

MEGHNA BABBAR-SEBENS, Ph.D.

Associate Professor

Co-Director, OSU-Benton County Green Stormwater Infrastructure Research (OGSIR) Facility
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A. Education and Employment Information

A1. Education

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|------|---|
| 2006 | Ph.D., Civil and Environmental Engineering,
Advisor: Dr. Barbara S. Minsker
University of Illinois at Urbana-Champaign, USA |
| 2006 | Certificate, Computational Science and Engineering
University of Illinois at Urbana-Champaign, USA |
| 2002 | M.S., Civil and Environmental Engineering,
Advisor: Dr. Barbara S. Minsker
University of Illinois at Urbana-Champaign, USA |
| 2000 | B. Engineering (with Honors), Pulp and Paper Engineering
Indian Institute of Technology, Roorkee, India |

A2. Professional Experience

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| 2017–present | Associate Professor
School of Civil and Construction Engineering
Oregon State University |
| 2019-2020 | On Sabbatical
School of Civil and Construction Engineering
Oregon State University |
| 2020 | Visiting SPARC Faculty
School of Infrastructure
Indian Institute of Technology, Bhubaneswar, India |
| 2012–2017 | Assistant Professor
School of Civil and Construction Engineering
Oregon State University |

2008– 2012 Assistant Professor
 Department of Earth Sciences
 Indiana University-Purdue University Indianapolis

2006-2008 Postdoctoral Research Associate
 Department of Biological and Agricultural Engineering
 Texas A&M University

2000–2006 Graduate Research Assistant
 Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, USA

B. Teaching, Advising, and Other Assignments

B1. Instructional Summary

B1.1. Credit Courses

Oregon State University (2012-present) Courses:

Number	Course Title	Term/Year	Credits
CE 311	Fluid Mechanics	Winter 2013	4
CE 544	Open Channel Hydraulics	Winter 2013	3
CE 311	Fluid Mechanics	Fall 2013	4
CE 540/ BEE 525	Stochastic Hydrology	Winter 2014	3
CE 507	CE Graduate Seminar	Spring 2014	1
CE 311	Fluid Mechanics	Fall 2014	4
CE 540/ BEE 525	Stochastic Hydrology	Winter 2015	3
CE 540	Optimization in Water Resources Engineering	Spring 2015	3
CE 311	Fluid Mechanics	Winter 2016	4
CE 540/ BEE 525	Stochastic Hydrology	Spring 2016	3
CE 540	Optimization in Water Resources Engineering	Spring 2016	3
CE 311	Fluid Mechanics	Winter 2017	4
CE 540/ BEE 525	Stochastic Hydrology	Spring 2017	3
CE 540	Optimization in Water Resources Engineering	Spring 2017	3
CE 540	Stormwater Design and Management	Fall 2017	3
CE 540	Optimization in Water Resources Engineering	Fall 2017	3
CE 311	Fluid Mechanics	Winter 2018	4

CE 412/512	Hydrology	Spring 2018	4
CE 412/512	Hydrology	Fall 2018	4
CE 540/BEE 525	Stochastic Hydrology	Fall 2018	3
CE 311	Fluid Mechanics	Winter 2019	4
CE 540	Stormwater Design and Management	Winter 2019	3
CE 412/512	Hydrology	Fall 2020	4
CE 429/529	Optimization in Water Resources Engineering	Spring 2021	3
CE 516	Stormwater Design and Management	Spring 2021	4
CE 412/512	Hydrology	Fall 2021	4
ENGR 100	The Oregon State Engineering Student	Fall 2021	3
CE 311	Fluid Mechanics	Winter 2022	4
CE 313	Hydraulic Engineering	Spring 2022	4

Indiana University – Purdue University Indianapolis (2008-2012) Courses:

Number	Course Title	Term/Year	Credits
G451	Principles of Hydrogeology	Spring 2009	3
G490/G690	Applied Hydrology	Fall 2009	3
G107	Environmental Geology	Spring 2010	3
G700	Independent Study – Reservoir Modeling	Spring 2010	3
G451	Principles of Hydrogeology	Fall 2010	3
G107	Environmental Geology	Fall 2011	3
G690	Water Resources Systems Analysis	Fall 2011	3
G451	Principles of Hydrogeology	Spring 2012	3

B1.2. Non-Credit Courses and Workshops

- Training workshop on “Data-driven and stakeholder-centered adaptive management of food, energy, and water nexus” on February 28 - March 04, 2022, virtually via Teams Meeting.
 - Funded by SPARC, Ministry of Human Resource Development, India.
 - In partnership with Dr. Meenu Ramadas (IIT, Bhubaneswar), Dr. Jenna Tilt (Oregon State University), Suresh Marru (Indiana University), and Dr. Nagesh Kolagani (Centurion University, India).
- Training workshop on “From Knowledge to Action: A Vision for Resilient Rural India” on January 7-9, 2020 at School of Infrastructure, IIT Bhubaneswar, India.
 - Funded by SPARC, Ministry of Human Resource Development, India.
 - In partnership with Dr. Meenu Ramadas (IIT, Bhubaneswar), Dr. Jenna Tilt (Oregon State University), Dr. R. Srinivasan (Texas A&M University), Dr. Venkat

Sridhar (Virginia Tech), Dr. Venkata Reddy (NIT, Warangal, India), Dr. Nagesh Kolagani (Centurion University, India).

- Partner with CBEE in organization of 2018 Clean Water Workshop on Aug 6-7, 2018 at Oregon State University.
- Training workshop on Soil and Water Assessment Tool in collaboration with colleague Dr. R. Srinivasan, Aug 14-18, 2017, Corvallis, OR at Oregon State University.
- Training workshop on Soil and Water Assessment Tool in collaboration with colleague Dr. R. Srinivasan, Sep 21-25, 2015, Corvallis, OR at Oregon State University.
- Workshop on WRESTORE for practitioners: May 14th 2013, Sep 13th 2013, and Aug 29th 2014; Indianapolis, IN
 - Multiple participants from agencies, including United States Department of Agriculture – Natural Resources Conservation Service, Indiana Department of Environmental Management, and U.S. Fish and Wildlife Service, etc., multiple consulting companies, non-governmental organizations, watershed alliance members have attended the workshops.

B1.3. Curriculum Development

- Developed a new Engineering Plus (ENGR 100) course for first year students in Fall 2021. This involved planning the course in collaboration with other ENGR+ instructors, developing materials for lectures and recitations, and delivering the modules. The course focused on Engineering for a Resilient World, with the aim to introduce first year students to explore Engineering disciplines from the perspective of resilience and community hazards.
- Prepared and completed Category-II proposal process for converting special topics courses into permanent courses in 2020. These include:
 - CE 516: STORM WATER DESIGN AND MANAGEMENT (Was ST CE 540)
 - CE 525/BEE 525: STOCHASTIC HYDROLOGY (was ST CE 540)
 - CE 429/529: OPTIMIZATION IN WATER RESOURCES ENGINEERING (Was ST CE 540)
- CE 540, Stormwater Design and Management: Newly developed graduate course on stormwater infrastructure, systems, processes, design, and management in urban environments.
- CE 540/BEE 525, Stochastic Hydrology: Newly developed graduate course on Stochastic Hydrology that relates to stochastic approaches to hydrologic data analyses and modeling. This course was historically taught at OSU, but had not been offered for many years when I arrived at OSU. I had to develop the entire curriculum from the beginning.
- CE 540, Optimization in Water Resources Engineering: Newly developed special topics graduate course scheduled to be taught in Spring 2015 and covers principles, methods, and applications of optimization techniques in water resources engineering problems.
- CE 311. Fluid Mechanics: Developed a Matlab component to the course, which trains the undergraduate students in using computer programs for solving complex applied problems.
- Development of video-based instructional materials for CE 311 (Fluid Mechanics) and CE 540/BEE 525 (Stochastic Hydrology) that focused on additional problems and applications on multiple syllabus topics. E-Learning technologies such as drawing tablets and Adobe Captivate were used to create these materials. Some of these videos have been viewed up to 225 times.
- Development of field laboratory activity at the OSU-Benton County Green Stormwater Infrastructure Research (OGSIR) Facility for CE 311 (Fluid Mechanics) students. This activity engages students to learn about green stormwater technologies, hydraulic sensors at the field research facility, and conduct data collection activity. More than 100 CCE (in CE 311) and CBEE (in ENVE 199) students used this facility for education activities in Fall 2014.

B1.4. Team or Collaborative Efforts

- Mentored a team of undergraduate students across campus for the national USEPA Rainworks Challenge in Fall 2018
- Led organization and delivery of CCE seminar series on topic of Resilience, including inviting speakers and students
- Mentor team of three EECS undergraduate students on capstone project related to Internet of Things in Stormwater Infrastructure, 2018-2019
- Mentored a team of undergraduate students across campus for the national USEPA Rainworks Challenge in Fall 2017
- Collaborated with CCE faculty to develop a REU Site proposal on Engineering Resilient Communities for submission to National Science Foundation in 2017. The proposal will support an undergraduate research program to mentor students from under-represented groups and minorities in ongoing research at School of Civil and Construction Engineering.
- Collaborated with faculty members at Oregon State University, Washington State University, and University of Idaho to support a workshop on advancing inter-university and inter-disciplinary research in the area of food-energy-water nexus in the Pacific Northwest.
- Collaborated with Dr. John Lambrinos (Urban Horticulture at OSU) to mentor a team of undergraduate students across campus for the national USEPA Rainworks Challenge in Fall 2016.
- Collaborated with Dr. Dan Cox (instructor of CE 311) and Dr. Tyler Radniecki (instructor of ENVE 199) in 2014-2016 to offer field research experience to undergraduates at OGSIR facility. In this activity, undergraduate students collected field data at the new OGSIR facility, gained valuable field experience on the concepts they were learning about in their Fluid Mechanics class, and contributed towards ongoing research at the facility.
- Collaborated with Dr. Jack Istok, instructor of CE 412 in Fall 2015, to offer an extra credit opportunity to two undergraduate CCE students Ms. Miller and Ms. Stocks. The activity involved hydrologic assessment of a bioswale in Stoneybrook Lodge, Corvallis, OR. The students also prepared a final report and delivered a presentation to the community.
- Guest lecture in CE 553, Railroad Engineering, Spring 2013, Dr. Katharine Hunter-Zaworski Instructor of Record

B1.5. International Teaching

- Delivered lectures and labs for graduate course on “Water Resources Engineering”, at School of Infrastructure, Indian Institute of Technology Bhubaneshwar, India, Jan-Feb 2020.
- Advised Masters and PhD students at School of Infrastructure, Indian Institute of Technology Bhubaneshwar, India, Jan-Feb 2020.

B2. Advising

B2.1. Graduate Advisees – Completed

Oregon State University (2012-present)

Student	Degree	Thesis	Graduated
1. Alisha Saduova	M.S.	<i>Evaluation of Low-Impact Development (LID) Treatment Train at OSU-Benton County Green Infrastructure Facility</i>	Spring 2022
2. Efrain Noa	Ph.D.	<i>A socio-technical study on the improved characterization of stakeholder behaviors and stream temperature in design of watershed conservation practices for climate change adaptation</i>	Fall 2021
3. Kery Prettyman	M.S.	<i>Remote and Ground-based Methods for Monitoring Vegetation Health Parameters in a Bioretention Facility</i>	Fall 2019
4. Majid Farahani	M.S.	<i>Usability Evaluation for InterACTWEL Graphical User Interface</i>	Fall 2019
5. Hashim Alyousef	M.S.	<i>Assessment of Multi-year Hydrologic Performance of Bioretention Facility using Real-Time Sensors</i>	Winter 2019
6. Luis Gomez (co-advised by D. Tullos, BEE)	Ph.D.	<i>From Perception to Planning: Adaptation in Flood-risk Communities</i>	Winter 2018
7. Kshitiz Gyawali	M.S.	<i>Characterization of Stormwater Runoff from a County Maintenance Facility and Evaluation of Temporal Performance of Bioswale in Its Treatment</i>	Fall 2018
8. Kenneth R. Canady-Shultz	M.S.	<i>Are Watershed Management Plans Selected and Preferred by Stakeholders Considering Current Climate Conditions Robust against Climate Change Scenarios? A Sensitivity Study of Stakeholders Spatially-Explicit Preferences</i>	Summer 2017
9. Amir Javaheri	Ph.D.	<i>Assimilation of Multi-Sensor Data into Numerical Hydrodynamic Models of Inland Water Bodies</i>	Fall 2016
10. Efrain Noa	M.S.	<i>Multiobjective Optimization of Wetlands for Attaining Flood, Water Quality and Bird Habitat Benefits</i>	Fall 2016
11. Mamoon Aababaker Mustafa	M.S.	<i>Stream Temperature Modeling for Marys River Watershed</i>	Summer 2016
12. Adriana Debora Piemonti	Ph.D.	<i>Interactive Genetic Algorithms for Watershed Planning: An Investigation of Usability and Human-centered Design</i>	Fall 2015
13. Grant Livingston	MS	<i>Bioretention Establishment Hydrologic Characterization with Drift Correction and</i>	Spring 2015

		<i>Calibration of Fine Water Level Measurements</i>	
14. Stacey Garrison	MS	<i>Determination of trade-offs among wetland ecosystem services in an agricultural landscape</i>	Spring 2015
15. Kelli Walters	MS	<i>Will Wetlands Restoration Plans Today Still Be Effective Tomorrow? Evaluation of Performance of Potential Wetlands for Peak Flow Reduction in Future Climate Scenarios in the Eagle Creek Watershed, IN</i>	Summer 2014

Indiana University Purdue University (2008-2012)

Student	Degree	Thesis	Graduated
1. Adriana Debora Piemonti	MS	<i>Effect of Stakeholder Attitudes on the Optimization of Watershed Conservation Practices</i>	Summer 2012
2. Slawamira Bruder	MS	<i>Prediction of Spatial-Temporal Distribution of Algal Metabolites in Eagle Creek Reservoir, Indianapolis, IN</i>	Summer 2011
3. Shuangshuang Xie	MS	<i>Remote Sensing Data Assimilation in Water Quality Numerical Models for Simulation of Water Column Temperature</i>	Summer 2011
4. Andrew Gamble	MS	<i>Combining Multivariate Statistical Methods and Spatial Analysis to Characterize Water Quality Conditions in the White River Basin, USA</i>	Summer 2010

B2.2. Graduate Advisees – Current

Oregon State University

Student	Degree	Expected Graduation	Advanced to Candidacy (Y/N)
1. Sudip Gautam	PhD	2023	Y
2. Justine Obiazi (<i>starts Fall 2022</i>)	PhD	2027	N
3. Mohammed Saeed S S Al-Meraikhi (<i>starts Winter 2023</i>)	MS	2025	N
4. Nicholas Giles	MS	(student on leave)	N

B2.3. Graduate Thesis or Project Committees

MEng Advisor:

Graduated

1. Emily Bailey, MEng, Civil Engineering, 2019
2. Zixuan Ma, MEng, Civil Engineering, 2018
3. Mary Ann Nicholson, MEng, Civil Engineering, 2017
4. Kaleb Johnson, MEng, Civil Engineering, 2016
5. Eben Miller Babb, MEng, Civil Engineering, 2016
6. Lauren Dove, MEng, Civil Engineering, 2015

7. Christopher Hockert, Civil Engineering, 2015
8. Chang Cao, MEng, Civil Engineering, 2014
9. Mike Augustyn, MEng, Civil Engineering, 2014

Current

None

Minor Professor or Committee Member:

Graduated

Oregon State University

1. Jacqueline Rachel Wells, MS, CBEE, 2021.
2. Casey Kanalos, MS, CBEE, 2020
3. Hoda Tahami, PhD, Civil & Construction Engineering, 2019
4. Eric Neill, MS, Civil Engineering, 2019
5. Mariam Guizani, MS, Computer Science, 2018
6. Lauren Bomiesel, MS, Water Resources Engineering, 2017
7. Conner Olsen, MS, Horticulture, 2017
8. Parnian Hosseini, PhD, Civil & Construction Engineering, 2016
9. Alexandra Savotkina, PhD, Geography, 2016
10. Ali Omar Alnahit, MS, Civil & Construction Engineering, 2016
11. Amy Saberiyan, PhD, Civil & Construction Engineering, 2015
12. Leah Chung-Mei Tai, MS, Water Resources Engineering, 2015
13. Alan Stanton, MS, Water Resources Engineering, 2015
14. Noa Bruhis, MS, Water Resources Engineering, 2013

Indiana University Purdue University Indianapolis

1. Deborah Morrison-Ibrahim (M.S., 2012)
2. Julie Crewe (M.S., 2012)
3. Xiaoqiang Liu (M.S., 2012)
4. Katelin Fisher (M.S., 2013)
5. Zuchuan Li (M.S., 2012)

Current

1. Weston Hustace, M.S., Civil Engineering

Graduate Council Representative:

1. Laurinda Korang Nyarko, PhD, Environmental Engineering, expected 2023
2. Danielle Blackfield, MS, College of Veterinary Medicine, 2022
3. Daniel Watkins, PhD, COEAS, 2021.
4. Najibullah Loodin, MS, Water Cooperation and Diplomacy Program, 2021
5. Laura Whitney Marshall, MS Water Resources Policy and Management, 2019
6. Padmaja Ramesh Chavan, MS, Chemical Engineering, 2018
7. Rana Almurshed, PhD, Computer Science, 2018
8. Katherine Serafin, PhD, Geology & Geophysics, 2017
9. Hannah Satein, MS, Water Resources Policy and Management, 2017
10. Tsion Mesfin Woge, MS, Water Resources Policy and Management, 2017
11. Christine Johnson, MS, Forest Ecosystems and Society, 2016

B2.4. Undergraduate Research Assistants

Oregon State University

1. Kelly Couvrette (REU Fellow for NSF-funded REU Site “Engineering for Bouncing Back”), 2022
2. Enya Cochran (REU Fellow for REU program on Clean Water), 2022
3. Macy Vincent (URSA ENGAGE Fellow, 2022)
4. Jasmine Cleveland (URSA ENGAGE Fellow, 2022)
5. Anika Foy (URSA ENGAGE Fellow, 2022)
6. Maria Silva Gallardo (STEM Leaders Program, 2022)
7. Demitrah Mauga (REU Fellow for NSF-funded REU Site “Engineering for Bouncing Back”), 2019
8. Joel Hudson (B.S., Civil Engineering), 2019
9. Andrew Wilkinson (B.S., Civil Engineering), 2019
10. Nora Honeycutt (Summer Undergraduate Research Fellowship student), 2018
11. Elmira Azam (Summer Undergraduate Research Fellowship student), 2018
12. Nicholas Giles (Civil Engineering Summer Undergraduate Research Fellowship student), 2017
13. Camille Semons (Civil Engineering Summer Undergraduate Research Fellowship student), 2016
14. Elizabeth Iosua (B.S., Psychology), 2016
15. Musse (B.S., Psychology), 2016
16. Dawson Scott Mortenson (B.S., Computer Science), 2016
17. Micco Avery Emerson (B.S., Biological and Ecological Engineering), 2015
18. Austin Kleinberg (B.S., Civil Engineering, URSA ENGAGE Fellow, 2013)
19. Kyeungbum (Henry) Kim (B.A., Digital Communication Arts), 2014
20. Audrey Louise Sullivan (B.S., Computer Science, Honors Student), 2013

Indiana University Purdue University Indianapolis

1. Elizabeth Moffitt (Physics department, Undergraduate Research Opportunity Program, UROP scholar), 2010-2012
2. Anna Samuels (Earth Sciences department), 2010-2011
3. Silja Worreschk (Visiting intern student from University of Kaiserslautern, Germany), 2009

B2.5. Postdoctoral Trainees

1. Dr. Sammy Rivera, 2018-2020.
2. Dr. Adriana Debora Piemonti, 2020.

B2.6. Other Advising

Students on collaborative research projects who have been closely supervised by me

1. Suleyman Uslu (Ph.D., IUPUI, in-progress)
2. Davinder Kaur (Ph.D., IUPUI, in-progress)
3. Holly Mondo (M.S., Oregon State University, 2018)
4. Thanh Nguyen (Ph.D., IUPUI, 2018)
5. Akshay Virkud (MS, IUPUI, 2016)
6. Mahesh Yerram (MS, IUPUI, 2015)
7. Siva S.S. Kamadana (MS, IUPUI, 2015)
8. Gaurav Patil (MS, IUPUI, 2014)
9. Vidya B. Singh (MS, IUPUI, 2014)

10. Lahiru S. Gallege (MS, IUPUI, 2013)
11. Deepti C. Matangi (MS, IUPUI, 2012)
12. Omkar Tilak (PhD, IUPUI, 2011)

Capstone Advising

1. Advised CCE students in capstone projects during Water Resources Engineering help sessions, 2022
2. Advised CCE students in capstone projects during Water Resources Engineering help sessions, 2021

Summer Interns and STEM Camps

1. Vice chair of REU Program “Engineering for Bouncing Back”, at Oregon State University, Corvallis, OR, 2022. This involved recruitment and mentoring of 21 REU students for ten weeks in June-Aug, 2022.
2. Led planning, organization, and implementation of Summer Research Experience for Undergraduates Program “Engineering for Bouncing Back”, at Oregon State University, Corvallis, OR, 2019. This involved recruitment and mentoring of 25 REU students for ten weeks in June-Aug, 2019.
3. Summer Undergraduate Research Fellowship (SURF) in 2018 for two undergraduate students (Ms. Elmira Azam and Ms. Nora Honeycutt) to work on project related to storm-water processes in green infrastructure.
4. Saturday Academy’s Apprenticeships in Science and Engineering (ASE) program for two high school students to work on USDA funded research project related to development of board-game that simulates food-energy-water nexus, 2018
5. Summer Undergraduate Research Fellowship (SURF) in 2017 for one CCE undergraduate student (Mr. Nicholas Giles) to work on project that investigated development of an integrated design approach for adaptation planning and resiliency in food, energy, and water sectors.
6. Summer Undergraduate Research Fellowship (SURF) in 2016 for one CCE undergraduate student (Ms. Camille Semons) to work on a water safety planning project. The SURF focused on Engineering Solutions for Cascadia Subduction Zone Resilience.
7. Saturday Academy’s Apprenticeships in Science and Engineering (ASE) program for one high school student to work on research project related to WRESTORE decision support system at Oregon State University, 2016
8. Project for SESEY summer camp at OSU-Benton County Green Stormwater Infrastructure Research (OGSIR) Facility for two middle school students at Oregon State University, 2015
9. WRESTORE project for SESEY summer camp for two middle school students at Oregon State University, 2014

C. Scholarship and Creative Activity

C1. Publications

*Student and postdoc authors directly advised by me are **bold**.*

Student authors mentored by me, but for which I was not the major advisor, are underlined.

Impact factors of journals (either JCR or those provided by journal) and % acceptance rate are indicated next to references, if readily available.

Former PhD supervisor (2000-2006): B.S. Minsker.

Former postdoctoral supervisor (2006-2008): R. Karthikeyan

C1.1. Refereed Books & Book Chapters

1. Uslu S., Kaur D., Rivera S.J., Durresi A., Babbar-Sebens M., Tilt J.H. (2021). Control Theoretical Modeling of Trust-Based Decision Making in Food-Energy-Water Management. In: Barolli L., Poniszewska-Maranda A., Enokido T. (eds) *Complex, Intelligent and Software Intensive Systems. CISIS 2020. Advances in Intelligent Systems and Computing*, vol 1194. Springer, Cham. https://doi.org/10.1007/978-3-030-50454-0_10. (contributed to writing; supported by research grant).
2. Rempel, A., and M. Babbar-Sebens (2021). Built Environment. In: M. Dalton & E. Fleishman (eds) *Fifth Oregon Climate Assessment*. Oregon Climate Change Research Institute, Oregon State University, Corvallis, Oregon. <https://blogs.oregonstate.edu/occri/oregon-climate-assessments/>. (contributed to writing).
3. Uslu S., Kaur D., Rivera S.J., Durresi A., Babbar-Sebens M. (2020) Trust-Based Decision Making for Food-Energy-Water Actors. In: Barolli L., Amato F., Moscato F., Enokido T., Takizawa M. (eds) *Advanced Information Networking and Applications. AINA 2020. Advances in Intelligent Systems and Computing*, vol 1151. Springer, Cham. https://doi.org/10.1007/978-3-030-44041-1_53. (contributed to writing; supported by research grant).
4. Uslu, S., Kaur, D., Rivera, S.J., Durresi, A., and Babbar-Sebens, M. (2019). Trust-Based Game-Theoretical Decision Making for Food-Energy-Water Management, In: L. Barolli, P. Hellinckx, T. Enokido (eds) *Advances on Broad-Band Wireless Computing, Communication and Applications. BWCCA 2019. Lecture Notes in Networks and Systems*, vol 97. Springer, Cham (pp. 125-136). (contributed to writing; supported by research grant).
5. Karthikeyan, R., and M. Babbar-Sebens, (2016). "Transport of Biochemicals and Microorganisms." *Handbook of Applied Hydrology*. Edited by V.P Singh, McGraw Hill, Chapter 71. (contributed to idea development, analyses and writing)

C1.2. Refereed Journal Publications

1. Khan, Z., Abraham, E., Aggarwal, S., Ahmad, M., Arguellos, R., Babbar-Sebens, M., et al. (2022). "Emerging themes and future directions of multi-sector nexus research and implementation." *Frontiers in Environmental Science*, DOI: 10.3389/fenvs.2022.918085. (contributed to idea development, data analyses, and writing)
2. Tilt, J.H., Mondo, H., Giles, N., Rivera, S., and Babbar-Sebens, M. (2022). "Demystifying the fears and myths: The co-production of a regional Food, Energy, Water (FEW) Nexus conceptual model." *Environmental Science and Policy*, 132, pp 69-88. <https://doi.org/10.1016/j.envsci.2022.02.011>. (contributed to idea development, data collection and analyses, and writing; supported by research grant)
3. **Gomez-Cunya, L., Tilt, J., Tullos, D., and Babbar-Sebens, M.** (2022). "Perceived risk and preferences of response and recovery actions of individuals living in a floodplain community." *International Journal of Disaster Risk Reduction*, 67, 102645,

<https://doi.org/10.1016/j.ijdr.2021.102645>. (contributed to idea development, data collection and analyses, and writing)

4. **Piemonti, A.D., Guizani, M.,** Babbar-Sebens, M., Zhang, E., and Mukhopadhyay, S. (2021) “Exploration and Visualization of Patterns underlying multi-Stakeholder Preferences in Watershed Conservation Decisions Generated by an Interactive Genetic Algorithm.” *Water Resources Research*, 57(5), DOI:10.1029/2020WR028013. (contributed to idea development, data collection and analyses, and writing; supported by research grant).
5. **Gyawali, K.,** Babbar-Sebens, M., Radniecki, T.S. (2021). “Dynamic Treatment of County Maintenance and Service Facility Stormwater by a Pump-Fed Bioswale System.” *Journal of Sustainable Water in the Built Environment*, 7(2), DOI: 10.1061/JSWBAY.0000942. (contributed to idea development, data collection and analyses, and writing; supported by research grant).
6. **Uslu, S., Kaur, D., Rivera, S.J.,** Durresi, A., Babbar-Sebens, M., Tilt, J. (2021). “A Trustworthy Human-Machine Framework for Collective Decision Making in Food-Energy-Water Management: The Role of Trust Sensitivity.” *Journal of Knowledge-Based Systems*, Volume 213, 15 February 2021, 106683. <https://doi.org/10.1016/j.knosys.2020.106683>. (contributed to writing; supported by research grant).
7. **Prettyman, K.,** Babbar-Sebens, M., Parrish, C.E., Babbar-Sebens, J.M. (2020). “A feasibility study of uninhabited aircraft systems for rapid and cost-effective plant stress monitoring at green stormwater infrastructure facilities.” *Journal of Hydroinformatics*; jh2020195. doi: <https://doi.org/10.2166/hydro.2020.195>. (contributed to idea development, data collection and analyses, and writing; supported by research grant).
8. Reimer, J., M. Babbar-Sebens, and **S. Rivera** (2020). “WEST: Water economy simulation tool to predict impacts of economic and environmental shocks.” *Advances in Water Resources*, 142 103648, <https://doi.org/10.1016/j.advwatres.2020.103648>. (contributed to idea development, data collection and analyses, and writing; supported by research grant).
9. Hill, D.J., and Babbar-Sebens, M. (2019). “Promise of UAV-assisted adaptive management of water resource systems.” *Journal of Water Resources Planning and Management*, 145(7): 02519001, DOI: 10.1061/(ASCE)WR.1943-5452.0001081 (contributed to idea development, and writing). (contributed to idea development, data collection and analyses, and writing).
10. Babbar-Sebens, M., Root, E., Rosenberg, D.E., Watkins, D., Mirchi, A., Giacomoni, M., and Madani, K. (2019). “Training Water Resources Systems Engineers to Communicate: Acting on Observations from On-the-Job Practitioners.” *J. Prof. Issues Eng. Educ. Pract.*, 145(4): 04019012. (contributed to idea development, data collection and analyses, and writing).
11. **Nguyen, T.,** Mukhopadhyay, S., and M. Babbar-Sebens. (2019). “Why the ‘selfish’ optimizing agents could solve the decentralized reinforcement learning problems.” *AI Communications*, vol. 32, no. 2, pp. 143-159, DOI: 10.3233/AIC-180596. (contributed to idea development, data collection and analyses, and writing; supported by research grant).
12. **Javaheri, A.,** Babbar-Sebens, M., Miller, R. N., Hallett, S., and Bartholomew, J. “An adaptive ensemble Kalman filter for assimilation of multi-sensor, multi-modal water temperature

observations into hydrodynamic model of shallow rivers.” *Journal of Hydrology*, 2018 (contributed to idea development, and writing).

13. Hamilton, S., Ames, D., Badham, J., Hunt, R., Elsawah, S., Guillaume, J., Jakeman, T., Pierce, S., Snow, V., Babbar-Sebens, M., Fu, B., Gober, P., Hill, M., Iwanaga, T., Loucks, D., Peckham, S., Richmond, A., Bammer, G., and Merritt W. “Effective modeling for Integrated Water Resource Management: a guide to contextual practices by phases and steps and future opportunities.” *Environmental Modelling and Software*, Volume 116, June 2019, Pages 40-56, 2019 (contributed to idea development, and writing).
14. **Giles, N.A.**, Babbar-Sebens, M., Srinivasan, R., Ficklin, D.L., Barnhart, B. “Optimization of Linear Stream Temperature Model Parameters in the Soil and Water Assessment Tool for the Continental United States.” *Ecological Engineering*, <https://doi.org/10.1016/j.ecoleng.2018.11.012>, 2018 (contributed to idea development, and writing).
15. **Mustafa, M.**, Barnhart, B., Ficklin, D., Babbar-Sebens, M. “Modeling landscape change effects on stream temperature using the Soil and Water Assessment Tool.” *Water*, 10, 1143; doi:10.3390/w10091143, 2018 (contributed to idea development, and writing)
16. **Javaheri, A.**, Babbar-Sebens, M., Alexander, J., Bartholomew, J., and Hallett, S. “Global sensitivity analysis of water age and temperature for informing salmonid disease management.” *Journal of Hydrology*, Volume 561, Pages 89-97, 2018 (contributed to idea development, and writing)
17. **Javaheri, A.**, Nabatian, M., Omranian, E., Babbar-Sebens, M., Noh, S. J. “Merging Real-Time Channel Sensor Networks with Continental-Scale Hydrologic Models: A Data Assimilation Approach for Improving Accuracy in Flood Depth Predictions,” *Hydrology*, 2018, 5(1), 9; doi:10.3390/hydrology5010009. (contributed to idea development, and writing)
18. Rosenberg, D.E., M. Babbar-Sebens, E. Root, J. Herman, A. Mirchi, M. Giacomoni, J. Kasprzyk, K. Madani, D. Ford, L. Basdekas, “Towards More Integrated Formal Education and Practice in Water Resources Systems Analysis,” *Journal of Water Resources Planning and Management*, Vol. 143, Issue 12, 2017. (contributed to idea development, data analyses, and writing)
19. **Piemonti, A.D.**, Macuga, K.L., and M. Babbar-Sebens, “Usability evaluation of an interactive decision support system for user-guided design of scenarios of watershed conservation practices,” *Journal of Hydroinformatics*, Vol. 19, Issue 6, 2017. (contributed to idea development, analyses and writing; supported by research grant)
20. **Piemonti, A.D.**, M. Babbar-Sebens, S. Mukhopadhyay, and **A. Kleinberg**. “Interactive Genetic Algorithm for user-centered design of distributed conservation practices in a watershed: An examination of user preferences in Objective Space and user behavior” *Water Resources Research*, 53, doi:10.1002/2016WR019987, 2017. (contributed to idea development, analyses and writing; supported by research grant)
21. **Javaheri, A.**, M. Babbar-Sebens, R.N. Miller, “From skin to bulk: An adjustment technique for assimilation of satellite-derived temperature observations in numerical models of small

- inland water bodies,” *Advances in Water Resources*, Volume 92, June, Pages 284-298, 2016. (contributed to idea development, analyses and writing; supported by research grant)
22. **Walters, K.**, and M. Babbar-Sebens, “Using Climate Change Scenarios to Evaluate Future Effectiveness of Potential Wetlands in Mitigating High Flows in a Midwestern U.S. Watershed,” *Ecological Engineering*, Volume 89, Pages 80–102, 2016. (supported by research grant; contributed to idea development, analyses and writing).
 23. Babbar-Sebens, M., S. Mukhopadhyay, V.B. Singh, and **A.D. Piemonti**, “A web-based software tool for participatory optimization of conservation practices in watersheds,” *Environmental Modelling and Software*, 2015, 10.1016/j.envsoft.2015.03.011 (primary author; supported by research grant).
 24. **Javaheri, A.**, and M. Babbar-Sebens, “On comparison of peak flow reductions, flood inundation maps, and velocity maps in evaluating effects of restored wetlands on channel flooding,” *Ecological Engineering*, Volume 73, December 2014, Pages 132–145. (supported by research grant; contributed to idea development, analyses and writing)
 25. Babbar-Sebens, M., “An Engineer’s Perspective on Water Catchment Planning,” *Farm Policy Journal*, Vol. 10, No. 2, pp. 43-45, 2013, Winter, Surry Hills, Australia. (*invited*, primary author)
 26. **Piemonti, A.D.**, M. Babbar-Sebens, E.J. Luzar, “Optimizing conservation practices in watersheds: Do community preferences matter?” *Water Resources Research*, Vol. 49, Issue 10, pp. 6425-6449, 2013, DOI: 10.1002/wrcr.20491. (supported by research grant; contributed to idea development, analyses and writing)
 27. Babbar-Sebens, M., L. Li, K. Song, and **S. Xie**, “On the use of Landsat-5 TM satellite for assimilating initial conditions of water temperature in 3D hydrodynamic model of small inland reservoir in Midwestern U.S.,” *Advances in Remote Sensing*, Vol. 2 No. 3, 2013, pp. 214-227. doi: 10.4236/ars.2013.23024. (primary author; supported by research grant)
 28. **Bruder, S.**, M. Babbar-Sebens, L.P. Tedesco, and E. Soyeux, “Use of fuzzy logic models for prediction of taste and odor compounds in algal-bloom affected inland water bodies,” *Environmental Monitoring and Assessment*, 2013. DOI 10.1007/s10661-013-3471-1. (contributed to idea development, analyses and writing; supported by research grant)
 29. Babbar-Sebens, M., R.C. Barr, L.P. Tedesco, and M. Anderson, “Spatial identification and optimization of upland wetlands in agricultural watersheds,” *Ecological Engineering*, Volume 52, Pages 130-142, 2013. (primary author; supported by research grant)
 30. Gallege, L.S., A.J. Phadke, R.R. Raje and M. Babbar-Sebens, “Cloud Service Selection from Earth Science Domain,” *International Journal of Computer Applications*, 2012 ICRTITCS(3):32-37. Published by Foundation of Computer Science, New York, USA. (contributed to idea development, analyses and writing)
 31. **Gamble, A.**, and M. Babbar-Sebens, “On the use of multivariate statistical methods for combining in-stream monitoring data and spatial analysis to characterize water quality conditions

in the White River basin, Indiana, U.S.A.,” *Environmental Monitoring and Assessment*, Volume 184, Number 2, Pages 845-875, 2012. (contributed to idea development, analyses and writing; supported by research grant)

32. Babbar-Sebens, M., and B.S. Minsker, “Interactive genetic algorithm with mixed initiative interaction for multi-criteria ground water monitoring design,” *Applied Soft Computing*, Volume 12, Issue 1, Pages 182-195, 2012. (primary author)
33. Babbar-Sebens, M., and B.S. Minsker, “Case-based micro interactive genetic algorithm (CBMIGA) for interactive learning: Methodology and application to groundwater monitoring design,” *Environmental Modelling and Software*, 25, pp. 1176-1187, 2010. (primary author)
34. Puri, D., R. Karthikeyan, and M. Babbar-Sebens, “Predicting the fate and transport of E. coli in two Texas River Basins,” *Journal of the American Water Resources Association*, Vol. 45, No. 4, pp. 928-944, 2009. (contributed to idea development, analyses and writing)
35. Babbar-Sebens, M., and R. Karthikeyan, “Consideration of sample size for estimating contaminant load reductions using load duration curves,” *Journal of Hydrology*, Volume 372, Issues 1-4, Pages 118-123, 2009. (primary author)
36. Teague, A., R. Karthikeyan, M. Babbar-Sebens, R. Srinivasan, and R. Persyn, “Spatially Explicit Load Enrichment Calculation Tool to Identify E. coli Sources in Watersheds,” *Transactions of ASABE*, 52(4), pp. 1109-1120, 2009. (contributed to idea development, analyses and writing)
37. Babbar-Sebens, M., and B. S. Minsker, “Standard Interactive Genetic Algorithm (SIGA): A Comprehensive Optimization Framework for Long-Term Ground Water Monitoring Design,” *J. of Water Resources Planning and Management*, 134(6), pp. 538-547, 2008. (primary author)
38. Babbar, M., and B. S. Minsker, “Groundwater Remediation Design Using Multiscale Genetic Algorithms,” *J. of Water Resources Planning and Management*, 132(5), pp. 341-350, 2006. (primary author)

C1.3. Peer-Reviewed Archival Conference Publications

The following papers appeared in archival proceedings that were distributed to libraries (the next section covers other types of proceedings). The acceptance rate is indicated as part of the entry whenever the selection process was rigorous.

1. Alameda, J., Stirn, J., Bauer, G., Boerner, T., Bode, B., Dahan, M., Gropp, W., Pierce, M., Yewdall, C., Zentner, and Babbar-Sebens, M. (2022). “The Delta Gateway: Exploring Community Use of GPU Resources through a Science Gateway.” In: *Proceedings of Gateways 2022*. <https://doi.org/10.5281/zenodo.7089487> (contributed to idea development, analyses and writing)
2. Babbar-Sebens, M., Cannady-Shultz, K.R., Mukhopadhyay, S. (2020). Interactive Watershed Optimization in the Presence of Spatially-varying and Uncertain Stakeholder Preferences. In: *Proceedings of IEEE International Conference on Human-Machine Systems, ICHMS 2020*, Rome, Italy, September 7-9, 2020.

<https://doi.org/10.1109/ICHMS49158.2020.9209569>. (contributed to idea development, analyses and writing; supported by research grant).

3. Babbar-Sebens, M., **Rivera, S.J.**, Abeyasinghe, E., Marru, S., Pierce, M., Coulter, E., **Farahani, M.**, Wannipurage, D., and Christie, M. (2019). "InterACTWEL Science Gateway for Adaptation Planning in Food-Energy-Water Sectors of Local Communities," In: *Proceedings of Practice and Experience in Advanced Research Computing (PEARC) 2019*, Chicago Illinois, July 28 - August 1, 2019. (contributed to idea development, analyses and writing; supported by research grant)
4. Hoblitzell, A. Babbar-Sebens, M. and Mukhopadhyay S. (2019). Non-Stationary Reinforcement-Learning Based Dimensionality Reduction for Multi-objective Optimization of Wetland Design. In *Proceedings of the 2019 5th International Conference on Robotics and Artificial Intelligence (ICRAI '19)*. Association for Computing Machinery, New York, NY, USA, 82–86. DOI:<https://doi.org/10.1145/3373724.3373725>. (contributed to idea development, analyses and writing; supported by research grant).
5. Hoblitzell, A., Babbar-Sebens, M., and Mukhopadhyay, S. (2018) Uncertainty-Based Deep Learning Networks for Limited Data Wetland User Models, In *Proceedings of 2018 IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR)*, Taichung, Taiwan, 2018, pp. 19-26, doi: 10.1109/AIVR.2018.00011. (contributed to idea development, analyses and writing; supported by research grant)
6. Hoblitzell, A., M. Babbar-Sebens, S. Mukhopadhyay, "Fuzzy and Deep Learning Approaches for User Modeling in Wetland Design," In *Proceedings of the IEEE Systems, Man, and Cybernetics (SMC) Conference*, Oct 9-12, Budapest, Hungary, 2016. (contributed to idea development, analyses and writing; supported by research grant).
7. Mukhopadhyay, S., V.B., Singh, **A.D. Piemonti**, and M. Babbar-Sebens, "User Modeling with Limited Data: Application to Stakeholder-driven Watershed Design," *Proceedings of the IEEE Systems, Man, and Cybernetics (SMC) Conference*, Oct 5-8, San Diego, USA, pp. 3855 - 3860, DOI: 10.1109/SMC.2014.6974532, 2014. (contributed to idea development, analyses and writing; supported by research grant).
8. Singh, V.B., S. Mukhopadhyay, and M. Babbar-Sebens, "User Modeling for Interactive Optimization using Neural Network," *Proceedings of the IEEE Systems, Man, and Cybernetics (SMC) Conference*, Oct 13-16, Manchester, UK, pp. 3288 - 3293, DOI: 10.1109/SMC.2013.560, 2013. (contributed to idea development, analyses and writing; supported by research grant).
9. Singh, V.B., S. Mukhopadhyay, and M. Babbar-Sebens, "Decentralized Pursuit Learning Automata in Batch Mode," *Proceedings of the 6th International Conference on Soft Computing and Intelligent Systems, The 13th International Symposium on Advanced Intelligent Systems*, Nov.20 - 24, Kobe, Japan, pp. 1567 - 1572, DOI: 10.1109/SCIS-ISIS.2012.6505309, 2012. (contributed to idea development, analyses and writing; supported by research grant)
10. Tilak, O., M. Babbar-Sebens, and S. Mukhopadhyay, "Decentralized and partially decentralized reinforcement learning for designing a distributed wetland system in watersheds," *Proceedings of the IEEE Systems, Man, and Cybernetics (SMC) Conference*, Anchorage, Alaska,

Oct 9-12, pp. 271-276, ISBN 978-1-4577-0652-3, 2011. (contributed to idea development, analyses and writing; supported by research grant)

11. Babbar-Sebens, M., and S. Mukhopadhyay, "Reinforcement Learning for Human-Machine Collaborative Optimization: Application in Ground Water Monitoring," *Proceedings of the IEEE Systems, Man, and Cybernetics (SMC) Conference*, pp. 3563 – 3568, 2009. (primary author)
12. Babbar, M., A. Lakshmikantha and D.E. Goldberg, "A Modified NSGA-II to Solve Noisy Multiobjective Problems," in James Foster (editors), 2003 *Proceedings of the Genetic and Evolutionary Computation Conference. Late-Breaking Papers*, pp. 21-27, AAAI, Chicago, Illinois, USA, July 2003. (primary author)
13. Babbar, M., and B. S. Minsker. "A Multiscale Master-Slave Parallel Genetic Algorithm with Application to Groundwater Remediation Design," W. L. Langdon, E. Cantu-Paz, K. Mathias, R. Roy, D. Davis, R. Poli, K. Balakrishnan, V. Honavar, G. Rudolph, J. Wegener, L. Bull, M. A. Potter, A. C. Shultz, J. F. Miller, E. Burke, and N. Jonoska, editors. 2002. *Proceedings of the Genetic and Evolutionary Computation Conference, GECCO'2002*. New York, Morgan Kaufmann Publishers, pp. 9-16, 2002. (primary author).

C1.4. Other Peer-Reviewed Publications

The following papers appeared in proceedings that were distributed primarily to attendees (as CDs, printed volumes, availability through a public website, etc.).

None.

C1.5. Papers Currently under Peer Review

Archival Journal Papers Submitted

1. (in review) Uslu, S., Kaur, D., Rivera, S., Durresi, A., Babbar-Sebens, M., Tilt, J. "A Trustworthy Human-Machine Collective Decision-Making Framework for Resource Management in Food-Energy-Water Nexus: A Control-Theoretical Approach" *Transactions on Knowledge and Data Engineering*
2. (in review) **Gomez Cunha, L.A.**, Babbar-Sebens, Tullos, D., M., and Tilt, J. "Relocation attitudes of individuals in a floodplain community faced with varied flood threats" *Journal of Environmental Planning and Management*.
3. (in review) **Noa-Yarasca, E.**, Babbar-Sebens, M., Chiou, A., Macuga, K.L. "Influence of Asymmetric Uncertainty Visualizations on the Evaluation of Conservation Plans by Environmental Decision Support System Users" *Journal of Experimental Psychology: Applied*
4. (in review) **Noa-Yarasca, E.**, Babbar-Sebens, M., and Jordan, C. "An Improved Model of Shade-affected Stream Temperature in Soil & Water Assessment Tool." *Hydrology and Earth System Sciences*.
5. (in review) Samantaray, A.K., Ramadas, M., Babbar-Sebens, M., **Gautam, S.** "Nonstationary Drought Frequency Analysis of a Changing Climate using Copula and Bayesian Hierarchical Model." *Journal of Hydrology*.

6. (in review) Uslu, S., **Gautam, S.**, Kaur, D., **Rivera, S.J.**, Durreesi, A., and Babbar-Sebens, M. Trustworthy Acceptance in Environmental Decision Making involving Regional Water Rights. *Environmental Data Science*.
7. (in review) Sinha, S.K., Babbar-Sebens, M., Dzombak, D., Gardoni, P., Watford, B., Scales, G., Grigg, N., Westerhof, E., Thompson, K., and Meeker, M. “Environmental Problems Associated with Sustainable Water Infrastructure Management” *Oxford Research Encyclopedia of Environmental Science*.
8. (in review) Chiou, A., Macuga, K., and Babbar-Sebens, M. “Decision-Making Under Uncertainty: Interpretation and Use of Ranges Depicted in Bar Graphs by End Users and Test Users for Watershed Conservation Planning” *Cognitive Research: Principles and Implications*.
9. (in review) **Gautam, S.**, Samantaray, A., Babbar-Sebens, M., and Ramadas, M. “Characterization and Propagation of Historical and Projected Droughts in Umatilla River Basin, Oregon, USA” *Advances in Atmospheric Sciences*.

C1.5. Other Publications

1. Babbar-Sebens, M., Westerhof, E., Mercer, K., Griner, D., Tang, P., Shrestha, G.C., Sevilano, J.B., Farmweld, J., O’Malley, B., van der Lugt, K., and Sinha, S. *White Paper on Smart One Water – Governance & Implementation*, Sustainable Water Infrastructure Management (SWIM) Center at Virginia Tech.
2. Nakamura, B., Carrasquillo, M., Shaddock, S., Bhaskar, A., Shrestha, G.C., Venner, I., Watford, B., Ajami, N.K., Babbar-Sebens, M., and Sinha, S. *White Paper on Smart One Water – Diversity & Culture of Inclusion*. Sustainable Water Infrastructure Management (SWIM) Center at Virginia Tech.

C2. Professional Meetings, Symposia, and Conferences

*Student authors directly advised by me are **bold**.*

Student authors mentored by me, but for which I was not the major advisor, are underlined.

C2.1. Presentations to Professional Groups (includes presentations of papers cited in C1.3)

Invited Presentations

1. Babbar-Sebens, M. (2021). Climate Change Resilience: A Case for Human-Machine Collaboration in Solving Humanity’s Most Urgent Threat. *Spring EWRE Seminar Series, U Mass Amherst*, March 19th, 2021.
2. Babbar-Sebens, M. (2021). InterACTWEL Cyberinfrastructure: Enabling Stakeholder-Driven Processes for FEW Nexus Decision Support in Local Communities. EngageINFEWs Research Coordination Network, Lightning Talk Event, March 3rd, 2021.
3. Babbar-Sebens, M. (2021). On Multi-scale Design of Nature-based Infrastructure in Rural and Urban Watersheds. Seminar at School of Chemical, Biological, and Environmental Engineering, Oregon State University, November 29th, 2021.

4. Babbar-Sebens, M. (2020). Stormwater Solutions at the OSU-Benton County Green Stormwater Infrastructure Research (OGSIR) Facility. ASCE Women-Water Nexus 10th Short Conference, November 2nd, 2020.
5. Babbar-Sebens, M. (2020). Climate Change Resilience: A Case for Human-Computer Collaboration in Solving Humanity's Most Urgent Threat. *SPARC Seminar at Indian Institute of Technology Bhubaneshwar*, Odisha, India, January 24, 2020.
6. Babbar-Sebens, M. (2020). Climate Change Resilience: A Case for Human-Computer Collaboration in Solving Humanity's Most Urgent Threat. *College of Engineering Webinar Series at Oregon State University*, October 27, 2020.
7. Governance and Implementation Workshop, *NSF Engineering Research Center (ERC) Smart One Water (SOW) Planning, Virtual Workshop, Dec 7, 2020*.
8. Babbar-Sebens, M., **Rivera, S.J., Giles, N.A.**, Tilt, J., Reimer, J., Murthy, G., Mukhopadhyay, S., Durresti, A., Marru, S., and Pierce, M.E., "Stakeholder-Driven Adaptation Planning of Food-Energy-Water Nexus in Local Communities," *American Geophysical Union Fall Meeting*, Dec 9-13, San Francisco, CA, 2019.
9. Babbar-Sebens, M., "InterACTWEL Science Gateway for Adaptation Planning in Food-Energy-Water Sectors of Local Communities," *Cascadia Lifelines Program Webinar Series*, Oct 23rd, 2019.
10. Babbar-Sebens, M. (2019). Climate Change Resilience: A Case for Human-Computer Collaboration in Solving Humanity's Most Urgent Threat. *Agriculture, Water Resources Engineering, and Climate Change Seminar*, Oregon Climate Change NEXUS, Oregon State University, October 27, 2019.
11. Babbar-Sebens, M., and Tilt J., "InterACTWEL: A New Decision Support Tool for Adaptation Planning in the Food, Energy, and Water Sectors," *13th Annual US - China Eco-environmental Symposium, Research and Innovation at the Nexus of Food, Energy, and Water Systems*, Seattle, Washington, USA, October 26-29, 2019.
12. Babbar-Sebens, M., "A New Decision Support Tool for Adaptation Planning in the Food, Energy and Water Sectors," *Second Annual Western Groundwater Congress*, Sacramento, CA, September 17-19, 2019.
13. Babbar-Sebens, M. (2018). Panel on Food, Energy, Water Nexus. *In: ASCE EWRI World Environmental & Water Resources Congress, Minneapolis, Minnesota, June 3-7*.
14. Babbar-Sebens, M. (2018). Panel on Water Resources Systems Analysis. *In: ASCE EWRI World Environmental & Water Resources Congress, Minneapolis, Minnesota, June 3-7*.
15. Babbar-Sebens, M. (2018). Panel on Resilience-based approaches to sustainable futures in the Columbia River Basin. *In: 9th Annual Northwest Climate Conference - Working Together to Build a Resilient Northwest*, October 9-11.

16. Babbar-Sebens, M. (2018). Smart Water Systems for Management of Water Safety. In 2018 Clean Water Workshop, Oregon State University, Corvallis, OR, Aug 6-7, 2018.
17. Babbar-Sebens, M., and Singh, A. (2018). From Identifying to Integrating Stakeholder Preferences in Design of Conservation Plans for Adaptation to Climate Change. *In: Northeast Climate Adaptation Science Center Spring Webinar Series*, April 18.
18. Babbar-Sebens, M., Tilt, J., Murthy, G., Reimer, J., Mukhopadhyay, S., Durreesi, A., Giles, N.A., Mondo, H., Tabatabaie, H., Rivera, S., Farahani, M., Cody, C., Ruan, Y., and Alfantoukh, L. (2018). INFEWS/T2 - A Secure Decision Support System For Coordination Of Adaptation Planning Among FEW Actors. *In: The Pacific Northwest. 2018 Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) Principal Investigator Workshop*, Alexandria, VA, May 16-18.
19. Babbar-Sebens, M. (2018). OGSIR Research Facility on Green Stormwater Technologies - Then and Now. *In: 8th Annual Erosion Control and Stormwater Management Summit*, Keizer, OR, Jan 29.
20. Babbar-Sebens, M. (2018). Human-computer collaboration in development of watershed management plans, *In: Water Resources Graduate Seminar*, Corvallis, OR, March 14, 2018.
21. Babbar-Sebens, M. (2017). Managing flow and water quality co-benefits of green stormwater infrastructure at OGSIR facility - An Oregon BEST Lab. *In: NEBC Conference on Managing Stormwater in Oregon*, Portland, OR, June 20, 2017.
22. Babbar-Sebens, M. (2017). The Participatory Web – A medium for human-computer collaborative design of watershed management solutions, *In: Department of Geography, Thompson River University, British Columbia, Canada*, February 16.
23. Babbar-Sebens, M. (2016). Internet of People: Opportunities and challenges for engaging stakeholders in watershed planning via the Web. *In American Geophysical Union Fall Meeting*, San Francisco, CA, Dec 12-16, 2016.
24. Babbar-Sebens, M. (2016). Watershed Modeling Tools: From simulation to participatory design of Conservation Practices, *In: US Fish and Wildlife’s Eastern Tallgrass Prairie and Big Rivers Landscape Conservation Cooperative (ETPBR LCC) Webinar*, February 11.
25. Babbar-Sebens, M. (2016). Hydroinformatics for Integrated Water Management, *In: Water Resources Graduate Seminar*, Corvallis, OR, January 27, 2016.
26. Babbar-Sebens, M. (2016). OSU-Benton County Green Stormwater Infrastructure Research Facility, *In: 5th Annual Mid-Willamette Erosion Control and Stormwater Management Summit*, Keizer, OR, January 26, 2016.
27. Babbar-Sebens, M. and Mukhopadhyay, S. (2016). Integration of climate projections and hydrologic models in a web-based, participatory design tool for watershed planning. *In: 30th Conference on Hydrology and 96th American Meteorological Society Annual Meeting*, January 10-14, New Orleans, LA.

28. Babbar-Sebens, M. (2015). Managing Stormwater: Challenges and Innovations, In: Oregon Department of Environmental Quality's Stormwater and Post-Construction TMDL Plan Elements Workshop, Eugene, OR, Oct 7, 2015.
29. Babbar-Sebens, M. (2015). The Participatory Web – A medium for human-computer collaborative design of watershed management solutions, *In: 3rd CUAHSI Conference on Hydroinformatics*, Tuscaloosa, AL, July 15-17, 2015.
30. Babbar-Sebens, M. (2015). Surface Water Green Infrastructure Research Facility, In: 39th Annual ORWEF Water Environment School, Clackamas, OR, Mar 25, 2015.
31. Babbar-Sebens, M. (2014). Human-centered optimization for participatory environmental design problems, In: Applied Mathematics and Computation Seminar, Oregon State University, May.
32. Babbar-Sebens, M. (2012). Participatory Design for Sustainable Water Management: The Challenges of Definition and Judgment in Optimization, In: Cornell University, Ithaca, NY, April.
33. Babbar-Sebens, M. (2012). Hydroinformatics for Sustainable Water Management, In: University of Wyoming, Laramie, WY, March.
34. Babbar-Sebens, M. (2012). Participatory Design for Sustainable Water Management: The Challenges of Definition and Judgment in Optimization, In: Rensselaer Polytechnic Institute, Troy, NY, March.
35. Babbar-Sebens, M. (2010). Remote Sensing of Global Warming-Affected Inland Water Quality, In: NASA Biodiversity and Ecological Forecasting Team Meeting, Washington DC, May.
36. Babbar-Sebens, M. (2010). Protecting the environment with a Systems Analysis view, In: Cutting edge lecture series, Indiana University Purdue University Indianapolis, IN, April.
37. Babbar-Sebens, M. (2009). Optimization for Management of Contaminated Water Resources, In: Department of Agricultural and Biological Engineering at Purdue University, West Lafayette, IN, April.
38. Babbar-Sebens, M. (2009). Navigating Your Career in Academia, In: Department of Agricultural and Biological Engineering at Purdue University, West Lafayette, IN, April.
39. Babbar-Sebens, M. (2008). Computational Modeling and Decision Making for Management of Contaminated Water Resources, In: Department of Computer Science, IUPUI, Indianapolis, IN, Aug.

Non-invited Presentation

1. **Saduova, A., Gautam, S., Babbar-Sebens, M., Rivera, S.J., Tilt, J.** (2022). “Framing the dynamic socio-ecological resilience of a river basin: A case study approach in the Umatilla River Basin, OR, USA.” *In: ASCE World Environmental & Water Resources Congress*, June 5 – June 8 2022, Atlanta, GA.

2. **Gautam, S., Samantaray, A.K., Babbar-Sebens, M., Ramadas, M.,** (2022). “Assessment of historical and projected hydrological drought in the Umatilla River Basin, OR, USA.” *In: ASCE World Environmental & Water Resources Congress*, June 5 – June 8 2022, Atlanta, GA.
3. **Noa-Yarasca, E., Babbar-Sebens, M., Jordan, C.** (2022). “Including riparian vegetation in hydroclimatological stream temperature model.” *In: ASCE World Environmental & Water Resources Congress*, June 5 – June 8 2022, Atlanta, GA.
4. Babbar-Sebens, M., **Prettyman, K.,** Parrish, C., and Babbar-Sebens, J.M. (2022). “On the use of Uncrewed Aircraft Systems for Monitoring of Plants at Green Stormwater Infrastructure Facilities.” *In: ASCE World Environmental & Water Resources Congress*, June 5 – June 8 2022, Atlanta, GA.
5. Sinha, S.K., Dzombak, D., Gardoni, P., and Babbar-Sebens, M. (2022). “Findings from the National Science Foundation Engineering Research Center Planning Grant for Development of Smart One Water (SOW).” *In: The 17th IWA Leading Edge Conference on Water and Wastewater Technologies*, March 27 – April 2, 2022, Reno – Nevada, USA.
6. Babbar-Sebens, M. (2022). “On Managing Upland Drivers of Algal Blooms with Integrated Watershed Models.” *In: 2022 Oregon Cyanobacterial Harmful Algal Bloom Stakeholder Meeting*, March 14, 2022, Virtual.
7. Babbar-Sebens, M., Marru, S., Rivera, S., Mukhopadhyay, S., Durresi, ., Tilt, J., Reimer, J., and Gautam, S. (2022). “InterACTWEL Cyberinfrastructure: Enabling Longitudinal Stakeholder Decision Support for Adaptation Planning of FEW Nexus in Local Communities.” *INFEWS PI Workshop*, Feb. 9-11, 2022, Virtual.
8. Ramadas, M., Manekar, A., Babbar-Sebens, M., Landu, K. (2022). “Regional Hydro-meteorological Drought Characteristics Using High Resolution Indian Monsoon Data Assimilation and Analysis (IMDAA) Data.” *19th Annual Meeting of Asia Oceania Geosciences Society*, Aug 1-5 2022, Virtual.
9. Babbar-Sebens, M., **Rivera, S.,** Marru, S., Abeysinghe, E., and Coulter, E. (2021). “InterACTWEL Cyberinfrastructure Enabling Long-term AI-driven Decision Support for Adaptive Management of Water, Energy, and Land Resources in Watershed Communities.” *ECSS Symposium*, Virtual, September 21, 2021.
10. Uslu, S., Kaur, D., Rivera, S., Durresi, A., Babbar-Sebens, M., Mukhopadhyay, S., and Tilt, J. (2021). “Trustworthy Acceptance of AI-based Collective Management of Food-Water-Energy Resources.” *The 3rd NOAA Workshop on Leveraging AI in Environmental Sciences*, Virtual, Sep 13-17, 2021.
11. Babbar-Sebens, M., Marru, S., **Rivera, S.,** Mukhopadhyay, S., Durresi, A., Tilt, J., Reimer, J., **Gautam, S.** (2021). “InterACTWEL Cyberinfrastructure: Enabling Longitudinal Stakeholder Decision Support for Adaptation Planning in Local Communities.” *The 3rd NOAA Workshop on Leveraging AI in Environmental Sciences*, Virtual, Sep 13-17, 2021.

12. **Qiu, M.**, Babbar-Sebens, M. and Ostfeld, A. (2021). "Design and Operation of Agricultural Water Distribution Systems as Hard And Soft Climate Change Adaptation Strategy." *In: ASCE's World Environmental & Water Resources Congress*, Virtual, June 7-11, 2021.
13. **Piemonti, A.D.**, Wilson, G., and Babbar-Sebens, M. (2020). "Challenges and Opportunities in Tracking Sediment-Associated Contaminants in Green Stormwater Infrastructure." *AGU Fall Meeting*, December 11, 2020.
14. Babbar-Sebens, M. and A. Ostfeld (2020). "Role of cyberinfrastructure for engaging multi-sectoral stakeholders in use-inspired and decision-relevant research on adaptation to climate change." *AGU Fall Meeting*, December 11, 2020.
15. Babbar-Sebens, M. (2020). "Smart One Water Governance and Implementation." *Virtual Swim Annual Conference*, Dec 8-10, 2020.
16. Simonich, S.L., Field, J.A., Babbar-Sebens, M., Radniecki, T.S. and G. Wilson (2020). "Development, evaluation and technology transfer of BMPs for optimizing removal of PAHs, PCBs, PFASs and metal from stormwater at DoD sites." *SERDP-ESTCP Symposium 2020: Enhancing DoD's Mission Effectiveness*, Washington DC, December 2, 2020.
17. Babbar-Sebens, M., **Cannady-Shultz, K.R.**, Mukhopadhyay, S. (2020). "Interactive Watershed Optimization in the Presence of Spatially-varying and Uncertain Stakeholder Preferences." *IEEE International Conference on Human-Machine Systems, ICHMS 2020*, Rome, Italy, September 7-9, 2020.
18. Simonich, S.L., Field, J.A., Babbar-Sebens, M., Radniecki, T.S. and G. Wilson "Development, evaluation and technology transfer of BMPs for optimizing removal of PAHs, PCBs, PFASs and metal from stormwater at DoD sites" *SERDP-ESTCP Symposium 2019: Enhancing DoD's Mission Effectiveness*, Washington DC, December 3-5, 2019.
19. **Rivera, S.J., Giles, N.A.**, Tilt, J., Reimer, J., Murthy, G., Mukhopadhyay, S., Durresti, A., Marru, S., Pierce, M.E. and M. Babbar-Sebens, "InterACTWEL Science Gateway for Adaptation Planning in Food-Energy-Water Sectors of Local Communities: Data, Methods, Lessons Learned and Future Directions," *American Geophysical Union Fall Meeting*, Dec 9-13, San Francisco, CA, 2019.
20. Babbar-Sebens, M., **Rivera, S.J.**, Abeyasinghe, E., Marru, S., Pierce, M., Coulter, E., **Farahani, M.**, Wannipurage, D., and Christie, M., "InterACTWEL Science Gateway for Adaptation Planning in Food-Energy-Water Sectors of Local Communities," *Practice and Experience in Advanced Research Computing (PEARC) 2019*, Chicago Illinois, July 28 - August 1, 2019.
21. **Rivera, S.J., Giles, N.A.**, Reimer, J., Murthy, G., Mukhopadhyay, S., Durresti, A., Tilt, J., Babbar-Sebens, M., and Marru, S., "InterACTWEL: A Decision Support System for Adaptation Planning in Food-Energy-Water Sectors of Local Communities," *2019 Northwest Climate Conference*, Portland, Oregon, October 8-10, 2019.
22. **Gyawali, K.**, Radniecki, T.S., Babbar-Sebens, M., and Wilson, G. (2019). The dynamic characterization of stormwater composition and treatment at the OSU-Benton Country Green

Stormwater Infrastructure Research (OGSIR) bioswale. *In: 2019 AEESP Research and Education Conference at ASU*, May 14–16, 2019.

23. **Giles, N.A.**, Babbar-Sebens, M., **Rivera, S.J.**, Tabatabaie, H., Murthy, G., Mukhopadhyay, S., Durrezi, A., and Tilt, J., A secure decision support system for coordination of adaptation planning among FEW actors, *In: American Geophysical Union Fall Meeting*, Washington DC, Dec 10-14, 2018.
24. **Giles, N.**, Babbar-Sebens, M., Tilt, J., and Mondoh, H. (2018). Towards a Stakeholder-driven Planning Approach for Adaptation and Resilience in Food, Energy, and Water Sectors. *In: 9th International Congress on Environmental Modelling and Software - Modelling for Sustainable Food-Energy-Water Systems*, Fort Collins, USA, June 24-28.
25. Richmond, A., Babbar-Sebens, M., and Pierce, S. (2018). An Organizing Framework for Setting up the Context of Integrated Water Resources Management Problems and Case Studies. *In: 9th International Congress on Environmental Modelling and Software - Modelling for Sustainable Food-Energy-Water Systems*, Fort Collins, USA, June 24-28.
26. Guizani, M., Babbar-Sebens, M., Zhang, E., **Piemonti, A.D.**, and Mukhopadhyay, S. (2018) Visual Analytics for Identifying Patterns in High-dimensional Decision and Objective Spaces of User-Preferred Conservation Plans. *In: 9th International Congress on Environmental Modelling and Software - Modelling for Sustainable Food-Energy-Water Systems*, Fort Collins, USA, June 24-28.
27. **Alyousef, H.**, and Babbar-Sebens, M. (2018). On the challenges of monitoring green stormwater infrastructure with real time sensors. *In: ASCE's World Environmental & Water Resources Congress*, Minneapolis, MN, June 3-7.
28. **Gyawali, K.**, Babbar-Sebens, M., and Radniecki, T. (2018). Characterization and Dynamics of Stormwater Runoff and Treatment at a Bioswale in a County Maintenance and Service Facility. *In: ASCE's World Environmental & Water Resources Congress*, Minneapolis, MN, June 3-7.
29. **Piemonti, A.D.**, and Babbar-Sebens, M. (2018). Adaptive Human-guided Search Operators for Interactive Optimization of Watershed Conservation Plans. *In: ASCE's World Environmental & Water Resources Congress*, Minneapolis, MN, June 3-7.
30. Babbar-Sebens, M., and Singh, A. (2018). From Identifying to Integrating Stakeholder Preferences in Design of Conservation Plans for Adaptation to Climate Change. *In: Northeast Climate Adaptation Science Center Spring Webinar Series*, April 18.
31. Babbar-Sebens, M., Tilt, J., Murthy, G., Reimer, J., Mukhopadhyay, S., Durrezi, A., **Giles, N.A.**, Mondo, H., Tabatabaie, H., **Rivera, S.**, **Farahani, M.**, Cody, C., Ruan, Y., and Alfantoukh, L. (2018). INFEWS/T2 - A Secure Decision Support System For Coordination Of Adaptation Planning Among FEW Actors. *In: The Pacific Northwest. 2018 Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) Principal Investigator Workshop*, Alexandria, VA, May 16-18.

32. **Yarasca, E.N.**, and M. Babbar-Sebens (2017). Multiobjective Optimization of Wetlands for Attaining Flood, Water Quality and Bird Habitat Benefits. *In: ASCE's World Environmental & Water Resources Congress*, Sacramento, CA, May 21-25.
33. **Javaheri, A.**, and M. Babbar-Sebens (2017). Water Temperature Data Assimilation into Hydrodynamic Model of Lower Klamath River, California. *In: ASCE's World Environmental & Water Resources Congress*, Sacramento, CA, May 21-25.
34. **Piemonti, A.D.**, M. Babbar-Sebens, and S. Mukhopadhyay (2016). Use of Stakeholder Feedback to Guide Search Operators of Web-based Interactive Genetic Algorithms, *In: ASCE's World Environmental & Water Resources Congress*, West Palm Beach, FL, May 22-26.
35. **Javaheri, A.**, M. Babbar-Sebens, and J.D. Alexander (2016). A Hydrodynamic and Water Quality Model of Lower Klamath River, California, for Management of Fish Mortality," *In: ASCE's World Environmental & Water Resources Congress*, West Palm Beach, FL, May 22-26.
36. **Hoblitzell, A.**, M. Babbar-Sebens, S. Mukhopadhyay (2016). Fuzzy and Deep Learning Approaches for User Modeling in Wetland Design, *Proceedings of the IEEE Systems, Man, and Cybernetics (SMC) Conference*, Oct 9-12, Budapest, Hungary. (~ 69% acceptance rate,).
37. **Piemonti, A.** and M. Babbar-Sebens (2015). Use of building blocks to generate user-preferred alternatives in human-guided search operators of conservation plans in a watershed, *In: ASCE's World Environmental & Water Resources Congress*, Austin, TX, May 17-21.
38. **Piemonti, A.**, K.L., Macuga, K. L. and M. Babbar-Sebens (2015). Measures to evaluate users' interactions and learning while using interactive optimization tools, *In: ASCE's World Environmental & Water Resources Congress*, Austin, TX, May 17-21.
39. **Javaheri, A.**, and M. Babbar-Sebens (2015). Towards a hydrodynamic and water quality model of the lower Klamath River, *In: Klamath River Fish Health Workshop*, Yreka, CA, Mar 24, 2015.
40. Fox, T.J., J.J. Rohweder, J.B. Waide, M. Babbar-Sebens, L.S. Prokopy, G. White. "Incorporating Social Drivers to Optimize Conservation Practices that Address Gulf Hypoxia and Declining Wildlife Populations Impacted by Extreme Climate Events." *In: 75th Midwest Fish and Wildlife Conference*, Indianapolis, IN, Feb 8-11, 2015.
41. Babbar-Sebens, M. and S. Mukhopadhyay. "From community preferences to design: Investigation of human-centered optimization algorithms in web-based, democratic planning of watershed restoration." *In American Geophysical Union Fall Meeting*, San Francisco, CA, Dec 15-19, 2014.
42. **Walters, K.**, and M. Babbar-Sebens. "Evaluation of Potential Wetlands to Reduce Peak Flows in Future Climate Scenarios in the Eagle Creek Watershed, IN." *In American Geophysical Union Fall Meeting*, San Francisco, CA, Dec 15-19, 2014.
43. Mukhopadhyay, S., V.B., Singh, **A.D. Piemonti**, and M. Babbar-Sebens, "User Modeling with Limited Data: Application to Stakeholder-driven Watershed Design," *Proceedings of*

the IEEE Systems, Man, and Cybernetics (SMC) Conference, Oct 5-8, San Diego, USA, 2014.

44. Babbar-Sebens, M., **A.D. Piemonti**, S. Mukhopadhyay, and V.B. Singh. "User Modeling and Personalized Optimization for Stakeholder-driven Watershed Design." In: *HIC 2014 – 11th International Conference on Hydroinformatics*, New York, NY, August 17 – 21, 2014.
45. **Javaheri, A.**, and M. Babbar-Sebens. "Remote sensing data assimilation in water quality numerical model of Eagle Creek Reservoir using ensemble Kalman filter method." In: *HIC 2014 – 11th International Conference on Hydroinformatics*, New York, NY, August 17 – 21, 2014.
46. **Piemonti, A.D.**, and M. Babbar-Sebens. "A web-based, democratic planning tool to include stakeholder participation in design of spatial distribution of best management practices," In: *7th International Congress on Environmental Modelling and Software (iEMSs)*, San Diego, CA, June 15-19, 2014.
47. **Piemonti, A.D.**, and M. Babbar-Sebens. "Modification of Interactive Genetic Algorithm (IGA) operators to reflect decision maker's preferences in generation of new alternatives," In: *7th International Congress on Environmental Modelling and Software (iEMSs)*, San Diego, CA, June 15-19, 2014.
48. Babbar-Sebens, M., and S. Mukhopadhyay. "Integrating community preferences and optimization algorithms in web-based, democratic planning of watershed restoration." In: *ASCE's World Environmental & Water Resources Congress*, Portland, OR, June 1-5, 2014.
49. **Piemonti, A.D.**, M. Babbar-Sebens, and K. Macuga. "Effects of cognition and human factors on interactive optimization of watershed plans." In: *ASCE's World Environmental & Water Resources Congress*, Portland, OR, June 1-5, 2014.
50. **Piemonti, A.D.**, and M. Babbar-Sebens. "Human guided search operators for interactive optimization of conservation practices in watersheds." In: *ASCE's World Environmental & Water Resources Congress*, Portland, OR, June 1-5, 2014.
51. Singh, V.B., S. Mukhopadhyay, and M. Babbar-Sebens, "User Modeling for Interactive Optimization using Neural Network," *Proceedings of the IEEE Systems, Man, and Cybernetics (SMC) Conference*, Oct 13-16, Manchester, UK, 2013.
52. **Piemonti, A.D.**, and M. Babbar-Sebens, "Modified search operators for interactive genetic algorithms used in water resources optimization investigations," In: *2013 American Water Resources Association's Annual Water Resources Conference*, Portland, OR, Nov. 4-7, 2013.
53. Babbar-Sebens, M., and S. Mukhopadhyay, "WRESTORE: A web-based, democratic planning tool for designing conservation practices in watersheds," In: *2013 American Water Resources Association's Annual Water Resources Conference*, Portland, OR, Nov. 4-7, 2013.

54. **Walters, K.**, and M. Babbar-Sebens, "Spatial-temporal optimization of conservation practices affected by future climate scenarios in the eagle creek watershed, IN," *In: 2013 American Water Resources Association's Annual Water Resources Conference*, Portland, OR, Nov. 4-7, 2013.
55. **Javaheri, A.**, and M. Babbar-Sebens, "Effect of conservation practices on flood inundation and velocity maps," *In: 2013 American Water Resources Association's Annual Water Resources Conference*, Portland, OR, Nov. 4-7, 2013.
56. **Piemonti, A.D.**, M. Babbar-Sebens, E.J. Luzar, "Comparison of optimized conservation practices in agricultural watershed based on land tenure and stakeholders attitudes." *In: ASCE's World Environmental & Water Resources Congress*. Cincinnati, OH, May 20-22, 2013.
57. **Piemonti, A.D.**, M. Babbar-Sebens, E.J. Luzar, "Analysis of stakeholder attitudes on optimized watershed management plans" *In: American Geophysical Union Chapman Conference on Seasonal to Interannual Hydroclimate Forecasts and Water Management*, Portland, OR, July 28-31, 2013.
58. Minsker, B.S., A. Singh, and M. Babbar-Sebens, "Handling model uncertainty: The importance of human knowledge," American Geophysical Union (AGU) Fall Meeting, San Francisco, California, December 3-7, 2012.
59. **Singh, V.B.**, S. Mukhopadhyay, and M. Babbar-Sebens, "Decentralized Pursuit Learning Automata in Batch Mode," *Proceedings of the 6th International Conference on Soft Computing and Intelligent Systems, The 13th International Symposium on Advanced Intelligent Systems*, Nov.20 - 24, Kobe, Japan, 2012.
60. **Piemonti, A.D.**, M. Babbar-Sebens, and E.J. Luzar, "Effect of land tenure and stakeholders attitudes on optimization of conservation practices in agricultural watersheds," American Geophysical Union (AGU) Fall Meeting, San Francisco, California, December 3-7, 2012.
61. **Piemonti, A.D.**, M. Babbar-Sebens, E.J. Luzar, "Effect of social attitudes on the spatial optimization of distributed best management practices to improve upland runoff storage in Eagle Creek watershed, IN," *American Society of Civil Engineers (ASCE) Environmental & Water Resources Institute 's (EWRI) World Environmental & Water Resources Congress* in Albuquerque, NM, May 20-24, 2012.
62. **Piemonti, A.D.**, M. Babbar-Sebens, E.J. Luzar, "A socioeconomic framework for incorporating stakeholder preferences in the optimization of distributed best management practices," *XIX International Conference on Computational Methods in Water Resources*, Urbana-Champaign, IL, June 17 – 21, 2012.
63. **Tilak, O.**, M. Babbar-Sebens, and S. Mukhopadhyay, "Decentralized and partially decentralized reinforcement learning for designing a distributed wetland system in watersheds," *Proceedings of the IEEE Systems, Man, and Cybernetics (SMC) Conference*, Anchorage, Alaska, Oct 9-12, pp. 271-276, ISBN 978-1-4577-0652-3, 2011.

64. **Bruder, S.**, M. Babbar-Sebens, and **S. Xie**, “Framework for Prediction of Spatial-Temporal Distribution of Algal Metabolites in Algal-Bloom Affected Water Bodies,” *American Society of Civil Engineers (ASCE) Environmental & Water Resources Institute 's (EWRI) World Environmental & Water Resources Congress* in Palm Springs, CA, May 22-26, 2011.
65. **Xie, S.**, M. Babbar-Sebens, and **S. Bruder**, “Remote Sensing Data Assimilation in Water Quality Numerical Models for Simulation of Algal Bloom Dynamics,” *American Society of Civil Engineers (ASCE) Environmental & Water Resources Institute 's (EWRI) World Environmental & Water Resources Congress* in Palm Springs, CA, May 22-26, 2011.
66. Li, L. and M. Babbar-Sebens, “Remote Sensing of Global Warming-Affected Inland Water Quality,” NASA Biodiversity and Ecological Forecasting Team Meeting, Washington, DC, May 17-19, 2010.
67. **Gamble, A.**, and M. Babbar-Sebens, “Combining Multivariate Statistics and GIS to Characterize Water Quality Conditions in the White River,” Central Indiana Water Resources Partnership Science Meeting, Indianapolis, IN, May 10th 2010.
68. Babbar-Sebens, M., **S. Xie**, and **S. Bruder**, “Development of Eagle Creek Reservoir Water Quality Model based on Environmental Fluid Dynamics Code,” Central Indiana Water Resources Partnership Science Meeting, Indianapolis, IN, May 10th 2010.
69. **Gamble, A.**, and M. Babbar-Sebens, “Combining Spatial Analysis and Multivariate Statistical Methods to Characterize Watershed Water Quality Conditions,” Proceedings of the American Water Resources Association Specialty Conference GIS and Water Resources VI in Orlando, FL March 29-31, 2010.
70. Tedesco, L.P., R.C. Barr, M. Babbar-Sebens, “Responding to Climate and Land Use Changes: Multi-Objective Optimization for Wetland Restoration Site Selection,” Indiana Association of Soil and Water Conservation Districts Annual Conference. January 12-14, Indianapolis, IN, 2010.
71. Babbar-Sebens, M., Barr, R.C., Tedesco, L.P., “Multiobjective Optimization for Wetland Restoration Site Selection - Eagle Creek Watershed, Indiana, USA,” *Proceedings of the American Society of Civil Engineers (ASCE) Environmental & Water Resources Institute 's (EWRI) 3rd developing nations conference: India 2010 - An International Perspective on Current & Future State of Water Resources & the Environment* , Chennai, India, January 5-7, 2010.
72. Babbar-Sebens, M., and S. Mukhopadhyay, “Reinforcement Learning for Human-Machine Collaborative Optimization: Application in Ground Water Monitoring,” *Proceedings of the IEEE Systems, Man, and Cybernetics (SMC) Conference*, pp. 3563 – 3568, 2009.
73. Anderson, M., Babbar-Sebens, M., Lobligois, F., Rampoux, N., Soyeux, E., and Tedesco, L., “Combining a conceptual hydrologic model (SWAT) and a hydrodynamic model (Telemac 3D) to simulate reservoir dynamics in Eagle Creek Reservoir,” Indiana, 5th International SWAT Conference, Boulder, Colorado, August 5-7, 2009.

74. Barr, R., Bender, A., Babbar-Sebens, M., Tedesco, L.P., "Reevaluating Indiana's Flood Management Strategies: Lessons from the Mississippi River Floods of 1993," 30th Annual Symposium "Floods of 2008, Status of Flood Plain Management, and Management to Protect Levees and Dams in Indiana, 2009.
75. Babbar-Sebens, M., Minsker, B.S., "Interactive Genetic Algorithm with Mixed Initiative Interaction for Water Resources Optimization," Proceedings of the 8th International Conference on Hydroinformatics, Concepción, Chile, 2009.
76. Teague, A., M. Babbar-Sebens, R. Karthikeyan, R. Srinivasan, J. Jacobs, M. McFarland, N. Dictson, and D. Boellstorff. "Spatially Explicit Load Enrichment Calculation Tool (SELECT) and Cluster Analysis for Identification of E. coli Sources in Plum Creek Watershed, TX," ASABE International Conference, Minneapolis MN, 2007.
77. Babbar-Sebens, M., R. Karthikeyan, and R. Srinivasan, "Development of an Extensive Fate and Transport Model for Pathogens in Watersheds," American Society of Agricultural and Biological Engineers (ASABE), Fourth Conference on Watershed Management to Meet Water Quality Standards and Emerging TMDL, San Antonio, TX, 2007.
78. Teague, A., M. Babbar-Sebens, R. Karthikeyan, and R. Srinivasan, J. Jacobs, M. McFarland, N. Dictson, and D. Boellstorff, "Spatially Explicit Load Enrichment Calculation Tool (SELECT) and Load Duration Curves for Identification of E. coli Sources in Plum Creek Watershed, TX," American Society of Agricultural and Biological Engineers (ASABE), Fourth Conference on Watershed Management to Meet Water Quality Standards and Emerging TMDL, San Antonio, TX, 2007.
79. Babbar-Sebens, M., and B. S. Minsker, "Interactive Genetic Algorithm - An Adaptive and Interactive Decision Support Framework for Design of Optimal Groundwater Monitoring Plans," American Geophysical Union (AGU) Fall Meeting, San Francisco, CA, 2006.
80. Babbar, M., and B. S. Minsker, "A Collaborative Interactive Genetic Algorithm Framework for Mixed-Initiative Interaction with Human and Simulated Experts: A Case Study in Long-Term Groundwater Monitoring Design," American Society of Civil Engineers (ASCE) Environmental & Water Resources Institute (EWRI) World Water & Environmental Resources Congress 2005 & Related Symposia, Omaha, NE, 2006.
81. Babbar, M., and B. S. Minsker, "Long-Term Groundwater Monitoring Optimization: Facing the Real World Challenges," Midwest Ground Water Conference, Urbana, IL, 2005.
82. Babbar, M., B. S. Minsker, and H. Takagi, "Expert Knowledge in Long-Term Groundwater Monitoring Optimization Process: The Interactive Genetic Algorithm Perspective," American Society of Civil Engineers (ASCE) Environmental & Water Resources Institute (EWRI) World Water & Environmental Resources Congress 2005 & Related Symposia, Anchorage, AK, 2005.
83. Babbar, M., B. S. Minsker, and H. Takagi, "Interactive Genetic Algorithm Framework for Long-Term Groundwater Monitoring Design," American Society of Civil Engineers (ASCE) Environmental & Water Resources Institute (EWRI) World Water & Environmental Resources Congress 2004 & Related Symposia, Salt Lake City, UT, 2004.

84. Sinha, E., B. S. Minsker, and M. Babbar, "Multiscale Island Injection Genetic Algorithm for Ground Water Remediation," American Society of Civil Engineers (ASCE) Environmental & Water Resources Institute (EWRI) World Water & Environmental Resources Congress 2004 & Related Symposia, Salt Lake City, UT, 2004.
85. Babbar, M., and B. S. Minsker. "Multiscale Strategies for Solving Water Resources Management Problems with Genetic Algorithms", American Society of Civil Engineers (ASCE) Environmental & Water Resources Institute (EWRI) World Water & Environmental Resources Congress 2003 & Related Symposia, Philadelphia, PA, 2003.
86. Babbar, M., A. Lakshmikantha and D.E. Goldberg. "A Modified NSGA-II to Solve Noisy Multiobjective Problems," in James Foster (editors), 2003 Genetic and Evolutionary Computation Conference. Late-Breaking Papers, pp. 21--27, AAAI, Chicago, Illinois, USA, July 2003.
87. Babbar, M., and B. S. Minsker. "A Multiscale Master-Slave Parallel Genetic Algorithm with Application to Groundwater Remediation Design," W. L. Langdon, E. Cantu-Paz, K. Mathias, R. Roy, D. Davis, R. Poli, K. Balakrishnan, V. Honavar, G. Rudolph, J. Wegener, L. Bull, M. A. Potter, A. C. Shultz, J. F. Miller, E. Burke, and N. Jonoska, editors. 2002. Proceedings of the Genetic and Evolutionary Computation Conference, GECCO'2002. New York, Morgan Kaufmann Publishers, 2002.
88. Babbar, M., B. S. Minsker, and D. Goldberg, "A Multiscale Island Injection Genetic Algorithm for Optimal Groundwater Remediation Design," American Society of Civil Engineers (ASCE) Environmental & Water Resources Institute (EWRI) 2002 Water Resources Planning & Management Conference, Roanoke, VA, 2002.

C2.2. Participation at Invitational Workshops

1. *(Panelist)* Babbar-Sebens, M. (2022). Watershed/River-basin Scale Governance, and Policy. *Future of Water Summit 2022*. Miami Beach, FL. Aug 8-10, 2022.
2. *(Panelist)* Babbar-Sebens, M. (2021). Listening Session to Support the USGCRP: Water Theme. *The National Academies*. Virtual. Nov 9, 2021.
3. *(Moderator)* Governance and Implementation Workshop, *NSF Engineering Research Center (ERC) Smart One Water (SOW) Planning, Virtual Workshop, Dec 7, 2020*.
4. *(Moderator)* Stakeholders Workshop, *NSF Engineering Research Center (ERC) Smart One Water (SOW) Planning, Arlington, VA Dec 9, 2019*.
5. *(Participant)* Science Gateways Bootcamp, *Science Gateways Community Institute, Indianapolis, May 13-17, 2019*.
6. *(Participant)* Babbar-Sebens, M. (2017). Leading Practices for Achieving Resilient & Sustainable Water Infrastructure Systems. Sustainable Water Infrastructure Management Conference, Dec 6-7, Arlington, VA.

7. *(Participant)* Babbar-Sebens, M. (2016). Multi-LCC Mississippi River Basin / Gulf Hypoxia Initiative (MRB/GHI) Precision Conservation Research & Design Forum, March 1-3, Indianapolis, IN.
8. *(Participant)* Babbar-Sebens, M. (2016). NCSE's 16th National Conference and Global Forum on Science, Policy and the Environment: The Food-Energy-Water Nexus, Jan 19-21, Arlington, Virginia.

C3. Grant and Contract Support

List covers grants/contracts on which candidate served as PI or coPI only, including those funded through other institutions. “My share” indicates the amount of funding, if any, over which the candidate had control.

<i>Agency & Dates</i>	<i>PI (and coPIs)</i>	<i>Title</i>	<i>Total Budget</i>	<i>My Share</i>
National Science Foundation (09/22-08/23)	Meghna Babbar-Sebens (PI), Kristen Macuga (co-PI), and Snehasis Mukhopadhyay (co-PI), Raghavan Srinivasan (Senior P.)	SAI-P: Cognitive Multi-Model Systems for Integrating Human Behavioral Uncertainty in Participatory Design of Nature-based Infrastructure in Watersheds	\$150,000	\$120,260
Department of Energy (10/22-09/24)	Katherine Klise (PI), Sammy Rivera (co-PI), Meghna Babbar-Sebens (co-PI), Mikhail Chester (co-PI)	Developing Dynamic and Uncertainty-Aware Infrastructure Models for Resilience Analysis	\$697,000	\$0
National Science Foundation (03/19-02/23)	Meghna Babbar-Sebens (PI), Rachael Cate (Sen. Person.), Erica Fischer (Sen. Person.), Meagan Wengrove (Sen. Person.), Tala Navab-Daneshmand (Sen. Person.), Tyler Radniecki (Sen. Person.), Eduardo Cottilla-Sanchez (Sen. Person.), Dan Cox (Sen. Person.), Ben Leshchinsky (Sen. Person.), Judy Liu (Sen. Person.),	REU Site: Engineering for Bouncing Back	\$360,000	\$360,000

	Armin Stuedlein (Sen. Person.)			
Department of Defense, SERDP (06/18-12/22)	Staci Simonich, Jennifer Field, Meghna Babbar-Sebens, Tyler Radniecki, and Greg Wilson	Development, Evaluation, and Technology Transfer of BMPs for Optimizing Removal of PAHs, PCBs, PFASs, and Metals from Stormwater at DoD Sites	\$1,415,327	\$158,820
NOAA CIMRS (09/19-08/21)	Michael Banks and Meghna Babbar-Sebens	Towards improved and efficient in-stream temperature models for optimization of best management practices in temperature-impaired watersheds	\$109,961.00	\$103,639.00
National Science Foundation 10/19-04/21 (<i>not routed via OSU</i>)	Sunil Sinha (PI), co-PIs (Paolo Gardoni, Gina McCarthy, Luisa Seijo-Maldonado, Jeanne VanBriesen), and Senior Personnel (Meghna Babbar-Sebens, Neil Grigg, Jayantha Obeysekera, Anil Vulikanti, and Daniel Deocampo)	Planning Grant: Engineering Research Center for Smart One Water (SOW)	\$99,474 (no sub-contract)	Travel Support
India SPARC (<i>not routed via OSU; see https://sparc.iitkgp.ac.in/</i>) 3/19-3/21	Meenu Ramadas (Indian PI), Meghna Babbar-Sebens (US PI), Nagesh Kolagani (Indian co-PI), Palaniappan Ramu (Indian co-PI), Yogesh Simmhan (Indian co-PI), Jenna Tilt (US co-PI), Suresh Marru (US co-PI)	Stakeholder-driven Decision Support Cyberinfrastructure for Empowering Rural Communities to Plan for Water-Agro-Energy-Climate Resiliency	INR 91.62 Lakhs (USD 125K) (no sub-contract)	Honorarium and Travel to IIT Bhubaneswar, India
USDA/NSF, INFEWS Program (01/17-12/21)	Meghna Babbar-Sebens (PI), Ganti Murthy (co-PI), Jeffery Reimer (co-PI), Jennifer Tilt (co-	INFEWS/T2: Collaborative: iFEWCoordNet - a secure decision support system	\$1,500,000	\$1,168,025

	PI), Snehasis Mukhopadhyay (co-PI), Arjan Durrezi (co-PI)	for coordination of adaptation planning among FEW actors in the Pacific Northwest		
PACTRANS (12/15-1/16)	Meghna Babbar-Sebens (PI)	Improving Sustainability of Urban Streets via Rain Gardens – How Effective Are These Practices in the Pacific Northwest?	\$4000	\$4000
Department of the Interior (DOI) Climate Science Centers (CSCs) 08/14-08/16	Jack B. Waide (PI), Timothy J. Fox (co-PI), Jason J. Rohweder (co-PI), Meghna Babbar-Sebens (co-PI), Linda S. Prokopy (co-PI)	Incorporating Social Drivers to Optimize Conservation Practices that Address Gulf Hypoxia and Declining Wildlife Populations Impacted by Extreme Climate Events	\$154,060	\$60,739
NOAA 08/14-07/16	Meghna Babbar-Sebens (PI), Kristen Macuga (co-PI), Snehasis Mukhopadhyay (co-PI)	An interactive and participatory web-based optimization tool for supporting community learning and collaborative design of adaptation action plans in watersheds	\$100,000	\$94,900
Oregon BEST 07/14-06/15	Meghna Babbar-Sebens (PI)	Green Infrastructure for Stormwater Treatment in Benton County, Oregon	\$22,054	\$22,054
Oregon Water Resources Department/Benton County 07/14-06/15	Adam Stebbins (PI) and Meghna Babbar-Sebens (co-PI)	Green Infrastructure for Stormwater Treatment in Benton County, OR	\$48,656	\$48,159
PACTRANS 09/13-08/14	Meghna Babbar-Sebens (PI) and Arturo Leon (co-PI)	Improving sustainability of urban streets via rain gardens –	\$25,000	\$12,500

		How effective are these practices in the Pacific Northwest?		
Oregon State University's URSA-ENGAGE program for Undergraduate Research 01/14-06/14	Meghna Babbar-Sebens (PI)	Web-based human-computer collaborative optimization of sustainable conservation practices in watersheds	\$1,500	\$1,500
NSF 10/12-09/14	Meghna Babbar-Sebens (PI) and Snehasis Mukhopadhyay (co-PI)	ESE: Spatial Interactive Optimization for Restoration of Upland Storage in Watersheds: Community Participation in the Design of Distributed Practices and Alternatives	\$279,213	\$279,213
NSF 10/10-09/12	Meghna Babbar-Sebens (PI) and Snehasis Mukhopadhyay (co-PI)	ESE: Spatial Interactive Optimization for Restoration of Upland Storage in Watersheds: Community Participation in the Design of Distributed Practices and Alternatives (<i>Award was transferred to Oregon State University in 2012</i>)	\$130,787 <i>(Original budget of \$410,000, out of which \$130,787 spent at Indiana University)</i>	\$130,787
Citizens Energy Group 10/11-9/12	Meghna Babbar-Sebens (PI)	Algae, Taste and odor, and Algal Toxin Monitoring Program for Indianapolis Drinking Water Reservoirs	\$150,000	\$0 <i>(Award was not transferred to Oregon State University)</i>
USDA-NRCS 10/11-12/12	Meghna Babbar-Sebens (PI)	Indiana USDA-NRCS CREP Wetlands Site Identification Project	\$79,982	\$79,982

NASA 03/10-03/11	Lin Li (PI), Meghna Babbar-Sebens (Co-I), Lenore Tedesco (Collaborator)	Remote Sensing of Global Warming-Affected Inland Water Quality: Challenge, Opportunity and Solution	\$72,524	\$36,262
Central Indiana Water Resources Partnership 01/10-12/12	Meghna Babbar-Sebens (PI)	Towards the Development of a Decision Support System for Managing Eutrophication and Human Health Impacts in Central Indiana Reservoirs	\$107,980	\$107,980
USEPA/Indiana Department of Environmental Management 10/09-09/12	L.P. Tedesco (PI), and Meghna Babbar-Sebens (co-PI)	Eagle Creek Watershed Implementation Project	\$655,375	\$153,642
Indiana State Department of Agriculture 01/09-01/10	Lenore Tedesco (PI) and Meghna Babbar-Sebens (co-PI)	A Model to Identify Constructed Wetland Sites to Maximize Nitrate Reduction and Flood Mitigation	\$38,000	\$38,000
Indiana University - Bloomington – IUPUI Intercampus Collaboration in Environmental Research 01/09-06/10	K. Clay (PI), S. Hall (co-PI), H. Reynolds (co-PI), T. Royer (co-PI), L. Tedesco (co-PI), P.A. Jacinthe (co-PI), M. Babbar-Sebens (co-PI)	Sustaining Water Resources: Environmental Impacts of Chemical Loadings and Transport during Floods	\$50,333	\$10,000
KompetenzZentrum Wasser Berlin 01/09-12/12	L. Tedesco (PI), Meghna Babbar-Sebens (co-PI) and P.A. Jacinthe (co-PI)	Performance Analysis of Selected Mitigation Systems Used to Attenuate Diffuse Pollution Occurring during Baseflow and High Flow Events from Agricultural Fields (Aquisafe 2)	\$216,200	\$75,000

<i>Totals</i>			\$6,592,426	\$2,945,202

C3.1. Donations

<i>Year</i>	<i>Source</i>	<i>Donation</i>	<i>Approx Value</i>
2020	XSEDE	Research Allocation: InterACTWEL Science Gateway for Adaptation Planning of Food-Energy-Water Nexus	\$50,000 in-kind

C3.2. Proposals under Review

<i>Agency</i>	<i>PI (and co-PIs)</i>	<i>Title</i>	<i>Budget</i>	<i>Duration</i>
NSF	Meghna Babbar-Sebens (PI), Neeraja Havaligi (co-PI), Arjan Durresti (co-PI), Avi Ostfeld (co-PI), Avshalom Babad (co-PI)	III :Small: NSF-BSF: Trust Loops for Participatory Planning of Multi-Scale Adaptation Pathways in Drought-vulnerable Rural Communities	\$600,000 (NSF); \$357,100 (BSF)	3 years
NSF	Meghna Babbar-Sebens (PI), Jamie Trammell (co-PI), Vidya Samadi (co-PI), Ibrahim Demir (co-PI)	LEAP-HI: Accelerating participatory discovery of socio-economic tipping points in rural and underserved communities vulnerable to water-related hazards	\$2,000,000	3 years
US-Israel BARD	Meghna Babbar-Sebens (PI), Avi Ostfeld (co-PI), Avshalom Babad (co-PI)	Integration of Modern and Ancient Practices for Drought-Resilient and Sustainable Irrigated Agriculture	\$310,000	3 years
USDA	Raghavan Srinivasan (PI), Meghna Babbar-Sebens (co-PI), Terry Nipp (co-PI)	ECO-HAWQS@Farm: Helping small farms manage climate risk with economically viable conservation practices	\$650,000	3 years
NSF	Sunil Sinha (PI), Meghna Babbar-Sebens (co-PI), Paolo Gardini (co-PI), David Dzombak (co-PI)	NSF Engineering Research Center for Smart One Water (LOI submitted; Pre-proposal due October 2022)	N/A	10 years
Climate Adaptation Science Centers	Broxton Bird (PI), Robert C. Barr (co-PI), Snehasis Mukhopadhyay (co-PI), Meghna	Participatory Design of Nature-Based Flood Adaptation Infrastructure in Haw Creek Watershed, IN	\$400,000	2 years

	Babbar-Sebens (co-PI)			
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C4. Patents Filed and In Process

None.

C5. Other Scholarship and Creative Activities

3. Testing Services

- a. Developed partnership with Hydro International to test commercial stormwater technology at OSU-Benton County Green Stormwater Infrastructure Research (OGSIR) Facility. Agreement for testing services is for period 2018-2020, \$18,804.
- b. Testing at OGSIR for Microbiome Engineering USEPA SBIR Grant, \$2,640.

4. Facility and Laboratory Development

- a. Design and construction of a novel treatment train at OGSIR Facility for optimizing treatment of contaminants (nutrients, heavy metals, PAH, and PFAS) in stormwater in urban areas, 2020-2021. Funded by Department of Defense SERDP program.
- b. OSU-Benton County Green Stormwater Infrastructure Research (OGSIR) Facility: This research and testing facility was constructed via collaboration between Oregon State University and Benton County, with funding from PACTRANS, Oregon BEST, and Oregon Water Resources Department. <http://research.engr.oregonstate.edu/hydroinformatics/Avery>
- c. ESA Windows High Performance Computing Cluster consisting of Dell PowerEdge R620 servers with 112 nodes

5. Websites Development

- a. Web Portal for InterACTWEL Science Gateway and Cyberinfrastructure, <https://interactwel.org/>, for InterACTWEL (Interactive Adaptation and Collaboration Tool for managing Water, Energy and Land) Decision Support System, 2020.
- b. InterACTWEL, <http://interactwel.oregonstate.edu>, Project website to support decision support system InterACTWEL (Interactive Adaptation and Collaboration Tool for managing Water, Energy and Land). InterACTWEL is a web-based, problem-solving tool to help food, energy, and water stakeholders in a local community to collaboratively design and visualize plans for adaptive long term management of water, energy, and land resources.
- c. Hydroinformatics Research Group, <http://research.engr.oregonstate.edu/hydroinformatics/>, Oregon State University, Template Courtesy Oregon State University Marketing

6. Software, Algorithms, and Computational Programs Development

1. Cyberinfrastructure for InterACTWEL (Interactive Adaptation and Collaboration Tool for managing Water, Energy and Land) Science Gateway. InterACTWEL is a web-based, problem-solving tool that supports data analytics and simulation-optimization to help food, energy, and water stakeholders in a local community to collaboratively design and visualize plans for adaptive long term management of water, energy, and land resources.
 2. WRESTORE, <http://wrestore.iupui.edu>: A web-based, optimization-based, social computing software for stakeholder-driven design of a distributed system of ecological practices in watersheds that mitigate flooding and water quality impacts
- **Public Media Coverage**

1. ASCE Civil Engineering Magazine, May 2016, Page 24: *Civil Engineering News: Climate Change: Study says restoring wetlands in Midwest could reduce flooding.*
 2. Phys.org: <http://phys.org/news/2016-03-wetland-midwest-catastrophic-future.html>
 3. OSU: <http://oregonstate.edu/ua/ncs/archives/2013/mar/new-system-restore-wetlands-could-reduce-massive-floods-aid-crops>
 4. Indiana Public Media: <http://indianapublicmedia.org/news/researchers-develop-online-landscape-design-testing-47504/>
 5. Smithsonian Magazine: <http://blogs.smithsonianmag.com/science/2013/04/new-web-tool-helps-avoid-flooding-by-finding-the-best-spots-to-build-wetlands/>
- **Professional development and workshops**
 1. Participated in Social Justice Education Initiative workshop, Oregon State University, October 2021.
 2. Participate in Search Advocate Foundations series workshop, June 2021.
 3. Participate (*invitation only*) in Urban Green Infrastructure Summit, Tigard, OR, February 21, 2018.
 4. Participate (*invitation only*) in NSF funded NCAR-CUAHSI-ESM Workshop in Boulder, CO, 11-12, Nov 2013, for Early Career Scientists
 5. OSU College of Engineering NSF CAREER workshop, May 2013
 6. OSU Promotion and Tenure workshop, April 2013
 7. Oregon Lakes Association's Harmful Algae Bloom Technical Workshop, April 2013
 8. NSF's Early Career Geoscience Faculty Workshop: Teaching, Research, and Managing Your Career. June 14-18, 2009 at the College of William and Mary, sponsored by the National Association of Geoscience Teachers with funding provided by National Science Foundation Division of Undergraduate Education (2009)
 9. Society for Risk Analysis Conference. Attended workshop on "Probabilistic Risk Analysis with Hardly Any Data" by Scott Ferson and W. Troy Tucker (2008)
 - **Student accomplishments**
 1. Ph.D. Student, Mr. Sudip Gautam, was awarded the College of Engineering Graduate Teaching Assistant Award – 2022.
 2. Ph.D. Advisee, Dr. Efrain Noa recruited as a postdoctoral researcher at Texas A&M University, 2022.
 3. Ph.D. Advisee, Dr. Luis Gomez, was recruited to be a Lecturer in the Civil Engineering Department at the University of Texas Rio Grande Valley, 2022.
 4. M.S. student, Ms. Alisha Saduova, was awarded Oregon Lottery Graduate Scholarship – 2020-2021.
 5. Ph.D. student, Mr. Amir Javaheri, was awarded the CCE Outstanding Graduate Student of the Year Award – 2017.
 6. M.S. student, Mr. Efrain Noa, and his team was awarded First place in the Ecological Visualization Contest – 2017.
 7. Ph.D. student, Mr. Amir Javaheri, was selected to attend the National Water Center Innovators Program: Summer Institute program organized by Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI), 2016.
 8. M.S. student, Mr. Grant Livingston, won
 - first place in student paper competition at the Association of State Floodplain Managers Annual National Conference, 2014,
 - second-place in the OSU CCE/MIME Graduate Research Expo in Portland, OR, March 2014, and
 - best poster award in OSU Water Research Symposium, 2014.

9. Ph.D. student, Ms. Adriana Piemonti, won the first-place in the graduate division of the ASCE-EWRI 2014 Congress Student Technical Paper Contest

D. Service

D1. University Service

Oregon State University (2012-present)

1. Search Advocate on Chief Curator Search Committee, 2022.
2. CCE School Promotion and Tenure Committee, 2021
3. CCE Associate School Head Search Committee, 2021
4. CCE Graduate Committee, 2021-2022.
5. CCE Undergraduate Committee, 2020-2021.
6. CCE Mid-Tenure Committee, 2019
7. University Water Resources Graduate Program Steering Committee, 2018
8. CoE Search Committee for CBEE Head Position, 2018
9. CCE Resilience Seminar Series, Seminar Coordinator, 2018
10. CCE Promotion and Tenure Committee, chaired Ad Hoc Sub Committee (AHSC), 2018
11. CCE SURF REU Planning Committee, 2017, 2018
12. CoE Clean Water Engineering Faculty Search Committee, 2017 – 2018
13. CoE Clean Water Initiative Committee, 2018
14. Panel member for College of Engineering Faculty Boot Camp Series, September 21, 2018
15. CCE Graduate Committee, 2016, 2017, 2018
16. CCE Safety Research Thrust Committee, 2017, 2018
17. CCE Resilience Research Thrust Committee, 2017, 2018.
18. Panel member for College of Engineering Faculty Boot Camp Series, October 6, 2017
19. Water Resources/Coastal Engineering Faculty Search Committee, 2016-2017
20. BEE Water Quality Engineering Faculty Search Committee, 2015-2016
21. CCE Computational Thinking Committee, 2015-2016
22. CCE Architectural Engineering Committee, 2015-2016
23. CCE Graduate Committee, 2015-2016
24. CCE Curriculum Committee, 2014-2015
25. CCE Geomatics Faculty Search Committee, 2013-2014
26. Water Resources Graduate Committee, 2012-2013
27. College of Engineering Faculty Advisory Committee, 2013
28. CCE Strategic Planning Committee, 2012-2013
29. Computational Laboratory Coordinator, 2012

Indiana University Purdue University Indianapolis (2008-2012)

1. School of Science Research Committee (5/16/2010 onwards)
2. IUPUI E.C. Moore Planning committee
3. School of Science Appeals Committee (1/1/2010-5/15/2010)
4. Hydrology faculty search committee (2010-2011)
5. Ph.D. curriculum planning committee (2010-2011)
6. Graduate Student Committee (2010, 2011)
7. New offices construction committee, 2009-2010
8. Chaired a committee to restructure the hydrology courses taught in Earth Sciences department (Spring 2009).
9. Department space re-organization committee (Fall 2008)

D2. Service to the Profession

D2.1. Journal Editorships

- Editor in Chief, Journal of Water Resources Planning and Management, American Society of Civil Engineering, 2022-current
 - The position is expected to be officially confirmed by ASCE EWRI Governing Board on July 15, 2022, and will have a start date in August 2022.
- Editor, Journal of Water Resources Planning and Management, American Society of Civil Engineering, 2020-2022
- Associate Editor, Journal of Water Resources Planning and Management, American Society of Civil Engineering, 2015-2020
- Handling Editor, Applied Soft Computing, The Official Journal of the World Federation on Soft Computing (WFSC), Elsevier, 2019-current
- Associate Editor, Frontiers in Water | Water Resources Management, 2021-current

D2.2. Conference and Workshop Organization

1. Moderator and Organizer for workshop on “Data-driven and stakeholder-centered adaptive management of food, energy, and water nexus” on February 28 - March 04, 2022, virtually via Teams Meeting, India.
2. Moderator and Organizer for workshop on “From Knowledge to Action: A Vision for Resilient Rural India” on January 7-9, 2020 at School of Infrastructure, IIT Bhubaneswar, India.
3. Moderator and Organizer for workshop on NSF Engineering Research Center (ERC) Smart One Water (SOW) Planning, Virtual Workshop, Dec 7, 2020.
4. Moderator for ASCE EWRI’s World Environmental & Water Resources Congress, 2018
5. Moderator for ASCE EWRI’s World Environmental & Water Resources Congress, 2017
6. Session chair and moderator for ASCE EWRI’s World Environmental & Water Resources Congress, 2016
7. Training workshop on Soil and Water Assessment Tool in collaboration with colleague Dr. R. Srinivasan, Sep 21-25, 2015, Corvallis, OR.
8. Session chair and moderator for “Computational Intelligence for Water Sustainability” session in IEEE International Conference on Systems, Man, and Cybernetics (SMC 2014), San Diego, California, USA during Oct. 5-8, 2014.
9. Co-chair and instructor for workshop on ArcSWAT watershed model at the 2013 AWRA Annual Water Resources Conference, Nov 3rd, Portland, OR.
10. Track chair for ASCE EWRI’s World Environmental & Water Resources Congress, 2011, 2013, 2014.
11. Session moderator: ASCE EWRI’s 3rd Developing Nations Conference: India 2010.

D2.3. Conference Program Committees

1. Vice-Chair, ASCE EWRI Planning and Management Council (2021-2023)
2. Secretary, ASCE EWRI Planning and Management Council (2019-2021)
3. Chair of ASCE EWRI Task Committee on Civil Engineering Perspectives on Food, Energy, and Water Nexus, 2018-2022
4. Secretary of ASCE EWRI Task Committee on Adaption to a Changing Climate, 2018-2021
5. Past-Chair of ASCE EWRI’s Environmental and Water Resources Systems committee, 2018.

6. Steering Committee, Clean and Sustainable Water Technology Initiative Workshop, Oregon State University, 2018
7. Chair of ASCE EWRI's Environmental and Water Resources Systems committee, 2017.
8. Member of International Program Committee of 8th International Conference on Evolutionary Computation Theory and Applications - ECTA 2016
9. Vice Chair of ASCE EWRI's Environmental and Water Resources Systems committee, 2016.
10. Secretary (*voted position*) of ASCE EWRI's Environmental and Water Resources Systems committee, 2015.
11. Vice Chair of ASCE EWRI Autonomous Robot Task Committee, 2015-2018.
12. Member of ASCE Excellence in Systems Analysis Teaching and Innovative Communication (ECSTATIC) Task Committee, 2015-2018.
13. Member of ASCE Hydroclimatic Prediction for Water Resources Systems Task Committee, 2015-2018.
14. Member of Program Committee for 2015 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2014), San Diego, California, USA during Oct. 5-8, 2014
15. Member of Program Committee for 2014 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2014), San Diego, California, USA during Oct. 5-8, 2014
16. Member of ASCE EWRI's Environmental and Water Resources Systems committee, 2006 - present.
17. Member of IEEE Systems, Man and Cybernetics Society's Technical Committee on Soft Computing, 2010-present.
18. Member of IEEE Systems, Man and Cybernetics Society's Human-Computer Interface Technical Committee, 2010-present.

D2.4. Reviewing

Peer-reviewing for journals and proceedings (year (# of reviews))

1. Advances in Water Resources (2006(1))
2. Annals of Operations Research (2016(1))
3. Applied Soft Computing (2014(4), 2015(4), 2017(3), 2018(1), 2020(11))
4. ASABE (2014(1))
5. ASCE EWRI's World Environmental & Water Resources Congress (2010(3))
6. Ecological Engineering (2013(1), 2018(1))
7. Environmental Engineering and Management (2015(1))
8. Environmental Modeling and Software (2015(1), 2016(2), 2017(1), 2018(1), 2019(1), 2020(1))
9. Environmental Monitoring and Assessment (2011(3), 2012(1), 2013(1), 2014(2), 2015(1), (2016(1), 2018(1), 2020(1))
10. GECCO (Proceedings of the Genetic and Evolutionary Computation Conference), AAAI, USA (2003(1))
11. Groundwater (2008(1))
12. Hydrological Processes (2016(1))
13. IEEE Congress on Evolutionary Computation (2010(1), 2011(3))
14. IEEE Systems, Man, and Cybernetics Conference (2010(3), 2011(5), 2014(8))
15. Journal of Computing in Civil Engineering (2011(4), 2012(2), 2015(1))
16. Journal of Contaminant Hydrology (2008(1), 2009(1))
17. Journal of Environmental Management (2016(1))
18. Journal of Geoscience Education (2008(1))
19. Journal of Hydroinformatics (2009(1), 2010(1), 2011(2), 2013(3), 2015(2), 2018(2))

20. Journal of Hydrologic Engineering (2009(1), 2010(4), 2011(8), 2012(2), 2013(2), 2014(3), 2016(1), 2020(2))
21. Journal of Hydrology (2009(1), 2012(2), 2013(4), 2015(2), 2016(1))
22. Journal of Sustainable Water in the Built Environment (2021(1))
23. Journal of Water Resources Planning and Management (2007(1), 2008(1), 2009(2), 2011(1), 2012(1), 2014(2), 2015(16), 2017(2), 2020(13), 2022(1))
24. Journal of American Water Resources Association (2020(1))
25. Land (2021(1))
26. Land Economics (2015(1))
27. Science of the Total Environment (2019(1))
28. Sensors (2016(1))
29. Sustainable and Resilient Infrastructure (2022(2))
30. Sustainable Cities and Society (2022(1))
31. Transport in Porous Media (2006(1))
32. Water Resources Management (2014(3), 2015(3), 2018(1), 2022(1))
33. Water Resources Research (2013(1), 2015(2), 2016(1), 2018(2), 2022(1))
34. Water Research (2016(1), 2019(1))

Peer-reviewing for proposals (year (# of reviews))

1. National Science Foundation, Postdoctoral Fellowship (2022 (1))
2. USDA, AFRI, Water Quantity and Quality Panel (2021 (11))
3. National Science Foundation, Hydrologic Science (2020 (1))
4. National Science Foundation, Research Experience for Undergraduates (2019(10))
5. National Science Foundation, Cyber Physical Systems program (2017 (15), 2018 (8))
6. Indiana Water Resources Research Center (2018(1))
7. Oregon State University General Research Funds (2016(1))
8. National Science Foundation, Environmental Engineering program (2012(8), 2014(10), 2015 (10))
9. Purdue Research Foundation's Summer Faculty Grants and Research Grants (2010 (11))
10. IUPUI Signature Center pre-proposal review (2011(2))
11. IUPUI E.C. Moore Symposium (2010 (8))
12. Smithsonian Institution and Indo-US Science & Technology Forum (2010 (1))

D2.5. Other

1. Developed a new ASCE policy proposal in 2020 on Civil Infrastructure Systems and Food-Energy-Water Nexus. Policy proposal currently under review by ASCE EWRI Board, Energy, Environment and Water Policy Committee, and Public Policy Committee.
2. Led the development of a proposal for a journal Special Collection on Systems Analysis Approaches for Managing Natural and Built Water Environments for the Food-Energy-Water Nexus, for the ASCE Journal of Water Resources Planning and Management, 2020. The proposal was approved and the Special Collection is now active on journal webpage.
3. As an Associate Editor of ASCE Journal of Water Resources Planning and Management led the development of a proposal on an updated journal scope, 2020.
4. Member of Oregon BEST (*Built Environment & Sustainable Technologies*) Center, Oregon
5. Steering Committee member, Oregon Water Tech Innovators, Oregon, 2016-current.
6. Co-chair of Certificate of Merit Committee, Society of Women Engineers, Willamette Valley Section, Oregon, 2015-current.
7. Member of US Fish and Wildlife's Eastern Tallgrass Prairie and Big Rivers Landscape Conservation Cooperative (ETPBR LCC) Technical Advisory Groups

8. Member participant in NSF funded National Socio-Environmental Synthesis Center (SESYNC) project on “Advancing Research on the Perception, Role, & Function of Urban Green Infrastructure by Bridging the SESYNC Synthesis Process with an Open Community Engagement Process for Software Development”, 2013-2015
9. Member participant in NSF funded National Socio-Environmental Synthesis Center (SESYNC) project on “Core Modeling Practices”, 2015-2017
10. Member of PNW Tribal Climate Change Network
11. Member of IEEE Systems, Man and Cybernetics Society
12. Member of ASCE, American Society of Civil Engineers, Member of the Environmental & Water Resources Institute.
13. Member of AGU, American Geophysical Union, Member of Hydrology Section.
14. Member of AAUW, American Association of University Women
15. Past Member of SRA, Society for Risk Analysis.
16. Past Member of ISGEC, International Society for Genetic and Evolutionary Computation.

D3. Service to the Public

D3.1. Professionally Related

- Partner with Marys River Watershed Council on Urban Waters Program in Benton County, 2020-2021.
- Partner with Columbia Slough Watershed Council for Flood Management panel, 2020-2021.
- Partner with colleagues to help develop the chapter on Built Environment for the Fifth Oregon Climate Assessment for the State of Oregon and Oregon Climate Change Research Institute at Oregon State University
- Invited nominations, and prepared and distributed certificates of merits to high schools, as a representative of Society of Women Engineers, Willamette Valley Section, Oregon, 2016.
- Bioswale hydrologic assessment at Stoneybrook Lodge, Corvallis, OR, 2015.
- City of Corvallis Healthy Streets Technical Advisory Committee, 2012- 2013
- Dixon Creek watershed tour – Presenter for green infrastructure practices, June 2013

D3.2. Other Public Service

- Assist Dr. Tom Catena and Dan Phillips of Mother of Mercy Hospital in Nuba, Sudan, Africa, with flood mitigation planning, 2018.
- City of Corvallis 8th Annual Sustainability Fair & Town Hall, Volunteer, 2015.
- Science fair judge: Little Flower Catholic School, Indianapolis, IN (2009, 2011)

E. Awards

E1. National and International Awards

- 2021 Best Associate Editor Award for ASCE Journal of Water Resources Planning and Management
- Outstanding Reviewer Award, Journal of Hydrologic Engineering, American Society of Civil Engineers, 2012.
- Outstanding Reviewer Award, National Ground Water Association recognition for outstanding review of a paper in the journal *Groundwater*, 2009.

E2. State and Regional Awards

None.

E3. University or Community Awards

- Collaborative Research Award, College of Engineering, Oregon State University, 2021.
- Eric H.I. and Janice Hoffman Faculty Scholar in Civil and Construction Engineering, 2015-2017
- Nominated for Jaguar Academic Advising Association's IUPUI Advisor of the Year Award, 2011.
- Smt. Kaushalya Arya Award: Outstanding woman student in B.E. / B.Arch. final year, IIT (Roorkee), India, 2000.
- Birla Institute of Scientific Research Medal, India, 2000.
- Thomason Award: Outstanding academic performance in College of Engineering, IIT (Roorkee), India, 2000.
- Sirpur Paper Mills Medal: Outstanding performance in Design courses, IIT (Roorkee), India, 2000.