

Ahmed A. Hashem, Ph.D.

College of Agriculture, 422 University Loop W, Jonesboro, AR 72401
Phone +1 (765) 409-7533, email: ahashem@astate.edu

EDUCATION

- Doctor of Philosophy**, Agricultural and Biological Engineering, *Purdue University, West Lafayette, Indiana, United States of America.* 2018
Dissertation title: Irrigation Water Management using Remote Sensing and Hydrologic Modeling
Advisor: Dr. Bernard Engel and Dr. Vincent Bralts.
- Master of Science**, Agricultural Engineering, *Suez Canal University, Ismailia, Egypt.* 2011
Thesis title: Studies on Low Head Bubbler Irrigation System Design.
Advisor: Dr. Sherif Radwan
- Bachelor of Science**, Agricultural Engineering, *Suez Canal University, Ismailia, Egypt.* 2006
Advisor: Dr. Sherif Radwan

ACADEMIC APPOINTMENT

- Assistant Professor of Agricultural Systems Technology**, College of Agriculture, Arkansas State University, *Jonesboro, Arkansas, United States of America.* August 2018-present
- Graduate Teaching Assistant**, Agricultural and Biological Engineering, *Purdue University, West Lafayette, Indiana, United States of America.* January 2015-August 2018
Advisor: Dr. Bernard Engel and Dr. Vincent Bralts.
- Graduate Visiting Scholar**, Agricultural and Biological Engineering, *Purdue University, West Lafayette, Indiana, United States of America.* July 2013-December 2014
Advisor: Dr. Bernard Engel and Dr. Vincent Bralts.
- Graduate Research Assistant**, Agricultural Engineering, *Suez Canal University, Ismailia, Egypt.* November 2011-June 2013
Advisor: Dr. Sherif Radwan
- Graduate Teaching Assistant**, Agricultural Engineering, *Suez Canal University, Ismailia, Egypt.* January 2007-October 2011
Advisor: Dr. Sherif Radwan

RESEARCH EXPERIENCE

Arkansas State University

2018-present

Arkansas Digital Agriculture Initiative (ADAI)

Collaborator on a new data analytics center, using new sensor technologies, machine learning algorithms, and optimization tools

- Prescription mapping using Unmanned Aircraft Systems (UAS's) with potential application for variable rate applications
- Cover crop termination timing using Light Detection and Ranging (LiDAR) and its consequence on soil fertility, crop water requirements, crop biomass, yield, and soil surface temperature
- Managing real-time vegetation stress and nitrogen application rate using UAS's

Irrigation and Remote Sensing Research Laboratory

Established research grounds for remote sensing and hydrologic modeling applications in agriculture in the Lower Mississippi River Basin.

- Irrigation water management using UAS and satellite imagery
- Real-time soil moisture monitoring for irrigation scheduling using soil moisture sensors and evapotranspiration (ET) gauges
- Soil moisture modeling using the Soil and Water Assessment Tool (SWAT) for Indiana, Colorado, and Texas, USA
- Hourly Satellite-Based ET calibration and validation using lysimetric ET measurement for Bushland, Texas, USA

Purdue University Environmental and Water Resources Research Laboratory

2013- 2018

Active research in irrigation water management using Remote sensing (RS), Geographic Information System (GIS) and hydrologic modeling

- Applied remote sensing, GIS and hydrologic modeling for irrigation management, yield estimation and improving water management strategies in an irrigation district
- Used the techniques and application of remote sensing and GIS to advance irrigation water practices in arid and semi-arid districts
- Used remote sensing models to estimate evapotranspiration using different satellites including Land Satellite (Landsat) and Moderate Resolution Imaging Spectroradiometer (MODIS) in different geographic locations
- Applied hydrologic models including the Soil and Water Assessment Tool (SWAT) to estimate evapotranspiration under irrigated and non-irrigated field sites to capture evapotranspiration, Leaf Area Index, yield and soil moisture estimation variability between irrigated and non-irrigated fields
- Employed soil moisture sensor measurements in SWAT to improve the overall hydrologic model's simulation

- Modified the SWAT source code to use remotely sensed evapotranspiration as SWAT input, to improve soil moisture estimation accuracy
- Analyzed remote sensing and SWAT evapotranspiration and soil moisture to improve decision making for irrigation management
- Used various irrigation software including IRRICAD, CROPWAT, CLIMWAT, BEARS, Bushland ET calculator to design, estimate crop water requirement and manage irrigation systems
- Developed a Mathematical Model for Calculating Daily Reference Evapotranspiration
- Calibrated and validated the Reference Evapotranspiration model under different climate conditions, with different ET measurements including Class A Evaporation pan and atmometer

Northwest A & F University (China) and Suez Canal University (Egypt)
 Research project: Development and Demonstration of Water Saving Technology in Agricultural Dry Fields. Role: Research Assistant

2012-2013

- Field operation management including irrigation, fertilization, weed control, transplanting, and harvesting
- Data collection (soil, water, and yield samples), conducted statistical analysis, analyzed, and wrote the executive summary

Suez Canal University, Irrigation, and Hydraulics Laboratory
 Research Projects: Low Head Bubbler Irrigation System design; evaluation of emitter performance; drip and sprinkler irrigation system evaluation

2006-2011

- Designed a low head irrigation system, operating for specific required flow rate and various crop water requirements
- Evaluated different irrigation systems performance under different farm conditions, water resources availability, and power supplies
- Designed and implemented an automatic irrigation system for nursery flower/decoration plant production on the Suez Canal University farm
- Developed a simple design of a sunflower seed sheller

TEACHING EXPERIENCE

Arkansas State University, College of Agriculture
 Modified the entire agricultural systems technology undergraduate program curriculum to be up to date with the existing and cutting-edge technology

2018- present

Role: Instructor for the following courses:

Spring

Modern Irrigation Systems (3 credits)

- Teaching class lecture and lab session for senior and graduate students
- Arranging field trips
- Developing homework's, and exams

Irrigation Technology Tools (2 credits)

- Teaching class lectures and lab session for senior and graduate students
- Developing lab tutorial for irrigation system designs
- Developing homework's, and exams

Unmanned Aircraft Systems (1 credit)

- Teaching class lecture and lab session for senior and graduate students
- Preparing students for the UAS pilot license
- Developing homework's, and exams

Agricultural Decision Analysis (1 credit)

- Teaching class lectures and lab session for senior and graduate students
- Spatial analysis of agricultural data
- UAS image analysis and prescription mapping
- Developing homework's, and exams

Co-Instructor

Advanced GIS For Agriculture and Natural Resources (3 credits)

Computer modeling (teaching one credit of the three credit class)

- Teaching class lecture for senior and graduate students
- Introducing students to a variety of computer models
- Developing homework's, and exams

Agricultural Biosystems II (3 credits- Online)

Digital Devices in Agricultural (teaching one credit of the three credit class)

- Teaching class lecture for junior students
- Developing a framework for instrumentation in agriculture
- Developing homework's, and exams

Fall

Modern Agricultural System (3 credits)

- Taught class lecture for freshman students
- Introduced new technologies in agriculture
- Using UAS's in agriculture
- Prepare students for UAS's pilot license
- Developed homework, exams, and class activities

Introduction to Agricultural System Technology (3 credits)

- Taught class lecture for sophomore students
- Introduced new technology and its role in precision agriculture
- Developed class activities, homework and exams
- Developed the course syllabus and the term project
- Facilitated field trips

Remote Sensing (3 credits)

- Taught class lecture for senior and graduate students
- Prepared and instructed laboratory, prepared tutorials using ArcGIS and Multispec software
- Developed the course syllabus and the term project
- Developed homework's, and exams

Purdue University, Agricultural and Biological Engineering Department

Role: Graduate Teaching Assistant for the following courses:

Irrigation Technology Tools

2015- 2018

- Taught the lab sessions for senior/junior students
- Prepared and instructed laboratory, prepared tutorials
- Manipulated different irrigation software for irrigation design and management
- Developed the course syllabus, term project and graded
- Facilitated field trips

Water technology and society

2015- 2018

- Lectured, moderated in water conflict negotiation role-play in class for graduate/senior students
- Reviewed students' journals, facilitated the lecture
- Prepared class materials (handouts and posters) and wrote the final agreement between conflict countries

Soil and Water Resources Engineering

2014-2015

- Hands-on lab, data collection for sophomore/junior students
- Used AutoCAD & Surfer to create contour maps, cross-sections and surface grid
- Hands-on field survey using Real-Time Kinematic (RTK) and differential leveling

Suez Canal University, Department of Agricultural Engineering.

Role: Graduate Teaching Assistant for the following courses:

Open Channel Hydraulics	2007-2013
<ul style="list-style-type: none">• Lab instructor, conducted hydraulics experiments for sophomore students• Prepared instructed labs, developed exams and graded• Conducted and supervised hydraulics experiments including liquids physical properties, float, pressure, flow in pipes and open channels, flow over weirs, and pumps• Designed and setup hydrostatic, hydrodynamic experiments, open channel, pipe flow network with manometers	
Advanced Irrigation Engineering Systems	2008- 2012
<ul style="list-style-type: none">• Taught advanced irrigation course and irrigation system engineering for junior students• Invited guest speakers, arranged farm visits• Developed exams, graded and term project• Conducted and evaluated field irrigation systems, including emitter calibration, and drip and sprinkler irrigation system performance evaluation	
Water Management Technology	2009-2012
<ul style="list-style-type: none">• Lab instructor, prepared materials for senior students• Developed exams, graded and arranged field trips	
Underground Water Hydrology	2008-2012
<ul style="list-style-type: none">• Taught lab sessions, developed exams and graded for senior students• Lab assistant, conducted hydrology experiments	

RESEARCH COLLABORATION

USDA-ARS, Delta Water Management Research Unit, Arkansas, USA	2018- present
Biological & Agricultural Engineering, University of Arkansas, Fayetteville, Arkansas, USA	2018- present
The University of Arkansas, Division of Agriculture Cooperative Extension Service	2018- present
The Natural Resources Conservation Service (NRCS), Arkansas, USA	2018- present
College of Agriculture, Arkansas State University, Jonesboro, Arkansas, USA	2018- present
USDA-ARS, Grazinglands Research Laboratory, El Reno, Oklahoma, USA	2017- present
College of Engineering, Colorado State University, Fort Collins, Colorado, USA	2016- present
USDA-ARS, Conservation and Production Research Laboratory, Bushland, Texas USA	2014- present
Agricultural & Biological Engineering, Purdue University, West Lafayette, Indiana, USA	2013- present
Suez Canal University, Ismailia, Egypt	2007- present

INDUSTRY COLLABORATION

Trellis, Peachtree Corners, GA, USA	2019- present
Aquarius Farm Controls, MO, USA	2019- present
Connected Energy, PA, USA	2019- present
Smart Farms, AR, USA	2019- present
Delta Plastics, Little Rock, Arkansas, USA	2018- present
Greenway Equipment, Inc., Weiner, Arkansas, USA	2018- present
Digital Globe, Inc., Westminster, Colorado, USA	2016- present
Natural Resources Consulting Engineers, Inc., Fort Collins, Colorado, USA	2015- present
Nelson Irrigation Corporation, Walla Walla, Washington, USA	2014- present

PROFESSIONAL SOCIETY INVOLVEMENT

ASABE Arkansas Section Secretary	2019-2020
Journal reviewer, Vadose Zone Journal	2019, present
Arkansas Section of ASABE, University of Arkansas, Fayetteville, Arkansas	2018-present
Journal reviewer, Irrigation Science	2018-present
Journal reviewer, Arabian Journal of Geosciences	2017-present
Remote Sensing committee in the World Environmental & Water Resources Congress-American Society of Civil Engineers (EWRI-ASCE)	2015-Present
Evapotranspiration in Irrigation and hydrology committee in the World Environmental & Water Resources Congress-American Society of Civil Engineers (EWRI-ASCE)	2015-present
Member of the American Society of Agricultural and Biological Engineers (ASABE)	2013-present
Journal reviewer, College of Agriculture Journal, Suez Canal University	2008-present

AWARDS

Suez Canal University President Certificate of Merit, Ismailia, Egypt.	2013
Suez Canal University President Certificate of Merit, Ismailia, Egypt. (Ranked number 1 of 400 students in the College of Agriculture, Suez Canal University)	2007
Ismailia Governor Certificate of Merit, Ismailia, Egypt	2007
Alumni Association Certificate of Merit, Ismailia, Egypt	2007

OTHER SERVICE ACTIVITIES

Poster session competition judge, Arkansas Biosciences Institute Symposium	September 2019
The Undergraduate Graduation and Academic Credit Appeals committee member, Arkansas State University, Jonesboro, Arkansas	2019-2020
Arkansas Soil and Water Education Conference – chair of the Technology sub-committee, Arkansas State University, Jonesboro, Arkansas	2019

Poster session competition judge, Arkansas Soil and Water Education Conference, Irrigation Expo	February 2019
Arkansas Soil and Water Education Conference committee member, Arkansas State University, Jonesboro, Arkansas	2018-present
Volunteer at the petting zoo, Arkansas State University	2018-present
Pack Preview Day, College recruiting event, Arkansas State University	October 2018
Agricultural and Biological Engineering- Graduate Student Association (ABE-GSA) Senator, Purdue Graduate Student Government	2017-2018
Career team, Purdue Graduate Student Government	2017-2018
Environmental session chair- Agricultural and Biological Engineering Graduate Student Symposium	2017-2018
Agricultural and Biological Engineering graduate committee, Purdue University	2016-2017
Certified Teaching Assistant, Graduate teacher certificate, Center for Instructional Excellence, Purdue University	2016-2018
Senior Design Project Mentor, Agricultural and Biological Engineering Dept., Purdue University in design and management of different irrigation systems. Including: 1) design a low head irrigation system for oranges in India, 2) Irrigation management in Ghana under humid conditions	2015-2017
CROPWAT and CLIMWAT Trainer, Purdue University	2015-2017
Purdue University Spring Fest. Purdue University hosts the annual spring festival with various activities from departments showing simple concepts of higher education. The organizing group shows different demonstration, experiments related to environmental and natural resources. I demonstrated the fluid power demonstration using mini-excavators for more than 200 students from K-12 students.	2016-2018
Poster session chair- Agricultural and Biological Engineering Graduate Student Symposium	2015-2016
Arranged Egyptian community meeting and cultural events, Purdue University	2013-2018
Activity and event planning, Head Start Program Lafayette School Corporation and	2013-2016
Laboratory Director, Suez Canal University Hydraulics and Irrigation Lab	2007-2013
Member of Quality Assurance Unit, Suez Canal University	2008-2012

AWARDED GRANTS

Mapping and predicting spatial variability of evapotranspiration rates at different scales 2019-2021

Source of support: University of Arkansas Division of Agriculture and the Arkansas State University Research Unit

Total Award Amount: \$60,860

Role: PI

Evaluating the benefits of cover crops on the agricultural landscape using UAS

2019-2020

Source of support: Faculty Research Fund, Arkansas State University

Total Amount Requested: \$4,995

Role: PI

Timing cover crop termination to optimize corn yields and water-use efficiency

2019-2020

Source of support: Arkansas Corn and Grain Sorghum Board

Total Amount Requested: \$41,000

Role: Co-PI

Preserving groundwater for agriculture in the lower Mississippi basin

2018-2020

Source of support: USDA-ARS Delta Water Management and Arkansas State University

Total Award Amount: \$30,200

Role: Co-PI

Irrigating Scheduling: development of evapotranspiration models using remote sensing data

2016-2018

Source of support: Purdue Research Foundation

Total Award Amount: \$90,000

Role: Co-PI

GRANTS NOT AWARDED

Water quality indices and evapotranspiration modeling using Unmanned Aircraft Systems (UAS) and multispectral sensing in Furrow Irrigated Rice

2020-2021

Source of support: Arkansas Water Resources Center

Total Amount Requested: \$25,000

Role: PI

Timing cover crop termination to optimize corn yields and water-use efficiency

2019-2020

Source of support: Arkansas Soybean Promotion Board

Total Amount Requested: \$42,000

Role: Co-PI

Integrated Data Enabled Architecture (IDEA): predicting more resilient corn hybrids for Arkansas

2019-2021

Source of support: NSF-EPSCoR

Total Amount Requested: \$100,000

Role: Co-PI

Evaluation of different cover-crop best management practices using unmanned aircraft systems

2019-2021

Source of support: Arkansas Biosciences Institute

Total Amount Requested: \$100,000

Role: PI

Decision support system for irrigation water management using remote sensing, GIS and modeling

2015-2016

Source of support: Michigan State University

Total Amount Requested: \$100,000

Role: PI

PENDING GRANTS

Integrating Digital Ag Platforms and Field Trials to Determine the Economics of Cover Crops and Irrigation Conservation Practices at the Whole-Farm Scale

2019-2024

Source of support: U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS), Commodity Credit Corporation (CCC)

Total Amount Requested: \$1,385,981

Role: PI

Breaking Barriers in Agriculture Technology Improving usefulness of Agriculture Technologies to Today's Producers

2019-2022

Source of support: U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS), Commodity Credit Corporation (CCC)

Total Amount Requested: \$2,415,911

Role: Co-PI

AWARDED SCHOLARSHIPS

The College of Engineering and the Graduate School scholarship, <i>Purdue University, Indiana, United States of America</i>	2017-2018
Graduate Assistantship, <i>Purdue University, Indiana, United States of America</i>	2015-2018
The Egyptian Governmental scholarship (Joint-supervision), <i>Purdue University, Indiana, United States of America</i>	2013-2015
Partner and Ownership scholarship (PAROWN), <i>Purdue University, Indiana, United States of America</i>	2013
China Scholarship Council (CSC), <i>Northwest A & F University, XianYang, China</i>	2012

PROFESSIONAL TRAINING

Advanced Qualtrics workshop, Arkansas State University, Jonesboro, AR	July 2019
Progeny software training, Laboratory for Applications of Remote Sensing, Purdue University, West Lafayette, Indiana	April 2019
Big Data in Agriculture, Global Agricultural Research Data Innovation and Acceleration Network (GARDIAN), Crop Modeling Community of practice	April 2019
Arkansas Soil Health Alliance Annual Meeting, Brinkley, AR.	March 2019
University of Arkansas 3 rd Drone Summit, Little Rock, AR.	March 2019
Row Rice Round Table, sponsored by the University of Arkansas Division of Agriculture, and Rice Tec. Jonesboro, AR.	February 2019
USDA-ARS Conservation and Production Research Laboratory, Amarillo, Texas UAS research planning and equipment integration, UAS's image analysis, lysimeter design and management, soil moisture sensors experiment result report, and SWAT soil moisture comparison in Indiana, Colorado, and Texas.	December 2018
Purdue University, Laboratory for Applications of Remote Sensing	December 2018
ASCE-EWRI, METRIC-EEFLUX training session	June 2018
NASA technical session, ASCE-EWRI, Sacramento, California	May 2017
GIS day, Purdue University, West Lafayette, Indiana	November 2016
Advanced SWAT Model workshop, Purdue University	April 2015, October 2015
The Esri Virtual Campus Training modules 1) Learning ArcGIS Desktop (for ArcGIS 10.0) 8) Basics of Python (for ArcGIS 10) 2) Surface Modeling Introduction Using ArcGIS 9) Basics of Raster Data 3) Basics of Geographic Coordinate Systems 10) Learning ArcGIS Spatial Analyst 4) Deriving Raster for Terrain Analysis Using ArcGIS 11) Distance Analysis Using ArcGIS 5) Python Scripting for Geoprocessing Workflows 12) Using Raster Data for Site Selection 6) Analyzing Violent Crime 13) Explore Future Climate Projections 7) Classify Land Cover to Measure Shrinking Lakes	August - December 2015
NRCS Engineering Boot Camp training, Purdue University	July 2015
Beginners SWAT Model Workshop, Purdue University	April 2015
GIS day, Purdue University	November 2014
Real-Time Kinematic (RTK) Topcon Hiper lite ground survey, Purdue University	July 2014
Water Erosion Prediction Project (WEPP) model for soil erosion control. Purdue University	July 2014
Bushland Evaporation and Agricultural Remote Sensing (BEARS), USDA-ARS Conservation and Production Research Laboratory, Amarillo, Texas	May 2014
IRRICAD software Training, Walla Walla Community College, Walla Walla, Washington	December 2013
Monitoring Total Station brand Nikon Model NPR- 332 in and survey programs, Suez Canal University	October 2010

PROFESSIONAL LICENSURES

Remote Pilot Licensure for Small Unmanned Aircraft Systems, Federal Aviation Administration 2018- present

PROFESSIONAL DEVELOPMENT WORKSHOPS

Professional Communication Etiquette

March 2018

Grant & Proposal Writing Workshop

February
2018

COMPUTER SKILLS

Engineering software:

- AutoCAD, MATLAB

Statistical Analysis software:

- SAS and SPSS

Irrigation software:

- Pipe Planner, Multiple Inlet Rice Irrigation (MIRI), FAO Programs (CROPWATER-CLIMWATER-ETO CALCULATOR), IRRICAD, Pivot Mapper, Irrigation Mapper, Bushland ET calculator, Surfer, and SURFACE

Remote Sensing software:

- The Bushland Evaporation and Agricultural Remote Sensing (BEARS), Progeny, ENVI, ERDAS, Pix4DMapper, Agisoft PhotoScan, Precision Mapper, Esa- Beam, and MultiSpec

Unmanned Aircraft Systems Mission Planning and Design:

- Drone Deploy, DJIGo, Pix4D Capture, Atlas, and Mission Planner

Precision Agriculture Software:

- AgStudio, EFC, AgSense, Yield Editor, TerraCutta

Geographic information:

- Geographic Information System (ArcGIS), ArcGIS Pro

Programming languages:

- Python, JAVA and Visual Basic

Hydrologic modeling:

- Water Erosion Prediction Project (WEPP), Low Impact Development Spreadsheet (L-THIA), The Soil and Water Assessment Tool (SWAT), The Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS) and River Analysis System (HEC-RAS)

DOCTORAL DISSERTATION COMMITTEE MEMBER

Student name	Project Title	Period
Cherryl, Quinones	Wheat and Rice Heat Resilience	2019-2024

MASTER THESIS COMMITTEE MEMBER

Student name	Project Title	Period
Hamblin, Sheldon-Shane	Irrigation Water Use Efficiency Using Remote Sensing	2018-2020
Burns, Brayden	Nitrogen Use Efficiency with Cover Crops	2018-2020
Dittlinger, Derek	Cover Crop Termination Timing	2018-2020
Shults, Daniel	Micro topography Analysis of Surface Reservoir Detection	2019-2021

MASTER NON-THESIS EXAMINATION COMMITTEE

Student name	Project Title	Period
Watlington, Damon	Symptomology of Salt Tolerance in Wheat	2019

JOURNAL PUBLICATIONS

1. **Hashem, A.**, Engel, B., Bralts, V., Radwan, S., & Rashad, M. (2016). Performance evaluation and development of daily reference evapotranspiration model. *Irrigation and Drainage System Engineering*, 5(1) 157-163.
2. **Hashem, A. A.**, Rashad, M. A., Ramadan, M. H. & Abd El-Hak, S. M. (2011). Performance evaluation of low-head bubbler irrigation system. *Journal of Soil Sciences and Agriculture Engineering*, 9(2), 925-938.

JOURNAL PUBLICATIONS IN PREPARATION

3. **Hashem, A.**, Engel, B., Bralts, V., Gowda, P., Merwade, & Radwan, S. (2019) Implications of using FAO method to calibrate and validate SWAT for estimating daily ET fluxes.
4. **Hashem, A.**, Engel, B., Bralts, V., Gowda, P., Moorhead, J., Merwade, & Radwan, S. (2019). Use of remote sensing ET for calibration and validation of the SWAT model
5. **Hashem, A.**, Engel, B., Bralts, V., Gowda, P., Merwade, Marek, G., Chen, Y., Moorhead, J., Radwan, S., & Flanagan, D. (2019) Estimating soil moisture under both irrigated and dryland conditions using SWAT model.

6. **Hashem, A.**, Marek, G., Chen, Y., Moorhead, J. Gowda, P., Engel, &B., Bralts, V. (2019). SWAT soil moisture comparison at three different geographic locations at Indiana, Colorado, and Texas.
7. **Hashem, A. A.**, Engel, B., Bralts, V., Gowda, P., Marek, G., Moorhead, J. &Radwan, S. (2019). Lysimetric assessment of hourly evapotranspiration fluxes for the Texas high plains derived from landsat data using METRIC algorithm.
8. Aboelsoud, H., Engel, B., **Hashem, A.**, Habib, A., & Abou El-Hassan, W. (2019). Evaluation of the impact of shallow groundwater and soil salinity on evapotranspiration in North Nile Delta using remote sensing.

BOOK CHAPTER PUBLICATIONS

1. **Hashem, A. (2016)**. Design of Low Head Bubbler Irrigation System. In Goyal, M. R., Chavan, V. K., & Tripathi, V. K. (2016). *Innovations in micro-irrigation technology* (Vol. 10). (PP 101-172). Waretown, NJ: USA. Apple Academic Press.

CONFERENCE PROCEEDINGS PUBLICATIONS

1. **Hashem, A.**, Engel, Rashad, M. Ramadan, M., & Radwan, S. (2014, April). *Development and validation of mathematical model for calculating daily reference evapotranspiration*. Paper presented at Proceeding of the ASABE Annual Meeting and International Symposium “*Evapotranspiration: Challenges in Measurement and Modeling from Leaf to the Landscape Scale and Beyond*”, Raleigh, North Carolina

OTHER PUBLICATIONS

1. **Hashem, A. A., (2018)**. Irrigation water management using remote sensing and hydrologic modeling, (Doctoral Dissertation, Purdue University).
2. **Hashem, A. A., (2011)**. Studies on low-head bubbler irrigation system design. (M.Sc. Thesis, Suez Canal University).

CONFERENCE /SYMPOSIUM PRESENTATIONS

1. Nowlin, J., **Hashem, A.**, Green, S., & Massy, J. (2019). *Integrating multi-sensor UAS into irrigation research in Eastern Arkansas*. Presentation presented at American Association of Geographers Annual meeting 2019, Washington, D.C
2. **Hashem, A.**, Engel B., Bralts, V., Gowda, P., Merwade, V., Flanagan, D., & Radwan, S., (2018). *LANDSAT and SWAT evapotranspiration inter-comparison between dry fields and irrigated fields*. Presentation presented at World Environmental & Water Resources Congress-American Society of Civil Engineers Annual meeting (EWRI-ASCE) 2018, Minneapolis, Minnesota
3. **Hashem, A.**, Bralts, V., Engel B., Merwade V., Gowda P & Rashad M. (2017). *Field-scale evapotranspiration variability using remote sensing and SWAT*. Presentation presented at

World Environmental & Water Resources Congress-American Society of Civil Engineers
Annual meeting (EWRI-ASCE) 2017, Sacramento, California

4. **Hashem, A.**, Bralts, V., Engel B., Merwade V., & Gowda P. (2016). *Comparison of field scale remotely sensed ET with SWAT and FAO based ET*. Poster presented at The Michiana Irrigation Association (MIA) annual meeting, Shipshewana, Indiana.
5. **Hashem, A.**, Bralts, V., Engel B., Merwade V., & Gowda P. (2016). *Comparison of SWAT-estimated ET with remotely sensed ET*. Presentation Presented at Ecological Sciences and Engineering (ESE), Purdue University, West Lafayette, Indiana
6. **Hashem, A.**, Rajib A., Bralts, V., Engel B., Merwade V., Gowda P., Flanagan D., & Rashad M. (2016). *Comparison of SWAT-estimated ET with remotely sensed ET*. Presentation presented at American Society of Agricultural and Biological Engineers (ASABE) annual international meeting, Orlando, Florida
7. **Hashem, A.**, Bralts, V., Engel, B., Flanagan D., Gowda P., Wallace C., Radwan, S. & Rashad, M. (2016). SWAT actual evapotranspiration calibration For dryland based on remotely sensed evapotranspiration. Presentation presented at World Environmental & Water Resources Congress-American Society of Civil Engineers Annual meeting (EWRI-ASCE) West Palm Beach, Florida
8. **Hashem, A.**, Bralts, V., Engel, B., Gowda P., Flanagan D., & Rashad, M. (2016). *Comparison of field-scale remotely sensed evapotranspiration with FAO crop coefficient based ET*. Poster presented at Agricultural and Biological Engineering Graduate Student Symposium, Purdue University, West Lafayette, Indiana
9. **Hashem, A. A.**, Bralts, V., Engel, B. A., Gowda, P., Rashad, M. A., Ramadan, M. H. & Radwan, S. M. (2015). Soil moisture mapping using SWAT model and remotely sensed evapotranspiration. Presentation presented at World Environmental & Water Resources Congress-American Society of Civil Engineers Annual meeting (EWRI-ASCE), Austin, Texas
10. **Hashem, A. A.**, Engel, B. A., Rashad, M. A.; Ramadan, M. H., & Radwan, S. M. (2014). *Development and validation of mathematical model for calculating daily reference evapotranspiration*. Presentation presented at ASABE International Symposium “Evapotranspiration: Challenges in measurement and modeling from leaf to the landscape scale and beyond”, Raleigh, North Carolina
11. **Hashem, A. A.**, Engel, B. A., Rashad, M. A.; Ramadan, M. H., & Radwan, S. M. (2014). *Calibration and validation of mathematical model for calculating daily reference evapotranspiration*. Poster presented at Agricultural and Biological Engineering Graduate Student Symposium, Purdue University, West Lafayette, Indiana

PUBLIC OUTREACH

1. **Hashem, A.**, and J. Massy, “Mississippi County Rice Irrigation Field Day”. Featuring row rice & cover crops, Burdett, AR, August 5th, 2019.
2. **Hashem, A.**, “Water Resources A Global Grand Challenges” Guest lecture- Agroecosystems analysis field course, Southeast Missouri State University, Cape Girardeau, MO, July 15th, 2019.

3. **Hashem, A.**, and J. Nowlin, “Agricultural Applications Using Unmanned Aircraft Vehicles”, High School Teachers Professional Development, University of Arkansas Community College Batesville (UACCB), Batesville, AR, June 27th, 2019.
4. Nowlin, J., A. Shew, and **A. Hashem**. “Agricultural Systems Technology – New Curriculum, Research Program, and Center for Agricultural Data Informatics”, Arkansas GIS Users Forum, Little Rock, AR. March 20th, 2019.
5. **Hashem, A.**, “Introduction to Unmanned Aircraft Systems”, Black River Technical College, Arkansas State University, Jonesboro, AR, April 25th, 2019.
6. **Hashem, A.**, “Unmanned Aircraft Systems- Introduction and Showcase”, Ozarka College visitor students, Arkansas State University, Jonesboro, AR, March 14th, 2019.
7. Nowlin, J., and **A. Hashem**. “Agricultural Systems Technology – New Curriculum, Unmanned Aircraft Systems in Agriculture” High School Teachers, Career and Leadership Development, Future Farmers of America, Arkansas State University, Jonesboro, AR, March 6th, 2019.
8. **Hashem, A.**, and S. Green. “Unmanned Aircraft Systems Applications in the Mississippi River Delta” Agriculture Advisory Board Council, Jonesboro, AR, February 12th, 2019.
9. **Hashem, A.**, and J. Nowlin, “GIS and Unmanned Aircraft Systems- Applications in Agriculture”, prospective students, Arkansas State University, Jonesboro, AR, January 24th, 2019.