campus life and addressing academic and research questions.

TECHNICAL SKILLS

- Programming Languages: Python and R.

- Hydrological & Crop Growth Simulation Models: DSSAT, HYDRUS, SWAT, and WAVE

- GitHub for version control, project collaboration, and hosting of web projects
- Geospatial Software: Google Earth Engine, ERDAS IMAGINE, ENVI, ArcGIS and QGIS
- Agricultural Measurements: lysimeter sampling, soil and plant tissue sampling, soil moisture monitoring, plant canopy monitoring, use of Tempe cells and pressure plate apparatus, operation and management of irrigation systems

CERTIFICATION/TRAINING/WORKSHOP

- "Advanced Data Analytics for Natural Resources Management using R" led by Dr. Sushant Mehan at the Agronomy Society of America-Crop Science Society of America-Soil Science Society of America international annual meeting (ASA-CSSA-SSSA), October 30, 2023.
- "Coding Richards Equation Numerical Solution using Python Programming Language" led by Dr. Rafaz Munoz Carpena, June 2023.
- "Modeling of Water Flow and Contaminant Transport in Porous Media Using the HYDRUS Software Packages" led by Dr. Jiri Simunek, September 7-8, 2022.
- "Fundamental of Deep Learning" led by NVIDIA, June 2022.
- "Practicum AI: Python Workshop series" led by Matt Gitzendanner and University of Florida Research Computing Training Team, May 2022.
- "Introduction to Research Computing and HiPerGator" led by Matt Gitzendanner and University of Florida Research Computing Training Team, January 2022.
- "Decision Support System for Agrotechnology Transfer (DSSAT) International Training Program" led by Dr. Gerrit Hoogenboom, Dr. Ken Boote, Dr. Upendra Singh, Dr. Willingthon Pavan, Dr. Cheryl Porter, and Vakhtang Shelia, May 17- 22, 2021.
- "Summer School on Agricultural Meteorology" led by Institute of Agriculture and Animal Sciences (IAAS), Tribhuvan University, Nepal, May 2018.

PROFESSIONAL AFFILIATIONS

- American Society of Agricultural and Biological Engineers; 2019 to present.
- American Society of Agronomy; 2019 to present.