

Erfan Goharian, Ph.D.

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CURRENT POSITION

Assistant Professor, Civil and Environmental Engineering, University of South Carolina, Columbia, SC
Aug 2018 – present

RESEARCH INTERESTS

- ♦ Water Resources Modeling and Management
- ♦ Flood Monitoring, Modeling, and Management Systems
- ♦ Artificial Intelligence and Hydroinformatics
- ♦ Natural Disaster Vulnerability and Resilience
- ♦ Systems Dynamics and Multi-Criteria Decision Making and Optimization
- ♦ Climate Change Impact Assessment

EDUCATION

- ♦ **University of California, Davis, CA**
Post-Doctoral Researcher, Water Resources and Hydrology, 2016-2018
- ♦ **University of Utah, Salt Lake City, UT**
Ph.D. Civil and Environmental Engineering (Water Resources Management), Dec. 2015
- ♦ **University of Tehran, Tehran, Iran**
M.Sc. Civil and Environmental Engineering (Water Resources Management), Jan. 2012
- ♦ **Ferdowsi University of Mashhad, Mashhad, Iran**
B.Sc. Civil and Environmental Engineering, Sep. 2009

GRANTS & PROPOSALS

FUNDED PROJECTS (~\$9M)

1. CAREER: Harnessing Heterogeneous Sources of Data and Artificial Intelligence for Informed Flood Management. *National Science Foundation (NSF)*. (PI) (Funded \$521,000) Sep. 2023
2. Machine-Learning based Flexible Flood Inundation Mapping Optimization Framework. *National Oceanic and Atmospheric Administration (NOAA)*. (PI) (Funded \$532,000) Jun. 2023
3. SCC-PG: Intelligent Flood Detection and Warning System to Assist Homeless Communities and Emergency Management Entities, *National Science Foundation (NSF)*. (PI) (Funded \$150,000) Sep 2023
4. Reservoir Modeling Evaluation for National Weather Service Forecasting Applications. *National Oceanic and Atmospheric Administration (NOAA)*. (PI) (Funded \$300,000) Jun. 2023
5. Advancing Camera-Based Monitoring for Operational Hydrologic Applications. *United States Geological Survey (USGS)* (PI) (Funded \$220,000) Jun. 2023
6. Novel Geospatial Architecture of Channel Morphological and Hydraulic Attributes within the OWP Hydrofabrics. *National Oceanic and Atmospheric Administration (NOAA)*. (PI) (Funded \$185,000) Jun. 2023
7. Streamlining Permitting and Mitigation Processes to Improve SCDOT Project Delivery, *SC Department of Transportation (SCDOT) and Federal Highway Administration (FHWA)*. (PI) (Funded \$ 442,281) Jan. 2022

8. Modeling dam and levee breach and the impact of hydraulic structures on channel routing and flood inundation, *National Oceanic and Atmospheric Administration (NOAA) and Cooperative Institute for Research to Operations in Hydrology (CIROH)*. (Co-PI) (Funded \$750,000) Aug. 2022
9. The Use of Biopolymers to Strengthen Earthen Infrastructure, *US Army Engineer Research and Development Center/DOD*. (Co-PI) (Funded \$4,000,000) Sep. 2021
10. Utilizing Drought Forecasts to Develop Decision Calendars for Reoperation of California's Hydroelectric Reservoir Systems and Managed Aquifer Recharge, *National Oceanic and Atmospheric Administration (NOAA)*. (PI) (Funded \$200,000) Jun. 2019
11. A Rapid Response System for the Assessment and Prediction of Contaminant Dispersion in Wet-Weather Emergencies, *VP office of University of South Carolina*, (Co-PI) (Funded \$100,000) Sep. 2021
12. Developing an intelligent flood early warning and monitoring system using image processing techniques, *VP office of University of South Carolina*, (PI) (Funded \$15,000) Sep. 2020
13. The Impact of Harbor Modification on Coastal Floods – The Case of Charleston, SC, *VP office of University of South Carolina*, (Co-PI) (Funded \$100,000) Sep. 2020
14. Improving SCDOT Project Delivery through Identifying Potentially Suitable Locations for Mitigation and Standardizing Applications, *SC Department of Transportation (SCDOT) and Federal Highway Administration (FHWA)*. (Co-PI) (Funded \$640,678) Jan. 2019
15. Natural-Built Infrastructure and Water Resources Image Dataset, *MICROSOFT – AI for Earth*. (PI) (Funded \$12,000.00) Nov. 2019
16. Vulnerability of Coastal Stormwater Management Ponds to Non-Stationarity and Compound Effects of Sea Level Rise and Inland Flooding, *SC Sea Grant Consortium*. (PI) (Funded \$35,000) Sep. 2018

OTHERS

- ♦ Incorporating Nutrients into the Farmington Bay Water Budget Model, *Jordan River-Farmington Bay Water Quality Council* (Contributing writer, Funded \$28,036.00) Sep 2015
- ♦ Farmington Bay Water Balance Study, *Jordan River-Farmington Bay Water Quality Council* (Contributing writer, Awarded - \$98,608.00) Oct 2013
- ♦ Early Career Scientists Travel Support (ECSTS), Vienna, Austria, *European Geosciences Union (EGU)* Dec 2017
- ♦ Travel Grant, 11th International Conference on Hydroinformatics, New York City, *Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI)*. Aug 2014
- ♦ Travel Grant, *Associated Students of the University of Utah (ASUU), University of Utah*. Apr 2015
- ♦ Travel Grants, *Global Change & Sustainability Center (GCSC), University of Utah*. Feb 2014-15

HONORS AND AWARDS

- ♦ 2023: **Faculty Early Career Development Program (CAREER)**, National Science Foundation (NSF)
- ♦ 2023: **Best Research-Oriented Paper Award**, Journal of Water Resources Planning and Management, American Society of Civil Engineers (ASCE)
- ♦ 2023: **Early Career Applied Research Award (2nd)**, Universities Council on Water Resources (UCOWR)
- ♦ 2022: **South Carolina Technical Merit Award**, American Society of Civil Engineers (ASCE)
- ♦ 2021: **South Carolina Young Civil Engineer of the Year**, American Society of Civil Engineers (ASCE)
- ♦ 2018: **Member of South Carolina Floodwater Commission** appointed by Governor H. McMaster
- ♦ May 2018 and 2021: **Outstanding American Society of Civil Engineers (ASCE) Reviewer**, Journal of Water Resources Planning and Management
- ♦ June 2020: **Advanced Support for Innovative Research Excellence Award**, University of South Carolina
- ♦ Mar 2018: **Roland Schlich Early Career Scientist's Support (ECSTS)**, European Geosciences Union (EGU)
- ♦ 2018: **Journal of Contemporary Water Research & Education (JCWRE) Paper of the Year**, Universities Council on Water Resources (UCOWR)
- ♦ May 2016: **Best Speaker Award**, awarded at the UC Davis Postdoctoral Research Symposium.

- ♦ Jan 2015: **Eva Nieminski Honorary Graduate Science and Engineering Scholarship**, Intermountain section of the American Water Works Association (AWWA)
- ♦ Apr 2014: **Best American Water Resources Association (AWRA) Students' Paper Award**, (Awarded at the 9th Annual AWRA-Utah Student Conference, Logan, UT, J. Paul Riley AWRA Utah Section).
- ♦ Oct 2012: **Best National Master Thesis in Engineering** (Awarded at the 15th national festival of the best student thesis, Tehran, Iran)
- ♦ Aug 2015: **Fundamental of Engineering (FE)** – Civil Engineering (Board: Utah)
- ♦ Jun 2014: **Top 5 Most Read Papers**, Earth Interaction Journal.
- ♦ Jan 2012: **Outstanding Graduate Student**, Water Engineering, University of Tehran. (Eligible to enter PhD program without national entrance exam.)
- ♦ Nov 2014: Award certification “Becoming EPSCoR Champions”, NSF communications Workshop.
- ♦ Mar 2014: Award certification “Personal Activity Reporting (PAR)”, University of Utah.
- ♦ May 2011: Award certification “Conflict Resolution in Water Resources Management”, Zanjan, Iran.
- ♦ 2013-2015: Graduate Research Assistantship, University of Utah.
- ♦ 2011-2012: Graduate Research Assistantship, University of Tehran.

PEER-REVIEWED PUBLICATIONS (+50)

1. Erfani, S. M. H & **Goharian, E.** (2023). Vision-based texture and color analysis of waterbody images using computer vision and deep learning techniques. *Journal of Hydroinformatics*, <https://doi.org/10.2166/hydro.2023.146>.
2. Tanim, A. H., & **Goharian, E.** (2023). Toward an integrated probabilistic coastal vulnerability assessment: A novel copula-based vulnerability index. *Water Resources Research*, 59(2), e2022WR033603.
3. Delpasand, M., Bozorg-Haddad, O., **Goharian, E.**, & Loáiciga, H. A. (2023). Virtual water trade: Economic development and independence through optimal allocation. *Agricultural Water Management*, 275, 108022.
4. Nabi, Md Mahmudun, et al. “Urban Runoff Drives Titanium Dioxide Engineered Particle Concentrations in Urban Watersheds: Field Measurements.” *Environmental Science: Nano*, 2023, 10.1039/d2en00826b.
5. Tanim, A. H., **Goharian, E.**, & Moradkhani, H. (2022). Integrated socio-environmental vulnerability assessment of coastal hazards using data-driven and multi-criteria analysis approaches. *Scientific Reports*, 12(1), 1-28.
6. Erfani, S. M. H & **Goharian, E.** (2022). ATeX: A Benchmark for Image Classification of Water in Different Waterbodies Using Deep Learning Approaches. *Journal of Water Resources Planning and Management*, 148(11), 04022063.
7. Tanim, A. H., McRae, C. B., Tavakol-Davani, H., & **Goharian, E.** (2022). Flood Detection in Urban Areas Using Satellite Imagery and Machine Learning. *Water*, 14(7), 1140.
8. Erfani, S. M. H., Wu, Z., Wu, X., Wang, S., & **Goharian, E.** (2022). ATLANTIS: A benchmark for semantic segmentation of waterbody images. *Environmental Modelling & Software*, 105333.
9. Maskey, M.L., Dogan, M.S., Fernandez-Bou, A.S., Li, L., Guzman, A., Arnold, W., **Goharian, E.**, Lund, J.R. and Medellin-Azuara, J., (2022). Managing Aquifer Recharge to Overcome Overdraft in the Lower American River, California, USA. *Water*, 14(6), p.966.
10. Delpasand, M., Bozorg-Haddad, O., **Goharian, E.**, & Loáiciga, H. A. (2022). Virtual water trade: Economic development and independence through optimal allocation. *Agricultural Water Management*, 275, 108022.
11. Jahanshahi, A., Patil, S. D., & **Goharian, E.** (2022). Identifying most relevant controls on catchment hydrological similarity using model transferability–A comprehensive study in Iran. *Journal of Hydrology*, 612, 128193.
12. **Goharian, E.**, Shaltout, M., Erfani, M., & Eladawy, A. (2022). Developing an Optimized Policy Tree-Based Reservoir Operation Model for High Aswan Dam Reservoir, Nile River. *Water*, 14(7), 1061.
13. Berglund, E. Z., Buchberger, S., Cunha, M., Faust, K. M., Giacomoni, M., **Goharian, E.**, ... & Ethan Yang, Y. C. (2022). Effects of the COVID-19 Pandemic on Water Utility Operations and Vulnerability. *Journal of Water Resources Planning and Management*, 148(6), 04022027.
14. Khatami, F., & **Goharian, E.** (2022). Beyond Profitable Shifts to Green Energies, towards Energy Sustainability. *Sustainability*, 14(8), 4506.
15. Nabi, M. M., Wang, J., **Goharian, E.**, & Baalousha, M. (2022). Temporal variation in TiO₂ engineered particle concentrations in the Broad River during dry and wet weathers. *Science of The Total Environment*, 807, 151081.
16. Tou, F., Nabi, M.M., Wang, J., Erfani, M., Goharian, E., Chen, J., Yang, Y. and Baalousha, M., 2022. Multi-method approach for analysis of road dust particles: elemental ratios, SP-ICP-TOF-MS, and TEM. *Environmental Science: Nano*, 9(10), pp.3859-3872.

17. Jahanshahi, A., Ghazanchaei, Z., Navari, M., **Goharian, E.**, Patil, S. D., & Zhang, Y. (2022). Dependence of rainfall-runoff model transferability on climate conditions in Iran. *Hydrological Sciences Journal*.
18. Azizipour, M., Sattari, A., Afshar, M. H., & **Goharian, E.** (2022). Incorporating reliability into the optimal design of multi-hydropower systems: A cellular automata-based approach. *Journal of Hydrology*, 127227.
19. Wang, J., Nabi, M. M., Erfani, M., **Goharian, E.**, & Baalousha, M. (2022). Identification and Quantification of Anthropogenic Nanomaterials in Urban Rain and Runoff Using Single Particle-Inductively Coupled Plasma-Time of Flight-Mass Spectrometry. *Environmental Science: Nano*.
20. **Goharian, E.**, Azizipour, M., Sandoval-Solis, S., & Fogg, G. (2021). Using Cellular Automata Approach to Optimize the Hydropower Reservoir Operation of Folsom Dam. *Water*, 13(13), 1851.
21. Zarei, M., Bozorg-Haddad, O., Baghban, S., Delpasand, M., **Goharian, E.**, & Loáiciga, H. A. (2021). Machine-learning algorithms for forecast-informed reservoir operation (FIRO) to reduce flood damages. *Scientific reports*, 11(1), 1-21.
22. Baalousha, M., Wang, J., Erfani, M., & **Goharian, E.** (2021). Elemental fingerprints in natural nanomaterials determined using SP-ICP-TOF-MS and clustering analysis. *Science of The Total Environment*, 148426.
23. Zechman Berglund, E., ..., **Goharian, E.**, ... (2021). "Water and Wastewater Systems and Utilities: Challenges and Opportunities during the COVID-19 Pandemic". *Journal of Water Resources Planning and Management*, Vol. 147, Issue 5 (May 2021), [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0001373](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001373).
24. Naderi, M. M., Mirchi, A., Bavani, A. R. M., **Goharian, E.**, & Madani, K. (2021). "System dynamics simulation of regional water supply and demand using a food-energy-water nexus approach: application to Qazvin Plain, Iran." *Journal of Environmental Management*, 280, 111843.
25. Boroomandnia, A., Bozorg-Haddad, O., Bahrami, M., **Goharian, E.**, Singh, V. P., & Loáiciga, H. A. (2021) "Optimizing urban stormwater control strategies and assessing aquifer recharge through drywells in an urban watershed." *Hydrogeology Journal*, 1-20.
26. ZamanZad-Ghavidel, S., Bozorg-Haddad, O. & **Goharian, E.** (2021). "Sustainability assessment of water resource systems using a novel hydro-socio-economic index (HSEI)." *Environ Dev Sustain* 23, 1869-1916. <https://doi.org/10.1007/s10668-020-00655-8>
27. Abdi-Dehkordi, M., Bozorg-Haddad, O., Salavitarbar, A., & **Goharian, E.** (2021) "Developing a sustainability assessment framework for integrated management of water resources systems using distributed zoning and system dynamics approaches." *Environ Dev Sustain*. <https://doi.org/10.1007/s10668-021-01340-0>.
28. Zolghadr-Asli, B., Bozorg-Haddad, O., Enayati, M., & **Goharian, E.** (2021). "Developing a robust multi-attribute decision-making framework to evaluate performance of water system design and planning under climate change." *Water Resources Management*, 35(1), 279-298.
29. Jahanshahi, A., Melsen, L. A., Patil, S. D., & **Goharian, E.** (2021). Comparing spatial and temporal scales of hydrologic model parameter transfer: A guide to four climates of Iran. *Journal of Hydrology*, 127099.
30. Abdi-Dehkordi, M., Bozorg-Haddad, O., Salavitarbar, A., & **Goharian, E.** (2021). Developing a sustainability assessment framework for integrated management of water resources systems using distributed zoning and system dynamics approaches. *Environment, Development and Sustainability*, 1-37.
31. DeVincentis, A. J., ..., **Goharian, E.**, & Sandoval Solis, S. (2021). "Bright and Blind Spots of Water Research in Latin America and the Caribbean, Hydrol. *Earth Syst. Sci. Discuss.* [preprint], <https://doi.org/10.5194/hess-2021-106>.
32. Tanim, A. H., & **Goharian, E.** (2020). "Developing a hybrid modeling and multivariate analysis framework for storm surge and runoff interactions in urban coastal flooding." *Journal of Hydrology*, 125670.
33. **Goharian, E.**, Azizipour, M., Sandoval-Solis, S., Fogg, G. (2020). "Surface Reservoir Re-operation for Managed Aquifer Recharge: Developing Folsom Reservoir Simulation Model (FolSim)". *Journal of Water Resources Planning and Management*, 10.1061/(ASCE)WR.1943-5452.0001305.
34. Azizipour, M., Sattari, A., Afshar, M.H., **Goharian, E.**, Sandoval Solis, S. (2020). "Optimal hydropower operation of multi-reservoir systems: hybrid cellular automata-simulated annealing approach." *Journal of Hydroinformatics* jh2020168. doi: <https://doi.org/10.2166/hydro.2020.168>.
35. Ghodsi, S.H., Zahmatkesh, Z., **Goharian, E.**, Kerachian, R., Zhu, Z. (2020). "Optimal Design of Low Impact Development Practices in Response to Climate Change." *Journal of Hydrology*, doi.org/10.1016/j.jhydrol.2019.124266.
36. Hammock, B.G, Mose, S.P., Sandoval-Solis, S., **Goharian, E.**, The, S.J., (2019). "Hydrodynamic Modeling Coupled with Long-term Field Data Provide Evidence for Suppression of Phytoplankton by Invasive Clams and Freshwater Exports in the San Francisco Estuary, *Environmental Management*, <https://doi.org/10.1007/s00267-019-01159-6>
37. **Goharian, E.**, Burian, S.J. (2018), "Developing an Integrated Framework to Build a Decision Support Tool for Urban Water Management". *Journal of Hydroinformatics*, jh2018088; DOI: 10.2166/hydro.2018.088.
38. **Goharian, E.**, Zahmatkesh, Z., Sandoval-Solis, S. (2018), "Uncertainty Propagation of Hydrologic Modeling in Water Supply System Performance: Application of Monte Carlo Markov Chain Method." *Journal of Hydrologic Engineering* 10.1061/(ASCE)HE.1943-5584.0001646.

39. Zahmatkesh, Z. and **Goharian, E.** (2018), "Comparing Machine Learning and Decision Making Approaches to Forecast Long Lead Monthly Rainfalls: City of Vancouver, Canada." *Hydrology*, 5(1), 10; doi:10.3390/hydrology5010010.
40. Shin, S., Lee, S., Judi, D., Parvania, M., **Goharian, E.**, McPherson, T., Burian, S., (2018). "Review of Resilience Measures of Water Infrastructure Systems." *Water*, 10(2), 164; doi:10.3390/w10020164.
41. **Goharian, E.**, Burian, S., Karamouz, M. (2017), "Using Joint Probability Distribution of Reliability and Vulnerability to Develop a Water System Performance Index." *Journal of Water Resources Planning and Management*, 10.1061/(ASCE)WR.1943-5452.0000869.
42. Hansen, C., **Goharian, E.**, Burian, S. (2017), "Downscaling Precipitation for Local-Scale Hydrologic Modeling Applications: Comparison of Traditional and Combined Change Factor Methodologies." *Journal of Hydrologic Engineering*. Vol. 22 (9), 10.1061/(ASCE)HE.1943-5584.0001555.
43. Marquez, M.F., Sandoval-Solis, S., DeVicentis, A.J., Ortiz Partida, J.P., **Goharian, E.**, Britos, B.R., Silva Jordan, P.T., McGourty, G.T., Lewis, D., Elkins, R., Harper, J. (2017). "Water Budget Development for SGMA Compliance, Case Study: Ukiah Valley Groundwater Basin." *Journal of Contemporary Water Research and Education*, JWRE (16).
44. **Goharian, E.**, Burian, S., Lillywhite, J., Hile, R. (2016), "Vulnerability Assessment to Support Integrated Water Resources Management of Metropolitan Water Supply Systems." *Journal of Water Resources Planning and Management* 10.1061/(ASCE)WR.1943-5452.0000738.
45. Tavakol-Davani, H., **Goharian, E.**, Hansen, C., Tavakol-Davani, H., Apul, D., Burian, S. (2016), "How does climate change affect combine sewer overflow in a system benefiting from rainwater harvesting systems?" *Sustainable Cities and Society Journal*. doi:10.1016/j.scs.2016.07.003.
46. Swain, N. R., Christensen, S., Snow, A., Dolder, H., Espinoza-Dávalos, G. E., **Goharian, E.**, Anderson, J., Jones, N.L., Nelson, E.J., Ames, D.P., Williams, G., Burian, S.J. (2016), "A new Open Source Platform for Lowering the Barrier for Environmental Web App Development: Introducing Tethys Platform." *Environmental Modelling & Software Journal*, 85:11-26.
47. **Goharian, E.**, Burian, S., Bardsley, T., and Strong, C. (2015). "Incorporating Potential Severity into Vulnerability Assessment of Water Supply Systems under Climate Change Conditions." *J. Water Resour. Plann. Manage.* 10.1061/(ASCE)WR.1943-5452.0000579, 04015051.
48. York, C., **Goharian, E.**, Burian, S. (2015), "Impacts of Large-Scale Stormwater Green Infrastructure Implementation and Climate Variability on Receiving Water Response in the Salt Lake City Area." *American Journal of Environmental Science*, 2015, 11 (4): 278-292. DOI: 10.3844/ajessp.2015.278.292.
49. **Goharian, E.**, Burian, S.J. (2014), "Integrated Urban Water Resources Modeling in a Semi-Arid Mountainous Region using a Cyber-Infrastructure Framework." *CUNY Academic Works*, http://academicworks.cuny.edu/cc_conf_hic/230.
50. Karamouz, M., Zahmatkesh, Z., **Goharian, E.**, Nazif, S. (2014), "Combined impact of inland and coastal floods: mapping knowledge base for development of planning strategies." *Journal of Water Resources Planning and Management* 10.1061/(ASCE)WR.1943-5452.0000497, 04014098.
51. Zahmatkesh, Z., Karamouz, M., **Goharian, E.**, Burian, S. (2014), "Analysis of the Effects of Climate Change on Urban Storm Water Runoff Using Statistically Downscaled Precipitation Data and a Change Factor Approach." *Journal of Hydrologic Engineering*, 10.1061/(ASCE)HE.1943-5584.0001064 , 05014022.
52. Zahmatkesh, Z., Burian, S., Karamouz, M., Tavakol, H., **Goharian, E.** (2014), "Low-Impact Development Practices to Mitigate Climate Change Effects on Urban Stormwater Runoff: Case Study of New York City." *Journal of Irrigation and Drainage Engineering*, 141(1), 04014043.
53. **Goharian, E.**, Karamouz, M., Nazif, S. (2013), "Reliability Assessment of the Water Supply Systems under Uncertain Future Extreme Climate Conditions." *Earth Interact.*, Vol. 17, Iss. 20, pp. 1-27. DOI: 10.1175/2012EI000503.1. (Top 5 Most Read EI Articles -2013 & 2014)

UNDER REVIEW PUBLICATIONS

54. Hansen, C., Davani, H., **Goharian E.**, (Under review, 2022). "Coalitional Game Theory for Stormwater Management and Green Infrastructure Practices", *Journal of Water Resources Planning and Management*.
55. Khatami, F., **Goharian E.**, (Under review, 2023). "Towards Sustainable Energy Portfolios: Multi-Dimensional Relative Aggregate Footprint of Energy Production in the Southeast United States", *Energy Reports*.
56. Erfani, M., **Goharian, E.** (Under review, 2023). "Developing an Optimized Surrogate Policy Tree Model for the Operation of Folsom Reservoir and Flood Managed Aquifer Recharge", *Journal of Water Resources Planning and Management*.

57. Tanim, A.H., McKinnie, W.F., & Goharian E., (Under review, 2023). "Coastal Compound Flood Simulation through Coupled Multidimensional Modeling Framework", *Journal of Hydrology*.
58. Goharian E. et al. (Under review, 2023). "A Novel Hybrid Multi-Objective Optimization Joint operation of Folsom Reservoir and Managed Aquifer Recharge to Maximize Whole Watershed Storage." *Water Resources Research*.

TEACHING EXPERIENCE

Department of Civil and Environmental Engineering, University of South Carolina

Undergraduate level

- ECIV 362 – Introduction to Water Resources Engineering *Spring 2021 (4.86/5.00*)*, *Spring 2022 (4.81/5.00*)*

Quotes from students:

- ♦ "The class is designed for students to actually learn the material rather than just memorize to get good grades. The class focused on important concepts more than memorizing formulas or process that in the real world won't matter."
 - ♦ "Dr. Goharian has done an excellent job teaching this course. He makes very efficient use of class time and clearly explains each topic. I benefited greatly from him taking his time and working step by step examples with students during class time that accurately reflected what we would see on homework and exams."
 - ♦ "He made sure to go through the material in a way that everyone could understand and would answer questions when asked. He was very fast at responding to emails and would always be willing to help. The material was very interesting and I enjoyed seeing a more practical side of fluid mechanics. I honestly felt like I learned more about fluid mechanics from this class than I did my fluid mechanics class."
- ECIV 405 - System Applications in Civil Engineering *Fall 2019 (5.00/5.00*)*, *Spring 2021 (5.00/5.00*)*

Quotes from students:

- ♦ "Good outside the box thinking, need more courses of this nature."
 - ♦ "The class was very well taught, and all subjects were given enough time to fully understand the concepts. Tests were very reflective of what was taught, and homework required a great deal of critical thinking sometimes."
 - ♦ "Enjoyed the team game at the end of the course, but wish we had a second day to work on it and understand it."
- ECIV 562 - Engineering Hydrology *Spring 2022 (4.71/5.00*)*

Quotes from students:

- ♦ "The way that Dr. Goharian structures the class is unique and I think much better than the typical engineering class. I feel that I learn as much or more with his syllabus than with the typical exam-based structure"
- ♦ "This course allowed me to learn a topic that I otherwise would have never thought I would enjoy. The course covered major topics with mostly conceptual ideas and information that helped me understand the material even if I won't be doing this type of work in my career."

Graduate level

- ECIV 705 - Deterministic Civil & Environmental Systems Engineering *Fall 2020 (4.67/5.00*)*

Quotes from students:

- ♦ "I enjoyed the class discussions and peer presentations each week, and the general openness in the classroom when it came to speaking/asking questions."
 - ♦ "Reading technical papers every week was a great way to reinforce the material in class." "
 - ♦ "It is a good course I ever attended. This course contributes a lot to develop the basic concepts of advanced hydrology."
 - ♦ "Open discussion in class and group review of technical articles passion for subject displayed by professor."
- ECIV 762 - Advanced Hydrology *Spring 2020 (5.00/5.00*)*, *Fall 2021 (5.00/5.00*)*, *Fall 2022 (ongoing)*

Quotes from students:

- ♦ “I enjoyed the class discussions and peer presentations each week, and the general openness in the classroom when it came to speaking/asking questions. I thought the material was organized well and the textbook was a good resource. Reading technical papers every week was a great way to reinforce the material in class.”
- ♦ “Use of the Kahoots were fun!”
- ♦ “It is the best course I ever attended. This course contributes a lot to develop the advanced concepts of hydrology, on modeling, and how to review journal papers.”
- ECIV 790 - Water Resources Systems Engineering *Spring 2019 (5.00/5.00*)*

*) All the course evaluation reports are available per your request.

Department of Civil and Environmental Engineering, University of Utah

- CVEEN 7920 - Hydroinformatics: *Co-Instructor, Fall 2014, Fall 2015*
- CVEEN 3410 - Hydraulics: *Laboratory Instructor, Fall 2012*

MEMBERSHIPS AND PROFESSIONAL SERVICES

- ♦ **Co-chair and member**, South Carolina Floodwater Commission – Governor H. McMaster (2018-present)
- ♦ **Associate Editor:**
 - ASCE - Journal of Water Resources Planning and Management (2021-present)
- ♦ **Vice-Chair**, EWRI International Participation Committee (ASCE/EWRI) (2014-present)
- ♦ **Lead Delegate**, Universities Council on Water Resources (UCOWR) (2021-present)
- ♦ **Conference Track Chair** (International track), ASCE-EWRI World Environmental & Water Resource Congress 2017 (Sacramento, CA), 2018 (Minneapolis, MN), 2019 (Pittsburgh, PA), 2020 (canceled), 2021 (Virtual conference)
- ♦ **Founding member**, EWRI-Civil Engineering Perspectives on Food-Energy-Water Nexus task committee(2018-present)
- ♦ **Scientific Committee**, *1st International Conference on Climate Change*, Feb. 2017, Tehran, Iran.
- ♦ **Co-convener and Session Chair**, Water and Society: Modeling Food-Energy-Water Nexus for Sustainable Resource Management, 2017 AGU Fall Meeting, New Orleans, LA.
- ♦ Journal Manuscript Reviewer: **Nature:** *Scientific Reports*, **Elsevier:** *Advances in Water Resources*, *Journal of Hydrology* **ASCE:** *Water Resources Planning and Management*, *Journal of Hydrologic Engineering*. **Springer:** *Water Resources Management*, *Natural Hazards*, **MDPI:** *Water*.
- ♦ Active Member, European Geosciences Union (EGU) (2018-present)
- ♦ Associate Member, American Society of Civil Engineers (ASCE) (2012-present)
- ♦ Active Member, EWRI - Environmental and Water Resources Systems (EWRS) Committee (2017-present)
- ♦ Active Member, American Geophysical Union (AGU) (2016-present)
- ♦ Award Committee member, Postdoctoral Research Symposium, University of California, Davis (2016-2018)
- ♦ Active Member, Student Advisory Committee (SAC) – University of Utah (2014-2015)
- ♦ Board Member, Student Scientific Association of Ferdowsi University of Mashhad (2009-2010)

SELECTED CONFERENCE PROCEEDINGS AND PRESENTATIONS

1. Erfani S. M. H., and **Goharian E.** (2023). “Eye of Horus: a Vision-based Framework for Measuring Water Level from Surveillance Time-lapse Images”, ASCE-EWRI World Environmental & Water Resources Congress 2023, Henderson, Nevada.
2. Erfani, M., & **Goharian, E.** (2023). “A Hydro-Economic Simulation-Optimization Model for Operation of Folsom Dam”, EWRI World Environmental & Water Resources Congress 2023, May 21-24, 2023, Henderson, NV.
3. Khatami, F., Goharian, E. (2023). “Deriving and improving fragility curves of water resources systems under varying climate”, World EWRI Congress, May 21-24, 2023, Henderson, NV.
4. Tanim A. H., **Goharian, E.** (2022). "BayesOpt-SWMM: A Gaussian process-based Bayesian Optimization Tool for Parameter Calibration and Uncertainty Analysis of SWMM Model". ASCE-EWRI World Environmental & Water Resources Congress 2023, May 21-25, 2023, Henderson, NV.

5. Khatami, F., Goharian, E. (2022). "Antifragility: A pathway to improve the design and management of water resources systems in changing climate", AGU Fall Meeting, December 11-15, 2022, Chicago, IL.
6. Erfani, M., & Goharian, E. (2022). "Reservoir Inflow Forecasting Using a Hybrid Timeseries Decomposition-Convolutional Neural Network Model", AGU Fall Meeting 2022, December 12-16, 2022, Chicago, IL.
7. Tanim A. H., Goharian, E., Imran, J (2022). "BayesOpt-SWMM: A Gaussian process-based Bayesian Optimization Tool for Parameter Calibration and Uncertainty Analysis of SWMM Model" AGU Fall Meeting 2022, December 11-16, 2022, Chicago, IL.
8. Erfani S. M. H., and Goharian E. (2022). "A Vision-based Framework for Monitoring and Measurement of Water Depth", AGU Fall Meeting 2022, H42C-1263, Chicago, IL.
9. Khatami, F., Goharian, E. (2022). "Antifragility: How System Information and Equilibrium Can Lead to a Better Performance Indicator", ASCE South Carolina Conference, August 26, 2022, Columbia, SC.
10. Erfani, M., & Goharian, E., Imran, J. (2022). "Developing Temporal Convolutional Neural Networks and Application of Transfer Learning for Hydrologic Modeling in Ungauged Basins", UCOWR/NIWR Annual Water Resources Conference 2022, June 14-16, 2022, Greenville, SC.
11. Erfani, M., Maskey, M., Li, L., Cao, Q., Goharian, E., Medellin-Azuara, J., & Lettenmaier, D. (2022). "Developing a Decision Tree-based model for Reoperation of California's Reservoir Systems and Flood Water Managed Aquifer Recharge", UCOWR/NIWR Annual Water Resources Conference 2022, June 14-16, 2022, Greenville, SC.
12. Khatami, F., Goharian, E. (2022). "Moving Beyond Resilience: Antifragility Assessment and Design of Flood Control Systems", UCOWR Annual Water Resources Conference, June 14-16, 2022, Greenville, SC.
13. Tanim A. H., Goharian, E. (2022). "Modeling compound flood in Charleston Peninsula using fully distributed hydrologic models", Universities Council on Water Resources (UCOWR), June 14-16, 2022, Greenville, SC.
14. Tanim A. H., Goharian, E. (2022). "Multiscale coastal vulnerability of SC Coast integrating Socio-Environmental Geospatial Dataset", Universities Council on Water Resources (UCOWR), June 14-16, 2022, Greenville, SC.
15. Erfani, S.M.H., Goharian, E. (2022). "Comparing Deep Learning Models with Low-level Vision Processing on Water Texture (ATeX) Dataset", ASCE-EWRI World Environmental & Water Resources Congress 2022, Jun 05-08, 2022, Atlanta, GA.
16. Hansen C. L., Goharian, E. (2022). "Coalitional Game Theory for Stormwater Management and Green Infrastructure Practices", ASCE-EWRI World Environmental & Water Resources Congress 2022, Jun 05-08, 2022, Atlanta, GA.
17. Tanim A. H., Goharian, E. (2022). "Modeling compound flood in Charleston Peninsula using fully distributed hydrologic models", ASCE-EWRI World Environmental & Water Resources Congress 2022, Jun 05-08, 2022, Atlanta, GA.
18. Erfani, M., Goharian, E. (2022). "A Forecast Informed Hydro-Economic Simulation Optimization Model for Operation of Folsom Reservoir", ASCE-EWRI World Environmental & Water Resources Congress 2022, Jun 05-08, 2022, Atlanta, GA.
19. Khatami, F., Goharian, E. (2022). "The economic impact assessment of flood hazard on the electricity market equilibrium", ASCE-EWRI World Environmental & Water Resources Congress 2022, Jun 05-08, 2022, Atlanta, GA.
20. Tanim A. H., Goharian, E., (2022). "Compound flood modeling of Charleston using fully coupled hydrodynamic and distributed hydrologic models", 2022 South Carolina Sea Grant Consortium Research Symposium, May 11-12, Charleston, SC.
21. Erfani, M., Goharian, E., Imran, J. (2021). "Developing Convolutional Neural Networks for Regionalized Rainfall-Runoff Modelling", AGU Fall Meeting 2021, New Orleans, LA, USA, Dec 13-17, 2021.
22. Erfani, S.M.H., Goharian, E. (2021). "ATeX: A Benchmark for Image Textures Analysis of Water in Different Waterbodies", AGU Fall Meeting 2021, New Orleans, LA, USA, Dec 13-17, 2021.
23. Khatami, F., Goharian, E. (2021). "A look at how flood hazards can change the landscape of electricity industry and infrastructure, with a focus on South Carolina", AGU Fall Meeting 2021, New Orleans, LA, USA, Dec 13-17, 2021.
24. Tanim, A. H., Goharian, E., McKinnie, F. W. (2021). "Compound flood simulation in Charleston peninsula under climate change and sea level rise", AGU Fall Meeting 2021, New Orleans, LA, USA, Dec 13-17, 2021.

25. Erfani, M., Cao, Q., Lettenmaier, D., **Goharian, E.** (2020). "Simulation of Regulated Streamflow using Noah-MP Land Surface Model and Machine Learning", AGU Fall Meeting 2020, San Francisco, CA, USA, Dec 7-11, 2020.
26. Erfani, M. H., Gates, N., Sarabulda, H. R., Pollard, H., **Goharian, E.** (2020). "Visual Object Recognition in Water Resources - Developing a Semantic Segmented Water-related Object Dataset", AGU Fall Meeting 2020, San Francisco, CA, USA, Dec 7-11, 2020.
27. Khatami, F., Khorasani, S. M., **Goharian, E.** (2020). "Developing a Welfare-based Sustainable Energy Portfolio", AGU Fall Meeting 2020, San Francisco, CA, USA, Dec 7-11, 2020.
28. Tanim A. H., **Goharian, E.**, Moradkhani, H. (2020). "A Multi-dimensional and Integrated Socio-Environmental Vulnerability Assessment in Coastal Systems", AGU Fall Meeting 2020, San Francisco, CA, USA, Dec 7-11, 2020.
29. Tanim A. H., **Goharian, E.** (2020). "Copula-based Multivariate Vulnerability Assessment of Coastal Systems in South Carolina", AGU Fall Meeting 2020, San Francisco, CA, USA, Dec 7-11, 2020.
30. Khatami, F., **Goharian, E.**, Madani, K. (2020). "The Relative Aggregate Footprint of Energy Production in the Southeast United States", AGU Fall Meeting 2020, San Francisco, CA, USA, Dec 7-11, 2020.
31. Hansen C. L., **Goharian, E.** (2020). "Developing Resilient Optimal Flood Control Portfolios for Low Country Flooding: Charleston, South Carolina", AGU Fall Meeting 2020, San Francisco, CA, USA, Dec 7-11, 2020.
32. Tanim A. H., **Goharian, E.** (2020). "Hybrid Modeling Framework for Simulating Compound Floods in a Coastal City", ASCE-EWRI World Environmental & Water Resources Congress Proceedings 2020, May 17–21, 2020, Henderson, Nevada.
33. Khatami, F., **Goharian, E.** (2019). "Renewable Myths and Non-Renewable Realities about Energy Portfolio Management", AGU Fall Meeting 2019, San Francisco, CA, USA, Dec 9-13, 2019.
34. Garza, L.,..., **Goharian, E.** (2019). "Mapping Water Resources Research in Latin America and the Caribbean", AGU Fall Meeting 2019, San Francisco, CA, USA, Dec 9-13, 2019.
35. Gailey, R., **Goharian, E.**, Maples, S., Fogg, G. (2019). "Conditions for Accomplishing Groundwater Recharge with Flood Flows: Indications from Study of Two Groundwater Sub-basins in California" AGU Fall Meeting 2019, San Francisco, CA, USA, Dec 9-13, 2019.
36. Khatami, F., **Goharian, E.** (2019). "Environmental Sustainability Evaluation of Power Production in South Carolina", ASCE-EWRI World Environmental & Water Resources Congress 2019, Pittsburgh, Philadelphia, USA, May 19-23, 2019.
37. **Goharian, E.**, DeVincentis, A., Gómez, R., Guillon, H., Garza-Díaz, L., Patterson, N., Ortiz Partida, J.P., Sandoval-Solis, S., (2019). "Opportunities for Water Resources Management Research in Latin America", ASCE-EWRI World Environmental & Water Resources Congress 2019, Pittsburgh, Philadelphia, USA, May 19-23, 2019.
38. Fogg, G.E., **Goharian, E.**, Gailey, R., Maples, S., Sandoval-Solis, S., Water Security (2018). "Drought and Climate Change: A California Perspective." 2018 AGU Fall Meeting, American Geophysical Union, Washington, DC, 10-14 Dec, 2018.
39. **Goharian, E.**, Gailey, R., Maples, S., Azizpour, M., Ghelenoei, V., Sandoval-Solis, S., Fogg, G.E., (2018). "Toward Whole Watershed Management: Reservoir Reoperation Using a Hybrid Multi-Objective Optimization Approach." ASCE-EWRI World Environmental & Water Resources Congress 2018, Minneapolis, MN, USA, June 3-7, 2018.
40. **Goharian, E.**, Gailey, R., Maples, S., Azizpour, M., Sandoval-Solis, S., Fogg, G.E., (2018) "Maximizing Whole Watershed Storage through Optimized Reservoir Reoperation and Managed Aquifer Recharge." European Geosciences Union General Assembly 2018, Vienna, Austria, 8–13 April 2018.
41. Hammock, B.G., Mose, S.P., Sandoval-Solis, S., **Goharian, E.**, The, S.J., (2018) "WaterExports and Clams Suppress Productivity in a Temperate Estuary." 10th Biennial Bay-Delta Science Conference, Sacramento, 10-12 September 2018.
42. **Goharian, E.**, Gailey, R., Maples, S., Azizpour, M., Sandoval-Solis, S., Fogg, G.E., (2017) "Hybrid Multi-Objective Optimization of Folsom Reservoir Operation to Maximize Storage in Whole Watershed." 2017 AGU Fall Meeting, American Geophysical Union, New Orleans, LA, 11-15 Dec.
43. **Goharian, E.**, Sandoval-Solis, S., Fogg, G. (2017) "Estimation of Available Surface Water for Managed Aquifer Recharge in California's Central Valley: A Case Study on the American-Cosumnes River Basin." 2017 UCOWR/NIWR Annual Conference, Fort Collins, CO, June 13-15, 2017.
44. **Goharian, E.**, R. Gailey, J. Medellin-Azuara, S. Maples, L.E. Adams, S. Sandoval-Solis, G.E. Fogg, H.E. Dahlke, T. Harter, and J.R. Lund (2017) "Developing Integrated Modeling Capacities to Support Whole Watershed Management

- in California." ASCE-EWRI World Environmental & Water Resources Congress 2017, Sacramento, California, USA, May 21-25, 2017.
45. **Goharian, E.**, Azizipour, M., and Sandoval-Solis, S., (2017) "Re-Operating Folsom Reservoir to Increase the Available Water for Recharge and Maximize Storage in Whole Watershed" ASCE-EWRI World Environmental & Water Resources Congress 2017, Sacramento, California, USA, May 21-25, 2017.
 46. **Hansen, C.H., Goharian, E.**, Ahmed, W., and Burian, S.J. (2017). "Sensitivity of Water System Vulnerability to Changing Snowpack from Dust Deposition and Climate Change." ASCE-EWRI World Environmental & Water Resources Congress 2017, Sacramento, California, USA, May 21-25, 2017.
 47. Ahmed, W., Hansen, C.H., **Goharian, E.**, Shepherd, M., Ahmad, S., and **Burian, S.J.** (2017). "Data management and modeling for addressing the water-energy-food nexus in Pakistan." ASCE-EWRI World Environmental & Water Resources Congress 2017, Sacramento, California, USA, May 21-25, 2017.
 48. **Goharian, E.**, **Azizipour, M.**, Sandoval-Solis, S., Burian, S.J. (2017) "Assessment of Water Resources Systems Performance under Climate Change Condition" 1st International Conference on Climate Change, Feb. 2017, Tehran, Iran.
 49. **Goharian, E.**, R. Gailey, J. Medellin-Azuara, S. Maples, L.E. Adams, S. Sandoval-Solis, G.E. Fogg, H.E. Dahlke, T. Harter, and J.R. Lund (2016) "Whole Watershed Management to Maximize Total Water Storage: Case Study of the American-Cosumnes River Basin." 2016 AGU Fall Meeting, American Geophysical Union, San Francisco, CA.
 50. **Goharian, E.**, Fogg, G.E. (2016) "Role of Managing Headwaters, Forestry Practices, and Reservoirs for Groundwater Management." 25th Groundwater Resources Association Annual Meeting, Concord, CA.
 51. **Goharian, E.**, Burian, S. J. (2016), "Decentralized vs. Centralized Alternatives Comparison for Water Supply Systems by Use of Water System Performance Index (WSPI)." 2016 World Environmental and Water Resources Congress, 22-26 May, West Palm Beach, Florida.
 52. **Nishu, N.J., Goharian, E.**, Burian, S. J. (2016), "Analysis of Supply Solution Options to Mitigate the Water Supply Crisis in Developing Countries." 2016 World Environmental and Water Resources Congress, 22-26 May, West Palm Beach, Florida. (Poster)
 53. **Goharian, E.**, Dawadi, S., Ahmad, S., Burian, S.J., (2015), "A Tale of Two Cities: Comparison of Water Resource Management System Response under Varying Climate and Population Growth in Salt Lake City, UT, and Las Vegas, NV." 2015 UCOWR/NIWR/CUAHSI Conference, 16-18 June, Las Vegas, Nevada.
 54. **Goharian, E.**, Burian, S.J., T. Bardsley, C. Strong, J. Niermeyer, L. Briefer, T. Kirkham (2015), "Evaluating Sustainability Tradeoffs of Integrated Urban Water Resources Management Alternatives." 2015 UCOWR/NIWR/CUAHSI Conference, 16-18 June, Las Vegas, Nevada.
 55. **Goharian, E.**, Burian, S.J., (2015), "Using Joint Probability Distribution to Develop a Water Supply System Performance Index." 2015 World Environmental and Water Resources Congress, 17-21 May, Austin, Texas.
 56. **Goharian, E.**, Burian, S.J., et al. (2015), "Sustainability Evaluation of Decentralized Urban Water Infrastructure Using Systems Modeling." 2015 World Environmental and Water Resources Congress, 17-21 May, Austin, Texas. (Poster)
 57. **Goharian, E.**, Burian, S.J. (2015), "A New Metric Integrating Flooding and Water Shortage to Evaluate Vulnerability of Water Systems Subject to Climate Change." AWRA's 2015 Spring Specialty Conference, March 30 – April 1, 2015, Los Angeles, California.
 58. **Goharian, E.**, Lillywhite, J., Burian, S.J. (2015), "Reliability Assessment of Salt Lake City Water Supply System by using a Dynamic- Probabilistic Systems Approach." AWRA's 2015 Spring Specialty Conference, March 30 – April 1, 2015, Los Angeles, California.
 59. **Goharian, E.**, **Burian, S.J.**, T. Bardsley, C. Strong, J. Niermeyer, L. Briefer, T. Kirkham (2015), "Climate Change and Scenario Planning utilizing Integrated Water Resource Management Modeling: Case Study of Salt Lake City." AWRA's 2015 Spring Specialty Conference, March 30 – April 1, 2015, Los Angeles, California.
 60. **Tavakoldavani, H., Goharian, E.**, C. Hansen, H. Tavakol-Davani, S. Burian (2015), "Climate Change Impacts on Green Infrastructure Performance in Toledo." AWRA's 2015 Spring Specialty Conference, March 30 – April 1, 2015, Los Angeles, California. (Poster)

*) Abstracts prior to 2015 are not shown here. Please email goharian@cec.sc.edu for more information.

TECHNICAL REPORTS

1. SC Flood Water Commission - Smart Rivers and Dam Security Task Force (2019), "South Carolina Floodwater Commission Report." Nov. 2019
<https://ltgov.sc.gov/sites/default/files/Documents/Floodwater%20Commission/SCFWC%20Report.pdf>

2. Dahlke, H., Fisher, A., Fogg, G., **Goharian, E.**, Harter, T., Hutchinson, A., McHugh, J., Parker, T., Sandoval-Solis, S., (2018). "Recharge Roundtable Call to Action: Key Steps for Replenishing California Groundwater." University of California Water Security and Sustainability Research Initiative; Groundwater Resources Association of California. <https://ucmerced.app.box.com/v/rechargegroundtable>. 36 p.
3. Burian, S., **Goharian, E.**, et al. (2014). "Jordan River Watershed – Farmington Bay Water Budget Model: A Tool for Integrated Water Resources Management." Jordan River-Farmington Bay Water Quality Council
4. Pomeroy, Ch., **Goharian, E.**, et al. (2013). "Developing Stormwater Management Model of Red Butte Creek between Reservoir and Foothill." iUtah Project, Utah EPSCoR reporting.

BOOK CHAPTERS

1. Delpasand, M., Bozorg-Haddad, O., & **Goharian, E.** (2021). Virtual water. *Water Resources: Future Perspectives, Challenges, Concepts and Necessities*, 131.
2. Delpasand, M., Bozorg-Haddad, O., & **Goharian, E.** (2021). Water footprint. *Water Resources: Future Perspectives, Challenges, Concepts and Necessities*, 151.
3. Bozorg-Haddad, O., Komijani, S., & **Goharian, E.** (2021). Water and sustainable development. *Water Resources: Future Perspectives, Challenges, Concepts and Necessities*, 103.
4. **Goharian, E.**, & Azizipour, M. (2020). Integrated Water Resources Management in Iran. In *Integrated Water Resource Management* (pp. 101-114). Springer, Cham.
5. Chapter 6: Surface Water Hydrology. *Hydrology and Hydroclimatology: Principles and Applications* by M. Karamouz, S. Nazif, & M. Falahi, CRC Press, 2012.
6. Chapter 8: Time Series Analysis. *Hydrology and Hydroclimatology: Principles and Applications* by M. Karamouz, S. Nazif, & M. Falahi, CRC Press, 2012.

INVITED TALKS

- ♦ Invited Speaker: "Integrated Socio-Environmental Vulnerability Assessment of Coastal Hazards Using a Multi-dimensional Coastal Vulnerability Index", 2022 South Carolina Sea Grant Consortium Research Symposium, May 11, Charleston, SC.
- ♦ Invited Speaker: "Looking to the past and planning for the future stormwater systems" National Watershed and Stormwater Conference 2019, May 1st, Charleston, SC.
- ♦ Panelist: "Reimagining California Water: An exposition of research & innovation" *California Institute for Water Resources and University of California Water Security and Sustainability Research Initiative*, Sacramento, California, USA, 25 Oct., 2018.
- ♦ Roundtable: "Call to Action to Recharge California's Depleted Aquifers" *Groundwater Resources Association (GRA) annual meeting*, Oct. 2, 2017, Sacramento, CA.
- ♦ Panelist: "Climate Change and Sustainable Groundwater Management in California" *ASCE-EWRI World Environmental & Water Resources Congress 2017*, Sacramento, California, USA, 24 May. 2017.
- ♦ Panelist: "Role of Managing Headwater, Forestry Practices, and Reservoirs for Groundwater Management" *25th Groundwater Resources Association (GRA) Annual Meeting*. Concord, CA, 28 Sep. 2016.
- ♦ Panelist: "Implementing California's New Groundwater Law: Research & Policy Insights for the Central Valley." *2nd International Groundwater Conference*, San Francisco, CA, 27 Jun. 2016.
- ♦ Panelist: "What needs & components of water accounting in California should be addressed & how to integrate them." *Connecting to Water Decision Making Session, UC Water Annual Meeting*, Santa Cruz, CA, 2 Jun. 2016.
- ♦ Presentation: "How I work with my data? Data Management Planning." *Connecting to Water Decision Making Session, UC Water Annual Meeting*, UC Santa Cruz, 1 Jun. 2016.
- ♦ Guest lecture: "Integrated Water Resource Management of Great Salt Lake." *Hydrotopia course, University of Utah*, 30 Sep. 2015.
- ♦ Presentation: "Use of GoldSim to Model and Simulate the Integrated Urban Water Systems." *San Francisco Public Utilities*, 23 Apr. 2015.
- ♦ Presentation: "Salt Lake City Integrated Water Resources Management (SLC-IWRM) Tool." *Salt Lake City Public Utilities*, 27 Jun. 2015.

- ♦ Workshop: "Integrated Water Resource Modeling and Management." *iUTAH Coupled Modeling Workshop*, 25 Feb. 2015.
- ♦ Panelist: "Water Flows through the City: Planning Perspectives." Panel on water issues from a city planning perspective, *Salt Lake County 8th annual Watershed Symposium*, Salt Lake City, UT, 19 Nov. 2014.
- ♦ Outreach: "Integrated Water Modeling for Urban Water Management." *CI-WATER Summer Institute*, 27 Jun. 2013.
- ♦ Presentation: "Integrated Climate-Water Modeling." *CI-Water All-Hands Meeting*, Salt Lake City, UT, 20 Oct. 2013.
- ♦ Presentation: "Choosing STEM to Solve Real-World Problems." *CI-Water All-Hands Meeting*, Salt Lake City, UT, 19 Oct. 2013.

SOFTWARE & MEDIA

- ♦ Eye of Horus: An Automatic Image-based Gauging Framework for Water Stage Measurements ([GitHub](#))
- ♦ ATLANTIS, A Benchmark for Semantic Segmentation of Waterbody Images ([GitHub](#))
- ♦ ATeX, A Benchmark for Classification and Texture Analysis of Water ([GitHub](#))
- ♦ Joint Probability and Copula Package to estimate Water System Performance Index (WSPI) ([GitHub](#))
- ♦ Hybrid Optimization for Re-operation of California Reservoirs ([GitHub](#))
- ♦ SCDOT Environmental Mitigation Forecasting Tool ([GitHub](#))
- ♦ SCDOT Project Screening Tool ([GitHub](#))
- ♦ Salt Lake City - Integrated Water Resources Management Model
- ♦ Combined Change Factor Climate Downscaling Package
- ♦ Tethys platform and Parleys Reservoir management web-tool, (<http://demo.tethysplatform.org/apps/>)
- ♦ [Flood detecting AI system could thwart devastating river damage](#)
- ♦ [Researchers advance water resource management using AI](#)
- ♦ [Choosing STEM to Solve Real-World Problems](#)
- ♦ [Could the water crisis happening in Jackson, Miss., happen in Columbia?](#)

GRADUATE ADVISEE AND MENTEEES

- ♦ University of South Carolina Students (iWERS group members):
 - Dr. Jani Fathima (Post-Doctoral) Starting Jan 2023
 - Farboud Khatami (Ph.D. Student) Jan 2019-present
 - Mohammad Hassan Erfani (Ph.D. Student) Sep 2019-present
 - Ahad Hasan Tanim (Ph.D. Student) Jan 2020-present
 - Mahdi Erfani (Ph.D. Student) Jan 2020-present
 - Shivakumar Balachandran (Ph.D. Student) Sep 2022-present
 - Rachel Dickson (M.E. student) Sep 2021-present
 - Colin Anderson (Undergraduate student- Computer Engr.) Jan 2022-present
 - Ashlin Gibson (Undergraduate Student) Jan 2021-present
 - Nathaniel Joly (Undergraduate Student) Jan 2022-present

- ♦ Previous students:
 - Carly Lawyer (M.S. student) Jan 2020-Dec 2022
 - Luis Baez (M.S. student - Computer Engr.) April 2021-May2022
 - Harshith R. Sarabudla (M.S. student - Computer Engr.) Jan 2020-Jan 2021
 - Joshua Coleman (Undergraduate Student) Jan 2021-Sep 2021
 - Nathan Gates (Undergraduate Student) Jan 2020-Jan 2021
 - Harold W. Pollard (Undergraduate Student) May 2020-Aug 2021
 - Ammar Dossaji (Undergraduate Student) Jan 2021-May 2021

- Carly Lawyer (Undergraduate Student)

Sep 2018-Dec 2019

- ◆ Committee member:

- Cidney Carter, M.Sc., University of South Carolina, 2020-2022 (Defended on May. 2022).
- Ahmed Rafique, M.Sc., University of Utah, 2016-2017 (Defended on Dec. 2017).

- ◆ Mentor:

- Samira Ismaili, Ph.D., University of California, Davis, 2016-2018.
- Samuel Moos, Undergraduate, University of California, Davis, 2017-2018.
- Nadia Jannath Nishu, M.Sc., University of Utah, 2015-2016.
- Chris York, M.Sc., University of Utah, 2013-2015.
- Giovanni M.R. Santos, Undergraduate, University of Utah, 2015.
- Debadrita Das, Undergraduate, University of Utah, 2014.