

**IBRAHIM DEMIR**

DIRECTOR, UI HYDROINFORMATICS LAB

DIRECTOR OF TECHNOLOGY, CENTER FOR HYDROLOGIC DEVELOPMENT

ROBERT AND VIRGINIA WHEELER FACULTY FELLOW

ASSOCIATE PROFESSOR, CEE, ECE, URB, UNIVERSITY OF IOWA

**CONTACT INFORMATION****Office:** 300 S. Riverside Dr. (SHL 314)  
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[ibrahim-demir@uiowa.edu](mailto:ibrahim-demir@uiowa.edu)<https://hydroinformatics.uiowa.edu>**SCHOLARLY ACTIVITY SUMMARY****Research Team:** 33 members (current) + 7 (4 joining in Summer + 3 in Fall 2024)

Current: 8 Postdoc/Researcher – 8 PhD – 12 MS – 4 BS – 2 High School – 2 Collaborators

Alumni: 87 (students / postdocs / researchers)

**Grants:** 94 (total / funded) – Completed: 66 funded projects – Total Budget: \$50M+ (PI/Co-PI)

Active: 28 funded projects (7 NSF, 7 NOAA, 5 DOT, 3 UI, 1 ISU, 1 USACE, 4 Others)

Pending: 20 proposals (6 NSF, 1 NASA, 1 NIH, 1 EPA, 4 NOAA, 7 Others)

Submission: 40 proposals (2023) - 25-30 proposal per year (2017-2023)

**Teaching:** 7 Courses – 1300+ Students – 3 New Courses – 4 Teaching & Technology Awards**Journal Articles:** Total: 116 (published/in review) – 5910 citations – 48 H-Index

2024 (up to now): 15 published – 27 (in review) – 10 draft (ready) – 45 (in prep)

**Conference:** 27 papers – 235+ presentations – 94+ invited talks/seminars**Scholarly Work:** 1 patent – 7 book/book chapters – 16 technical reports – 100+ cyber tools/systems**Awards & Recognition:** 36+ Awards – 35+ Media Interviews – 100+ Media Stories

iEMSs Fellow, International Environmental Modelling and Software Society

Chair, Leadership Board, International Joint Committee on Hydroinformatics (IAHR/IWA/IAHS)

**Editorial:** Editor-in-Chief, *Digital Water* (Taylor & Francis) – Associate Editor, *Environmental Modeling*– *Software* (Elsevier) – *J. of Hydroinformatics* (IWA) – *J. of Environmental Informatics* (ISEIS) –*Water & Artificial Intelligence* (Frontiers) – *Cambridge Prisms: Water* (Cambridge Uni. Press)

## RESEARCH INTERESTS AND EXPERIENCE

- › Hydroinformatics, environmental informatics, database, and data management systems
- › Information and intelligent systems, internet, blockchain and web technologies
- › Scientific visualization, information communication and visual data analytics applications
- › High-performance computing, GPU-based visualization, and scientific software development
- › Artificial intelligence, deep neural networks, fuzzy logic, and genetic algorithms applications
- › Big-data science, data mining, cloud computing, web and social media analytics and visualization
- › Cyberlearning systems, game-based learning, virtual, augmented and mixed reality applications

## EDUCATION

2005-2010 **Ph.D., University of Georgia**, Environmental Informatics and Control Program  
Warnell School of Forestry and Natural Resources, Athens, GA, USA

2001-2004 **M.S., Gebze Institute of Technology**, Environmental Engineering, Kocaeli, TURKEY

1996-2000 **B.S., Bogazici (Bosporus) University**, Chemistry, Istanbul, TURKEY

## APPOINTMENTS & RESEARCH EXPERIENCE

2023-present **Robert and Virginia Wheeler Faculty Fellow in Engineering**  
Named Faculty Position, University of Iowa

2023-present **Director of Technology**  
Center for Hydrologic Development, University of Iowa

2023-present **Associate Professor** -- *secondary appointment – tenure track*  
School of Planning and Public Affairs, University of Iowa

2021-present **Associate Professor** -- *main appointment – tenure track*  
Department of Civil and Environmental Engineering, University of Iowa

2021-present **Associate Professor** -- *secondary appointment – tenure track*  
Department of Electrical and Computer Engineering, University of Iowa

2021-present **Faculty Affiliate**, Interdisciplinary Graduate Program in  
Applied Mathematical and Computational Sciences (AMCS), University of Iowa

2016-2021 **Assistant Professor** -- *main appointment – tenure track*  
Department of Civil and Environmental Engineering, University of Iowa

2016-2021 **Assistant Professor** -- *secondary appointment – tenure track*  
Department of Electrical and Computer Engineering, University of Iowa

2016-present **Associate Research Professor (Faculty Engineer) – research faculty track**  
IIHR-Hydroscience & Engineering, Iowa Flood Center, University of Iowa

2018-present	<b>Faculty Affiliate</b> Mid-America Transportation Center, US DOT
2016-2021	<b>Informatics Cluster Faculty</b> – <i>cluster joint hire</i> The Iowa Informatics Initiative, University of Iowa
2016-2021	<b>Faculty Affiliate</b> Early Career Faculty Academy, Center for Teaching, ITS, University of Iowa
2015-2016	<b>Adjunct Assistant Professor</b> Department of Electrical and Computer Engineering, University of Iowa
2015-present	<b>Faculty Affiliate</b> Interdisciplinary Graduate Program in Informatics (IGPI) Geoinformatics and Information Science Tracks, University of Iowa
2014-2016	<b>Faculty Affiliate</b> Game-Based Learning Faculty Institute, Center for Teaching, ITS, University of Iowa
2013-present	<b>Faculty Affiliate</b> Center for Global & Regional Environmental Research (CGRER), University of Iowa
2012-2016	<b>Adjunct Assistant Professor</b> Department of Civil and Environmental Engineering, University of Iowa
2011-present	<b>Faculty Affiliate</b> Iowa Flood Center (IFC), University of Iowa
2011-2016	<b>Assistant Research Professor (Faculty Engineer)</b> – <i>research track</i> IIHR-Hydrosience & Engineering, University of Iowa
2010-2011	<b>Postdoctoral Research Scholar</b> Iowa Flood Center, IIHR-Hydrosience & Engineering, University of Iowa
2010 May-Nov	<b>Postdoctoral Research Associate</b> Environmental Informatics and Control Program, University of Georgia
2005-2010	<b>Graduate Assistant</b> Environmental Informatics and Control Program, University of Georgia
2002-2004	<b>Research Assistant</b> Department of Environmental Engineering, Gebze Institute of Technology, TURKEY
1999-2000	<b>B.S. Research Project</b> , Computational Chemistry Bogazici (Bosporus) University, Istanbul, TURKEY

## TEACHING EXPERIENCE & EDUCATIONAL SERVICES

2024 Fall	Civil Engineering Tools, CEE:2015
2024 Spring	Informatics for Sustainable Systems, CEE:5310 (IGPI:5311/URB:5310)

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2023 Fall	Engineering Problem Solving I, ENGR:1100:B
2023 Fall	Engineering Problem Solving I, ENGR:1100:A
2023 Spring	Informatics for Sustainable Systems, CEE:5310 (IGPI:5311/URB:5310)
2022 Fall	Engineering Problem Solving I, ENGR:1100:B
2022 Fall	Engineering Problem Solving I, ENGR:1100:A
2022 Spring	Informatics for Sustainable Systems, CEE:5310 (IGPI:5311)
2021 Fall	Water, Energy, Food Nexus Seminar, CEE:5096
2021 Fall	Engineering Problem Solving I, ENGR:1100:B
2021 Fall	Engineering Problem Solving I, ENGR:1100:A
2021 Spring	Water, Energy, Food Nexus Seminar, CEE:5096
2021 Spring	Informatics for Sustainable Systems, CEE:5310 (IGPI:5311)
2020 Fall	Water, Energy, Food Nexus Seminar, CEE:5096
2020 Spring	Practicum in College Teaching, GRAD:7400
2020 Spring	Water, Energy, Food Nexus Seminar, CEE:5096
2020 Spring	Informatics for Sustainable Systems, CEE:5310 (IGPI:5311)
2019 Fall	Engineering Problem Solving I, ENGR:1100:D
2019 Fall	Engineering Problem Solving I, ENGR:1100:C
2019 Spring	Informatics for Sustainable Systems, CEE:5310 (IGPI:5311)
2018 Fall	Engineering Problem Solving I, ENGR:1100:C
2018 Spring	Informatics for Sustainable Systems, CEE:5310 (IGPI:5311)
2017 Spring	Interdisciplinary Scientific Visualization, CEE:4410
2016 Fall	Introduction to Hydroinformatics, CEE:5186
2016 Summer	Summer Course Theme Leader, 2016 National Water Center Summer Institute Densified Monitoring and Data Integration for Hydrological Datasets
2013 Summer	Mentoring & Project Advisor, Google Summer of Code Program Mentoring three students for design and development of open-source programming projects for the Iowa Flood Center
2013 Fall	Information Systems for Resource Management (with Dr. Muste) Cross-listed as GEOG:5129, ME:5129, IE:5129, CEE:5129, ECE:5129.
2013 Fall	Project Advisor – Class Term Project Mentoring and collaborating with UIOWA MBA students to develop market analysis and business plan for a nation-wide flood information platform

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2010 Fall	WASR 8500, Cities as Forces for Good in the Environment University of Georgia, Athens, GA, USA (with Drs. Walker and Beck)
2002-2004	<b>Teaching Assistant</b> , Gebze Institute of Technology, Kocaeli, TURKEY CMB553 - Optimization Techniques in Environmental Sciences CMB650 - Mathematical Modeling in Environmental Sciences CMB554 - Water Quality Management CMB406 - Introduction to Environmental Engineering I (Water Quality)

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## STUDENT AND RESEARCHER ADVISING AND MENTORING

### Current Students and Researchers

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<b>Postdoctoral Researchers &amp; Engineers</b>	M. Yusuf Sermet, 2020- <b>present</b> , Assistant Research Scientist Jerry Mount, 2019- <b>present</b> , Assistant Research Scientist Ozlem B. Yesilkoy, 2021- <b>present</b> , Postdoctoral Researcher Danish Jackson Samuel, 2023- <b>present</b> , Postdoctoral Researcher Omer Mermer, 2023- <b>present</b> , Postdoctoral Researcher Baran Kaynak, 2023- <b>present</b> , Visiting Postdoctoral Scholar Sumeyye Kaynak, 2023- <b>present</b> , Visiting Postdoctoral Scholar Ahmet N. Ozcivan, 2024- <b>present</b> , Visiting Postdoctoral Scholar (Fall 2024)
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<b>Thesis &amp; Dissertation Advisor – Project Supervisor</b>	<b>PhD Students</b> Gregory J. Ewing, 2019- <b>present</b> , PhD, Civil and Environmental Engineering Zhouyayan Li, 2020- <b>present</b> , PhD, Civil and Environmental Engineering Bekir Z. Demiray, 2021- <b>present</b> , PhD, Informatics Carlos Ezaro, 2021- <b>present</b> , PhD, Civil and Environmental Engineering Ram Sajja, 2022- <b>present</b> , PhD, Electrical and Computer Engineering Samiul Islam, 2023- <b>present</b> , PhD, Civil and Environmental Engineering Ali Rahmani, 2023- <b>present</b> , PhD, Informatics Ugur Satilmis, 2024- <b>present</b> , PhD (Visiting), Environmental Engineering
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### MS Students

Beyza Cikmaz, 2022-**present**, MS, Urban Planning  
Anchit Dave, 2022-**present**, MS, Computer Science  
Samrat Shrestha, 2023-**present**, MS, Computer Science  
Vinay Pursnani, 2023-**present**, MS, Computer Science  
Uditha Karunaratne, 2023-**present**, MS, Computer Science  
Eveline Gonzalez, 2023-**present**, MS, Informatics  
Gabriel Vald, 2023-**present**, MS, Informatics  
Likith Anoop, 2023-**present**, MS, Computer Science  
Deepika Mitta, 2024-**present**, MS, Data Science  
Ege Duran, 2022-**present**, MS, Civil and Environmental Engineering (Fall 2024)

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Dilara Kizilkaya, 2024-**present**, MS, Computer Science (Fall 2024)

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**Part-time** Moiyad Sufi, 2024-**present**, MS, Data Science  
**Students /** Ishan Dhanani, 2023-**present**, BS, Data Science  
**Researchers** Reuben Sonnenschein, 2024-**present**, BS, Computer Science  
 Eslim Rana Emiroğlu, 2023-**present**, BS, Computer Science  
 Cori Ann G. Grant, 2022- **present**, BS, Data Science  
 Muhammed Cikmaz, 2022-**present**, High School (intern)  
 Kevin Song, 2023-**present**, High School (intern)

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**Research** Serhan Yesilkoy, 2023-**present**, Postdoctoral Researcher  
**Collaborators** Yazeed Alabbad, 2024-**present**, Postdoctoral Researcher

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**Thesis &** Haoyi Xiong, 2021-**present**, Geographical and Sustainability Science, UIOWA  
**Dissertation** Chung-Yuan Liang, 2021-**present**, PhD, CEE, Purdue University  
**Committees** Emma House, 2023-**present**, PhD, CEE, Tulane University  
 Stephen Siemonsma, 2023-**present**, PhD, ECE, University of Iowa  
 Jason Hua, 2023-**present**, PhD, CEE, University of Iowa

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## Alumni & Past Students and Researchers

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**Graduate** Yazeed Alabbad, 2019-2023, PhD, CEE  
**Students with** M. Ali Sit, 2019-2023, PhD, Informatics  
**Thesis /** Enes Yildirim, 2017-2022, PhD, CEE (now GIS Coordinator at Iowa DNR)  
**Dissertation** Zhongrun Xiang, 2017-2022, PhD, CEE (now Principal Data Scientist, Capital One)  
 Yusuf Sermet, 2015-2020, PhD, ECE (now Postdoc at UIOWA)  
 Haowen Xu, 2015-2019, PhD, CEE (now Postdoc at ORNL)  
 Carlos Erazo, 2018-2020, MS, CEE (now PhD student at UIOWA)  
 Enes Yildirim, 2015-2017, MS, CEE (now PhD student at UIOWA)

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**Graduate** Talat Satilmisoglu, 2022-2024, PhD, CEE  
**Students –** Maeve Biscupski, 2022-2023, MS, SD  
**non-thesis** Stewart Sankey, 2023, MS, CS  
 Samiul Islam, 2022-2023, MS, URP  
 Amitha George, 2022-2023, MS, CS  
 Nikhil Singh, 2021-2022, MS, CS  
 Ashani Vaidya, 2021-2022, MS, CS  
 Vahid E. Akhlaghi, 2020-2022, PhD, BA  
 Zeeshan Ahmed, 2021, MS, CS  
 Bekir Z. Demiray, 2019-2021, MS, CS  
 Muneeb Shahid, 2019-2021, MS, CS  
 Isha Panvalkar, 2020, MS, CS, UIOWA  
 M. Ali Sit, 2017-2019, MS, CS

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Shobhit Narain, 2018-2019, MS, CS  
 Peng Chen, 2017-2019, MS, CS  
 Zhongyang Guan, 2017-2018, MS, CS  
 Dichha Rai, 2017-2018, MS, CS  
 Mudathir Yahia, 2016-2017, MS, CS  
 Suleyman Uslu, 2016-2017, MS, CS  
 Haider Hameed, 2015-2017, MS, CS  
 Osman Sonmez, 2012-2013, PhD, IIHR

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**Thesis & Dissertation** Pin-Ching Li, 2021-2023, PhD, CEE, Purdue University  
 Navid Jadidoleslam, 2016-2021, PhD, CEE

**Committees** Mohsen Vahidzadeh, 2019-2020, PhD, CEE  
 Ali Cikmaz, 2015-2020, PhD, Education  
 Andre D. L. Zanchetta, 2015-2017, MS, CEE  
 Vahid E. Akhlaghi, 2020-2022, PhD, Business Analytics, UIOWA

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**Researchers & Engineers** Chris M. Murphy, 2023, Application Developer  
 Serhan Yesilkoy, 2021-2023, Postdoctoral Researcher  
 Dixon Vimalajeewa, 2021, Postdoc, CS  
 Samuel Debionne, 2015-2017, Software Developer  
 Andre D. L. Zanchetta, 2017-2018, MS, CEE (now PhD student)

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**Part-time Students / Researchers** Anish Jain, 2023, High School (intern)  
 Satvik Sandru, 2023, High School (intern)  
 Riya Patil, 2023, High School (intern)  
 Jacob P. Nemecek, 2022-2023, BS, EES  
 Joshua Qin, 2022-2023, High School (intern)  
 Zitong Wang, 2022-2023, High School (intern)  
 Jiaqi Zhao, 2022, High School (intern)  
 Sahil Bhatia, 2022, High School (intern)  
 Mehmed Sahin, 2022, High School (intern)  
 Shiva Goli, 2022, High School (intern)  
 Qiuayu Gu, 2022, BS, CS  
 Beyza Cikmaz, 2021, BS, UP  
 Kane Templeton, 2021, MS, CS  
 Ryan Skrzypek, 2021, BSE, CSE  
 Kevin Nguyen, 2021, BA, Business  
 Serena Chen, 2021, High School (intern)  
 Luana Liao, 2021, High School (intern)  
 Vaibhav Mishra, 2020, High School (intern)  
 Ishan Goyal, 2021, High School, (intern)  
 Edgar Babajanyan, 2020-2021, High School (intern)  
 Indrani Ghosh, 2020-2021, MS, CS

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Zachary Macke, 2019-2020, BS, CS  
Zhouyayan Li, 2019-2020, BS, CEE (intern)  
Takumi Niwa, 2019, BS, ECE (intern)  
Arman Habib, 2019, MS, CEE (intern)  
Joshua Feuerstein, 2019-2020, High School (intern)  
Anthony Maggio, 2019, High School (intern)  
Aman Manazir, 2018-2019, High School (intern)  
Akshat Gautam, 2018-2019, High School (intern)  
Anson Hu, 2018-2019, High School (intern) (now BS at MIT)  
Runxiong Dong, 2019, MS, CS (now at Amazon)  
Yifan He, 2019, MS, Computer Science (part-time)  
Bekir Zahit Demiray, 2018, MS, CS (intern)  
Jeremy M. Ferguson, 2018, High School (intern)  
Flavia K. R. Hauss, 2018, BS, CEE (intern)  
Omar Bin Salameh, 2018, BS, CS (part-time)  
Tsutomu Fujisawa, 2017, BS, CS (intern)  
M. Ali Sit, 2015-2017, BS, CS (intern)  
Mary B. Windsor, 2015-2017, IHR (part-time)  
Paul E. Villanueva, 2016, BS, part-time (intern)  
Bomo Shen, 2014-2016, BS, CS (now at OmniVista Solutions)  
Ian Wold, 2014-2015, BS, CS (part-time)  
Yusuf Sermet, 2014, BS, ECE (intern)  
A.T.M. Saleh, 2014, part-time (remote)  
Darnell K. Melvin Jr., 2014, BS, ISU (part-time)  
Ramil Agliamzanov, 2013, BS, ECE (intern)  
Rachel Cortez, 2013, BS, CEE (part-time)  
Skeel Lee, 2013, part-time (Google SOC)  
Hemant Singh, 2013, part-time (Google SOC)  
Nikhil Upadhye, 2013, part-time (Google SOC)  
Eric Osgood, 2012-2013, MS, MIE  
Jake Maschoff, 2012, BS, CEE  
Aaron Fisher, 2011, BS, CS

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## **PUBLICATIONS & PRESENTATIONS**

### **Thesis & Dissertation**

- [1] PhD Dissertation, 'Integrated Web-Based Data Management, Analysis and Visualization: Towards an Adaptive Watershed Information System', 2010  
Supervisor: M. Bruce Beck, Professor & Eminent Scholar, University of Georgia, Athens, GA, USA



- [2] MS Thesis, 'Fuzzy Logic and Neural Network Applications in Environmental Science', 2003  
Supervisors: Guleda Onkal-Engin and Mehmet Karpuzcu, Gebze Institute of Technology, TURKEY

### Books

- [3] Book: 'Artificial Intelligence in Hydroinformatics', Volume: 'Advanced Machine Learning' 2024, **Taylor & Francis**. Edited by Demir, I., Freni, G. (in contract/preparation)

### Book Chapters

- [4] Demir, I., Encyclopedia Chapter on 'Cyberinfrastructure Systems for Flood Preparedness and Response'  
Book: 'Oxford Research Encyclopedia of Natural Hazard Science', ISBN: 9780199389407 2024, **Oxford University Press**. Edited by Susan L. Cutter et al. (in contract/preparation)
- [5] Sermet, Y. & Demir, I., Chapter on 'A Semantic Web Framework for Automated Smart Assistants: A Case Study for Public Health'  
Book: 'Knowledge Modelling and Learning through Cognitive Networks', ISBN: 9783036537788 2022, **MDPI**. Edited by Stella, M., Kenett Y.N.
- [6] Hu, A. & Demir, I., Chapter on 'Real-time Flood Mapping on Client-side Web Systems using HAND model'  
Book: 'Flood Early Warning and Risk Modelling', ISBN: 9783036537788 2022, **MDPI**. Edited by Iosub, M., & Enea, A.
- [7] Sit, M.A., Koylu, C. & Demir, I., Chapter on 'Identifying disaster-related tweets and their semantic, spatial and temporal context using deep learning, natural language processing and spatial analysis'  
Book: 'Social Sensing and Big Data Computing for Disaster Management', ISBN: 9780367617653 2020, **Taylor & Francis**. Edited by Z. Li et al.
- [8] Sermet, Y., Demir, I., Chapter on 'Virtual and Augmented Reality Applications for Environmental Science Education and Training'  
Book: 'New Perspectives on Virtual and Augmented Reality: Finding New Ways to Teach in a Transformed Learning Environment', ISBN: 9780367432119 2020, **Taylor & Francis**. Edited by L. Daniela
- [9] Muste, M., Kim, D., Demir, I., Chapter on 'Hydroinformatics Applied to Hydraulic Experiments',  
Book: 'Experimental Hydraulics', Volume I. ISBN: 9780367573263 2017, **Taylor & Francis**. Edited by J. Aberle et al.

### Patents

- [10] **Demir, I.**, Sermet, Y., 2020, Camera-Based Liquid Stage Measurement, U.S. Provisional Patent Application. 63/005,754, filed on April 6, 2021.

### Journal Articles

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**2024 (in review/pending)**

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- [11] Erazo, C., Sermet, Y., **Demir, I.**, 'HydroRTC: A Web-Based Data Transfer and Communication Library for Collaborative Data Processing and Sharing in the Hydrological Domain', *Environmental Modeling and Software*, 2024. (in review)
- [12] Li, Z., Sermet, Y., **Demir, I.**, 'EarthObsNet: A Comprehensive Benchmark Dataset for Data-Driven Earth Observation Image Synthesis', *ISPRS Journal of Photogrammetry and Remote Sensing*, 2024. (in review)
- [13] House, E., Meselhe, E., Muste, M., **Demir, I.**, 'Streamflow Hysteresis Analysis through a Deep Dive Budget of the St Venant Momentum Terms', *Water Resources Research*, 2024. (in review)
- [14] Sajja, R., Erazo, C., Li, Z., Demiray, B.Z., Sermet, Y., and **Demir, I.**, 'Integrating Generative AI in Hackathons: Opportunities, Challenges, and Educational Implications'. *Computer Science Education*, 2024. (in review)
- [15] Merwade, V., **Demir, I.**, Muste, M., Cox, A.L., Minear, J.T., Sermet, Y., Dey, S., Liang, C., 'Towards an Open and Integrated Cyberinfrastructure for River Morphology Research in the Big Data Era'. *Environmental Modeling and Software*, 2024. (in review)
- [16] Baydaroglu, O., Muste, M., Cikmaz, B., Kim, K., Meselhe, E., **Demir, I.**, 'Coping with Information Extraction from In-Situ Data Acquired in Natural Streams', *Hydrological Sciences Journal*, 2024. (in review)
- [17] Islam, S.S.M., **Demir, I.**, 'A Novel Methodology for Enhancing Flood Risk Communication: The Nines of Safety'. *Science of Total Environment*, 2024. (in review)
- [18] Herkert, N., Demiray, B.Z., Demir, I., Hornbuckle, K.C., 'Web-based Data Analytics Framework for PUF-PAS Effective Sampling Rate and Volume', *Environmental Modeling and Software*, 2024. (in review)
- [19] Cikmaz, B., Alabbad, Y., Yildirim, E., **Demir, I.**, 'A Comprehensive Flood Risk Assessment for Railroad Network: Case Study for Iowa'. *Science of Total Environment*, 2024. (in review)
- [20] Duran, E., Alabbad, Y., Mount, J., Yildirim, E., and **Demir, I.**, 'Comprehensive Analysis of Riverine Flood Impact on Bridges: Iowa Case Study', *Science of Total Environment*, 2024. (in review)
- [21] Sajja, R., Sermet, Y., Cwiertny, D. and **Demir, I.**, 'Integrating AI and Learning Analytics for Data-Driven Pedagogical Decisions and Personalized Interventions in Education'. *British Journal of Educational Technology*, 2024. (in review)
- [22] Mount, J., Sermet, Y., Jones, C. S., Schilling, K., Gassman, P. W., Weber, L. J., Krajewski, W. F., **Demir, I.**, 'UMIS: An Integrated Cyberinfrastructure System for Water Quality Resources in the Upper Mississippi River Basin', *Science of Total Environment*, 2024. (in review)
- [23] Sajja, R., Sermet, Y., Cwiertny, D. and **Demir, I.**, 'Artificial Intelligence-Enabled Intelligent Assistant for Personalized and Adaptive Learning in Higher Education'. *International Journal of Educational Technology in Higher Education*, 2024. (in review)
- [24] Demiray, B.Z., Sermet, Y., Yildirim, E., **Demir, I.**, 'FloodGame: An Interactive 3D Serious Game on

- Flood Mitigation for Disaster Awareness and Education'. *Environmental Modeling and Software*, 2024. (in review)
- [25] Yeşilköy, S., Baydaroglu, O., Singh, N., Sermet, Y., and **Demir, I.**, 'A Contemporary Systematic Review of Cyberinfrastructure Systems and Applications for Flood and Drought Data Analytics and Communication', *Earth Science Reviews*, 2024. (in review)
- [26] Cox, A., Muste, M., Merwade, V., **Demir, I.**, Minear, J.T., Dey, S., Liang, C.Y. and Sermet, Y., 'Engaging the Earth Science and Engineering Communities in Developing a River Morphology Information System (RIMORPHIS)', *Journal of the American Water Resources Association*, 2024 (in review)
- [27] Chi, N. C., Nguyen, K., Shanahan, A., **Demir, I.**, Fu, Y. K., Chi, C. L., Perkhounkova, Y., Hein, M., Buckwalter, K., Wolf, M., Walliams, L., Herr, K., 'Usability Testing of the PACE-App to Support Family Caregivers in Managing Pain for People with Dementia'. *Gerontologist*, 2024. (in review)
- [28] Yeşilköy, S., Baydaroglu, O., **Demir, I.**, 'Is Snow Drought a Messenger for the Upcoming Severe Drought Period? A Case Study in the Upper Mississippi River Basin'. *Water Resources Research*, 2024. (in review)
- [29] Sit, M., Demiray, B.Z. and **Demir, I.**, 'Spatial Downscaling of Streamflow Data with Attention Based Spatio-Temporal Graph Convolutional Networks', *Nature Scientific Reports*, 2024. (in review)
- [30] Yeşilköy, S., **Demir, I.**, 'Crop Yield Prediction based on Reanalysis and Crop Phenology Data in the Agroclimatic Zones'. *Agricultural and Forest Meteorology*, 2024. (in review)
- [31] Alabbad, Y. and **Demir, I.**, 'Geo-Spatial Analysis of Built-Environment Exposure to Flooding: Iowa Case Study', *Science of Total Environment*, 2024. (in review)
- [32] Sit, M., Demiray, B.Z. and **Demir, I.**, 'A Systematic Review of Deep Learning Applications in Streamflow Data Augmentation and Forecasting', *Hydrological Sciences Journal*, 2024. (in review)
- [33] Sit, M., Demiray, B.Z. and **Demir, I.**, 'A Systematic Review of Deep Learning Applications in Interpolation and Extrapolation of Precipitation Data', *Water Resources Management*, 2024. (in review)
- [34] Akhlaghi, V.E., Campbell, A.M. and **Demir, I.**, 'The Flood Mitigation Problem in a Road Network'. *Production and Operations Management*, 2024. (in review)
- [35] Xiang, Z., **Demir, I.**, 'Real-Time Streamflow Forecasting Framework, Implementation and Post-Analysis Using Deep Learning'. *Geophysical Research Letters*, 2024. (in review)
- [36] Xiang, Z., **Demir, I.**, 'Fully distributed rainfall-runoff modeling using spatial-temporal graph neural network'. *Water Resources Research*, 2024. (in review)
- [37] Xiang, Z., **Demir, I.**, Mantilla, R., Krajewski, W.F., 'A Regional Semi-Distributed Streamflow Model Using Deep Learning'. *Journal of Hydrology*, 2024. (in review)

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**2024 (published/in press)**

- [38] Botero-Acosta, A., Cox, A.L., Sagan, V., **Demir, I.**, Muste, M., Paul Boyd, P., Pathak, C.,

- 'Multivariate Analysis and Anomaly Detection of U.S. Reservoir Sedimentation Dataset', *Engineering Applications of Artificial Intelligence*, 2024. (in press)
- [39] Demiray, B.Z., Sit, M.A., Mermer, O., **Demir, I.**, 'Enhancing Hydrological Modeling with Transformers: A Case Study for 24-Hour Streamflow Prediction'. *Water Science and Technology*, 2024. (in press)
- [40] Cox, A.L., Meyer, D., Botero-Acosta, A., Sagan, V., **Demir, I.**, Muste, M., Paul Boyd, P., Pathak, C., 'Estimating Reservoir Sedimentation Using Deep Learning', *Journal of Hydrologic Engineering*, 2024. (in press)
- [41] Baydaroglu, O., and **Demir, I.**, 'Temporal and Spatial Satellite Data Augmentation for Deep Learning-Based Rainfall Nowcasting', *Journal of Hydroinformatics*, Vol 26 No 3, 589, 2024.
- [42] Li, Z., **Demir, I.**, 'MultiRS Flood Mapper: A Google Earth Engine Application for Water Extent Mapping with Multimodal Remote Sensing and Quantile-Based Postprocessing', *Environmental Modeling and Software*, 176, 106022, 2024.
- [43] Sit, M., Demiray, B.Z. and **Demir, I.**, 'EfficientRainNet: Leveraging EfficientNetV2 for Memory-Efficient Rainfall Nowcasting', *Environmental Modeling and Software*, 176, 106001, 2024.
- [44] Satilmisoglu, T.K., Sermet, Y. and **Demir, I.**, 'Blockchain Opportunities for Water Resources Management: A Comprehensive Review', *Sustainability*, 16, 2403, 2024.
- [45] Gourbesville, P., Freni, G., **Demir, I.**, Navarro, P. G., Lin, G. F., Boxall, J., Brentan, B. M., Nguyen, V. T. V., Tassi, P., Hinkelman, R., Di Cristo, C., Laucelli, D., Berardi, L., Menapace, A., Meniconi, S., Nohara, D., Rokstad, M., Gilewski, P., Georgescu, S. C., Makropoulos, C., Delestre, O., Kuo, H., Abily, M., Zyl, J. V., Popescu, I., Qiang, M., Nguyen, V. T., Liu, D., Jang, D., Shrestha, S., & Duong, V. N., 'Why Digital Water – Knowledge Application & Hydroinformatics?', *Digital Water (TDWA)*, 1:1, 2024.
- [46] Erazo, C., Sermet, Y., **Demir, I.**, 'HydroCompute: An Open-Source Web-Based Computational Library for Hydrology and Environmental Sciences'. *Environmental Modeling and Software*, 175, 106005, 2024.
- [47] Alabbad, Y., Mount, J., Campbell, A. M., and **Demir, I.**, 'A Web-based Decision Support Framework for Optimizing Road Network Accessibility and Emergency Facility Allocation During Flooding', *Urban Informatics*, 3(1), 1-17, 2024.
- [48] Islam, S.S.M., Yeşilköy, S., Baydaroglu, O., Yildirim, E., and **Demir, I.**, 'State-Level Multidimensional Agricultural Drought Susceptibility and Risk Assessment for Agriculturally Prominent Areas'. *International Journal of River Basin Management*, 1-18, 2024.
- [49] Ewing, G.J., Erazo, C., Vaidya, A. and **Demir, I.**, 'Client-side Web-based Model Coupling using Basic Model Interface for Hydrology and Water Resources', *Journal of Hydroinformatics*, 26 (2): 494–502, 2024.
- [50] Li, Z., **Demir, I.**, 'Flood Sequence Mapping with Multimodal Remote Sensing Under the Influence of Dense Vegetation', *International Journal of Remote Sensing*, 45:4, 1059-1078, 2024.
- [51] Li, Z., **Demir, I.**, 'Better Localized Predictions with Out-of-Scope Information and Explainable AI:

One-Shot SAR Backscatter Nowcast Framework with Data from Neighboring Region’, *ISPRS Journal of Photogrammetry and Remote Sensing*, 207, 92-103, 2024.

- [52] Tanir, T., Yildirim, Y., Ferreira, C., and **Demir, I.**, ‘Social Vulnerability and Climate Risk Assessment for Agricultural Communities in the United States’, *Science of Total Environment*, 908, 168346, 2024.

---

## 2023

---

- [53] Pursnani, V., Sermet, Y., and **Demir, I.**, ‘Performance of ChatGPT on the US Fundamentals of Engineering Exam: Comprehensive Assessment of Proficiency and Potential Implications for Professional Environmental Engineering Practice’. *Computers and Education: Artificial Intelligence*, 5, 100183, 2023.
- [54] Li, Z., Xiang, Z., Demiray, B.Z., Sit, M. and **Demir, I.**, ‘MA-SARNet: A One-Shot Nowcasting Framework for SAR Image Prediction with Physical Driving Forces’. *ISPRS Journal of Photogrammetry and Remote Sensing*, 205, 176-190, 2023.
- [55] Yildirim, E., Alabbad, Y. and **Demir, I.**, ‘Non-structural Flood Mitigation Optimization at Community Scale: Middle Cedar Case Study’, *Journal of Environmental Management*, 346, 119025, 2023.
- [56] Yeşilköy, O.B., Yeşilköy, S., Sermet, Y., **Demir, I.**, ‘A Comprehensive Review of Ontologies in the Hydrology Towards Guiding Next Generation Artificial Intelligence Applications’. *Journal of Environmental Informatics*, 42, 2, p90-107, 2023.
- [57] Sajja, R., Sermet, Y., Cwiertny, D. and **Demir, I.**, ‘Platform-Independent and Curriculum-Oriented Intelligent Assistant for Higher Education’. *International Journal of Educational Technology in Higher Education*, 20, 42, 2023.
- [58] Nourani, V., Baghanam, A.H., Khodkar, K., Shahli, A., **Demir, I.**, ‘Uncertainty quantification of GCM based climatic parameter downscaling via deep learning network’, *Climate Dynamics*, 62(9), 1223-1242, 2023.
- [59] Cikmaz, B., Yildirim, E., **Demir, I.**, ‘Flood Susceptibility Mapping using Fuzzy Analytical Hierarchy Process for Cedar Rapids, Iowa’. *International Journal of Disaster Risk Reduction*, 20, 42, 2023.
- [60] Erazo, C., Sermet, Y., **Demir, I.**, ‘HydroLang Markup Language: Community-Driven Web Components for Hydrological Analyses’. *Journal of Hydroinformatics*, 25 (4), 1171-1187, 2023.
- [61] Shahid, M., Sermet, Y., **Demir, I.**, ‘Towards Progressive Geospatial Information Processing on Web Systems: A Case Study for Watershed Analysis in Iowa’. *Earth Science Informatics*, 1-14, 2023.
- [62] Sit, M., Seo, B.C. and **Demir, I.**, ‘TempNet – Temporal Super Resolution of Radar Rainfall Products with Residual CNNs’. *Journal of Hydroinformatics*. 25(2), pp.552-566, 2023.
- [63] Sermet, Y., **Demir, I.**, ‘Camera-Based Intelligent Stream Stage Sensing for Decentralized Environmental Monitoring’. *Science of the Total Environment*, 25(2), pp.163-173, 2023.
- [64] Alabbad, Y., Yildirim, E. and **Demir, I.**, ‘A Web-based Analytical Urban Flood Damage and Loss Estimation Framework’, *Environmental Modelling & Software*, 105670, 2023.

- [65] Sit, M.A., **Demir, I.**, 'Democratizing Deep Learning Applications in Earth and Climate Sciences on the Web: EarthAIHub'. *Applied Sciences*, 13(5), 3185, 2023.
- [66] Zhang, M., Zhu, L., Lin, S.-Y., Herr, K., Chi, C.-L., **Demir, I.**, Lopez D. K., Chi, N.-C. 'Using Artificial Intelligence to Improve Pain Assessment and Pain Management: A Systematic Review'. *Journal of the American Medical Informatics Association*, 30, no. 3, 570-587, 2023.
- [67] Li, Z. and **Demir, I.**, 'U-net-based semantic classification for flood extent extraction using SAR imagery and GEE platform: A case study for 2019 central US flooding'. *Science of The Total Environment*, 869, p.161757, 2023.
- [68] Granata, F., Di Nunno, F., Najafzadeh, M. and **Demir, I.**, 'A Stacked Machine Learning Algorithm for Multi-Step Ahead Prediction of Soil Moisture'. *Hydrology*, 10(1), p1, 2023.
- [69] Li, Z., Duque, F.Q., Grout, T., Bates, B., **Demir, I.**, 'Comparative Analysis of Performance and Mechanisms of Flood Inundation Map Generation using Height Above Nearest Drainage'. *Environmental Modelling and Software, Environmental Modelling & Software*, 159, 105565, 2023.

---

## 2022

- [70] **Demir, I.**, Sermet, Y., & Rink, K. 'Next generation visualization and communication systems for earth science using immersive reality and serious gaming'. *Frontiers in Earth Science*, 10, 2022.
- [71] **Demir, I.**, Xiang, Z., Demiray, B.Z., Sit, M.A., 'WaterBench-Iowa: a large-scale benchmark dataset for data-driven streamflow forecasting'. *Earth System Science Data*, 14(12), 5605-5616, 2022.
- [72] Ewing, G., Mantilla, R., Krajewski, W.F., **Demir, I.**, 'Interactive hydrological modelling and simulation on client-side web systems: an educational case study'. *Journal of Hydroinformatics*, 24(6), pp.1194-1206, 2022.
- [73] Erazo, C., Sermet, Y., Molkenhain, F., **Demir, I.**, 'HydroLang: An Open-Source Web-Based Programming Framework for Hydrological Sciences'. *Environmental Modeling and Software*, 2022.
- [74] Yildirim, E., **Demir, I.**, 'Flood Risk Assessment and Quantification at the Community and Property Level in the State of Iowa', *International Journal of Disaster Risk Reduction*, 77, 103106, 2022.
- [75] Xiang, Z., **Demir, I.**, 'Flood Markup Language—A Standards-based Exchange Language for Flood Risk Communication'. *Environmental Modeling and Software*, 152, 105397, 2022.
- [76] Alabbad, Y., **Demir, I.**, 'Comprehensive flood vulnerability analysis in urban communities: Iowa case study'. *International Journal of Disaster Risk Reduction*, 74, 102955, 2022.
- [77] Li, Z., **Demir, I.**, 'A comprehensive web-based system for flood inundation map generation and comparative analysis based on height above nearest drainage'. *Science of the Total Environment*, 828, 154420, 2022.
- [78] Yildirim, E., **Demir, I.**, 'Agricultural flood vulnerability assessment and risk quantification in Iowa', *Science of the Total Environment*, 826, 154165, 2022.
- [79] Gautam, A., Sit, M.A., **Demir, I.**, 'Realistic River Image Synthesis using Deep Generative Adversarial Networks', *Frontiers in Water*, 2022.

- 
- [80] Li, Z., Mount, J., **Demir, I.**, 'Accounting for uncertainty in real-time flood inundation mapping using HAND model: Iowa case study'. *Natural Hazards*, 2022.
- [81] Sermet, Y., **Demir, I.**, 'GeospatialVR: A Web-based Virtual Reality Framework for Collaborative Environmental Simulations'. *Computers and Geosciences*, Volume 159, 105010, 2022.
- [82] Alabbad, Y., Yildirim, E., **Demir, I.**, 'Flood Mitigation Data Analytics and Decision Support Framework: Iowa Middle Cedar Watershed Case Study', *Science of the Total Environment*, Volume 814, 152768, 2022.
- 

**2021**

- 
- [83] Krajewski, W.F., Ghimire, G. R., **Demir, I.**, Mantilla, R., 'Real-Time Streamflow Forecasting: AI vs. Hydrologic Insights'. *Journal of Hydrology X*, Volume 13, 100110, 2021.
- [84] Sermet, Y., **Demir, I.**, 'A Semantic Web Framework for Automated Smart Assistants: A Case Study for Public Health'. *Big Data and Cognitive Computing*, 5 (4), 57, 2021.
- [85] Alabbad, Y., Mount, J., Campbell, A. M., **Demir, I.**, 'Assessment of transportation system disruption and accessibility to critical amenities during flooding: Iowa case study', *Science of Total Environment*, 793, 148476, 2021.
- [86] Yildirim, E., **Demir, I.**, 'An Integrated Flood Risk Assessment and Mitigation Framework: A Case Study for Middle Cedar River Basin, Iowa, US', *International Journal of Disaster Risk Reduction*, 56, 102113, 2021.
- [87] Hu, A., Demir, I., 'Real-time Flood Mapping on Client-side Web Systems using HAND model'. *Hydrology*, 8 (2), 65, 2021.
- [88] Ewing, G., **Demir, I.**, 'An Ethical Decision-Making Framework with Serious Gaming: A Smart Water Case Study on Flooding'. *Journal of Hydroinformatics*, 23 (3), 466-482, 2021.
- [89] Haltas, I., Yildirim, E., Oztas, F., **Demir, I.**, 'A Comprehensive Flood Event Specification and Inventory: 1930-2020 Turkey Case Study', *International Journal of Disaster Risk Reduction*, 56, 102086, 2021.
- [90] Sit, M.A., Langel, R.J., Thompson, D., Cwiertny, D.M., **Demir, I.**, 'Web-based Data Analytics Framework for Well Forecasting and Groundwater Quality'. *Science of the Total Environment*, 761, 144121, 2021.
- [91] Demiray, B.Z., Sit, M. **Demir, I.**, 'D-SRGAN: DEM Super-Resolution with Generative Adversarial Networks', *SN Computer Science*, Springer, 2(1), 1-11, 2021.
- [92] Teague, A., Sermet, Y., **Demir, I.**, Muste, M., 'A Collaborative Serious Game for Water Resources Planning and Hazard Mitigation'. *International Journal of Disaster Risk Reduction*, 53, 101977, 2021.
- 

**2020**

- 
- [93] Sit, M.A., Demiray, B.Z., Xiang, Z., Ewing, G., Sermet, Y., **Demir, I.**, 'A Comprehensive Review of Deep Learning Applications in Hydrology and Water Resources'. *Water Science & Technology*, 2020.
-

- 
- [94] Xiang, Z., **Demir, I.**, 'Long-term Station-Level Hourly Rainfall-Runoff Modeling using Deep Learning - A Case Study for State of Iowa', *Environmental Modeling and Software*, p.104761, 2020.
- [95] Sermet, Y., **Demir, I.**, Muste, M., 'A Serious Gaming Framework for Decision Support on Hydrological Hazards', *Science of The Total Environment*, p.138895, 2020.
- [96] Xiang, Z., Yan, J., **Demir, I.**, 'A Rainfall-Runoff Model with LSTM-based Sequence-to-Sequence Learning', *Water Resources Research*, 56 (1), 2020.
- [97] Agliamzanov, R., Sit, M.A., **Demir, I.**, 'Hydrology@Home – A Distributed Volunteer Computing Framework for Hydrological Research and Applications', *Journal of Hydroinformatics*, 22 (2): 235–248, 2020.
- [98] Sermet, Y., Villanueva, P., Sit, M. A., **Demir, I.**, 'Crowdsourced approaches for stage measurements at ungauged locations using smartphones', *Hydrological Sciences Journal*, 65 (5), 813-822, 2020.
- [99] Xu, H., Windsor, M., Muste, M., **Demir, I.**, 'A Web-Based Decision Support System for Collaborative Mitigation of Multiple Water-Related Hazards Using Serious Gaming', *Journal of Environmental Management*, 255, 109887, 2020.
- 

## 2019

---

- [100] Sermet, Y., **Demir, I.**, 'Towards an Information Centric Flood Ontology for Information Management and Communication', *Earth Science Informatics*, 12 (4), 541-551, 2019.
- [101] Xu, H., Muste, M., **Demir, I.**, 'Web-based Geospatial Platform for Analysis and Forecasting of Sedimentation at Culverts', *Journal of Hydroinformatics*, 21:6, 1064-1081, 2019.
- [102] Sit, M.A., Koylu, C., **Demir, I.**, 'Identifying disaster-related tweets and their semantic, spatial and temporal context using deep learning, natural language processing and spatial analysis: a case study of Hurricane Irma', *International Journal of Digital Earth*, 12:11, 1205-1229, 2019.
- [103] Yildirim, E., **Demir, I.**, 'An Integrated Web Framework for HAZUS-MH Flood Loss Estimation Analysis', *Natural Hazards*, 99:1, 275-286, 2019.
- [104] Sit, M. A., Sermet, Y., **Demir, I.**, 'Optimized Watershed Delineation Library for Server-side and Client-side Web Applications', *Open Geospatial Data, Software and Standards*, 4(1), p8, 2019.
- [105] Xu, H., **Demir, I.**, Koylu, C., Muste, M., 'A Web-Based Geovisual Analytics Platform for Identifying Potential Contributors to Culvert Sedimentation', *Science of the Total Environment*, 692, 806-817, 2019.
- [106] Seo, B.C, Keem, M., Hammond, R., **Demir, I.**, Krajewski, W.F., 'A Pilot Infrastructure for Searching Rainfall Metadata and Generating Rainfall Product Using the Big Data of NEXRAD', *Environmental Modelling & Software*, 117, 69-75, 2019.
- 

## 2018

---

- [107] Sermet, Y., **Demir, I.**, 'An Intelligent System on Knowledge Generation and Communication for Flooding', *Environmental Modeling and Software*, 108, 51-60, 2018.
-



- 
- [108] Carson, A., Windsor, M., Hill, H., Haigh, T., Wall, N., Smith, J., Olsen, R., Bathke, D., **Demir, I.**, Muste, M., 'Serious Gaming for Participatory Planning of Multi-Hazard Mitigation', *International Journal of River Basin Management*, 16:3, 379-391, 2018.
- [109] Weber, L., Muste, M., Bradley, A., Amado, A., **Demir, I.**, Drake, C., Krajewski, W., Loeser, T., Politano, M., Shea, B., Thomas, N., 'The Iowa Watersheds Project: Iowa's prototype for engaging communities and professionals in watershed hazard mitigation', *International Journal of River Basin Management*, 16:3, 315-328, 2018.
- [110] Jones, C.S., Davis, C.A., Drake, C.W., Schilling, K.E., Debionne, S.H.P., Gilles, D.W., **Demir, I.**, and Weber, L.J., 'Iowa Statewide Stream Nitrate Load Calculated Using in Situ Sensor Network', *Journal of the American Water Resources Association*, 54, 2, 471-486, 2018.
- [111] **Demir, I.**, Yildirim, E., Sermet, Y., Sit, M.A., 'FLOODSS: Iowa Flood Information System as a Generalized Flood Cyberinfrastructure', *International Journal of River Basin Management*, 16:3, 393-400, 2018.

---

#### 2017 and before

---

- [112] **Demir, I.**, Szczepanek, R., 'Optimization of River Network Representation Data Models for Web-based Systems', *Earth and Space Science*, Volume 4, Issue 6, 2017.
- [113] Krajewski, W.F., Ceynar, D., **Demir, I.**, Goska, R., Kruger, A., Langel, C., Mantilla, R., Niemeier, F., Quintero, F., Seo, B.C., Small, S., Weber, L., Young, N., 'Real-Time Flood Forecasting and Information System for the State of Iowa', *Bulletin of the American Meteorological Society*, 98, 539-554, 2017. [article chosen as journal cover image]
- [114] Gil, Y., David, C., **Demir, I.**, Essawy, B., Fulweiler, R., Goodall, J., Karlstrom, L., Lee, H., Mills, H., Oh, J., Pierce, S., Pope, A., Tzeng, M., Villamizar, S., Yu, X., 'Towards the Geoscience Paper of the Future: Best Practices for Documenting and Sharing Research from Data to Software to Provenance', *Earth and Space Science*, 3, 2016.
- [115] **Demir, I.**, Conover, H., Krajewski, W., Seo, B., Goska, R., He, Y., McEniry, M.F., Graves, S.J., Peterson, W., 'Data Enabled Field Experiment Planning, Management, and Research using Cyberinfrastructure', *Journal of Hydrometeorology*, 3, 1155-1170, 2015.
- [116] **Demir, I.**, Krajewski, W., 'Towards an integrated Flood Information System: Centralized data access, analysis, and visualization', *Environmental Modeling and Software*, 50, 77-84, 2013.
- [117] Duffy, C., Gil Y., Deelman E., Marru S., Pierce M., **Demir, I.**, Wiener G., 'Designing A Roadmap for Geoscience Workflows', *EOS Transactions American Geophysical Union*, Brief Report, Vol. 93, No. 24, p225-226, 2012.
- [118] Beck, M. B., Jiang, F., Feng, S., Walker, R.V., Osidele, O. O., Lin, Z., **Demir, I.**, and Hall, J., 'Re-Engineering Cities as Forces for Good in the Environment', *Engineering Sustainability - ICE*, 163, 1, 31-46, 2010.
- [119] Aydiner, C., **Demir, I.**, Keskinler, B., and Ince, O., 'Joint Analysis of Transient Flux Behaviors via Membrane Fouling in Hybrid PAC/MF Processes using Neural Network', *Desalination*, 250, 1, 188-

196, 2010.

- [120] Sunlu, F.S., **Demir, I.**, Onkal-Engin, G., Büyükişik, B., Sunlu, U., Koray, T., and Kükrer, S., 'Nanoplankton Population Dynamics and Dissolved Oxygen Change across The Bay of Izmir by Neural Networks', *Journal of Environmental Monitoring*, 11, 6, 1165-1168, 2009.
- [121] Bayar S., **Demir, I.**, and Onkal-Engin, G., 'Modeling Leaching Behavior of Solidified Wastes Using Back-Propagation Neural Networks', *Ecotoxicology and Environmental Safety*, 72, 3, 843–850, 2009.
- [122] Onkal-Engin, G., and **Demir, I.**, 'Cost Analysis of Alternative Methods for Wastewater Handling in Small Communities', *Journal of Environmental Management*, 79, 4, 357-363, 2006.
- [123] Onkal-Engin, G., **Demir, I.**, and Engin, S. N., 'e-NOSE Response Classification of Sewage Odors by Neural Networks and Fuzzy Clustering', *Advances in Natural Computation*, Pt 2, Proceedings Lecture Notes in Computer Science, 3611, 648-651, 2005.
- [124] Onkal-Engin, G., **Demir, I.**, and Engin, S. N., 'Determination of the Relationship between Sewage Odor and BOD by Neural Networks', *Environmental Modeling & Software*, 20, 7, 843-850, 2005.
- [125] Aydiner, C., **Demir, I.**, and Yıldız, E., 'Modeling of Flux Decline in Crossflow Microfiltration Using Neural Networks: The Case of Phosphate Removal', *Journal of Membrane Science*, 248, 1-2, 53-62, 2005.
- [126] Onkal-Engin, G., **Demir, I.** and Hiz, H., 'Assessment of Urban Air Quality in Istanbul using Fuzzy Synthetic Evaluation', *Atmospheric Environment*, 38, 23, 3809-3815, 2004.

### Pre-print Articles

- [127] Sit, M.A., Seo, B.C., **Demir, I.**, 'CNN-based Temporal Super Resolution of Radar Rainfall Products', *ArXiv - arXiv:2109.09289 [cs.CV]*, 2021.
- [128] Sermet, Y., **Demir, I.**, 'A Generalized Web Component for Domain-Independent Smart Assistants', *arXiv:1909.02507 [cs.HC]*, 2019.
- [129] Sit, M.A., **Demir, I.**, 'Decentralized Flood Forecasting Using Deep Neural Networks', *EarthArXiv - arXiv:1902.02308 [cs.LG] - doi:10.31223/osf.io/e9xqr*, 2019.

### Conference Papers

- [130] Erazo, C., Sermet, Y., **Demir, I.**, 'HydroCompute: An Open-Source Web-Based Computational Library for Hydrology and Environmental Sciences', 4th IAHR Young Professionals Congress, November 22-24, 2023, Online.
- [131] Muste, M., Cikmaz, B., Lamoreaux, A., Baydaroglu-Yesilkoy, O., **Demir, I.**, Meselhe, E., Bacotiu, C. 'Monitoring the Manning's N coefficient variation over the yearly cycle', 40th IAHR World Congress, August 21-25, 2023, Vienna, Austria.
- [132] Muste, M., Meselhe, E., **Demir, I.**, Loeser, T. and Lynch, M., 'A new paradigm for monitoring steady and unsteady flows in rivers', Hydraulic Measurements and Experimental Methods Conference, June 25-29, 2023, Fort Collins, CO.

- 
- [133] Merwade, V., Cox, A., **Demir, I.**, Minear, J.T., Muste, M., 'RIMORPHIS: River Morphology Information System', SEDHYD-2023, Sedimentation and Hydrologic Modeling Conference, May 8-12, 2023, St. Louis, MO.
- [134] Botero-Acosta, A., Cox, A. L., Sagan, V., **Demir, I.**, Muste, M., Boyd, P., Pathak, C., 'Anomaly Detection of Watershed Variables Related to Sedimentation in US Reservoirs', SEDHYD-2023, Sedimentation and Hydrologic Modeling Conference, May 8-12, 2023, St. Louis, MO.
- [135] Meyer, D., Cox, A. L., Botero-Acosta, A., Sagan, V., **Demir, I.**, Muste, M., Pathak, C., Boyd, P., 'Estimating Reservoir Sedimentation using Deep Learning and the USACE RSI System Dataset', SEDHYD-2023, Sedimentation and Hydrologic Modeling Conference, May 8-12, 2023, St. Louis, MO.
- [136] Sit, M., Demiray, B.Z. and **Demir, I.**, 'EfficientTempNet: Temporal Super-Resolution of Radar Rainfall', International Conference on Learning Representations (ICLR), May 1-5, 2023, Kigali, Rwanda.
- [137] Erazo, C., Sermet, Y., **Demir, I.**, 'Hydrolang Markup Language: Community-Driven Web Components for Hydrological Analyses', 3rd IAHR Young Professionals Congress, Nov 28-Dec 2, 2022, Virtual.
- [138] **Demir, I.**, Galelli, S., 'Next Generation Hydroinformatics Applications in Water Resources Research and Education', ICWRER 2022 9th International Conference on Water Resources and Environment Research, April 25-27, 2022, Virtual.
- [139] Demiray, B.Z., Sit, M.A., **Demir, I.**, 'DEM Super-Resolution with EfficientNetV2', *NeurIPS 2021 Workshop Tackling Climate Change with Machine Learning*, December 14, 2021, Virtual.
- [140] Xiang, Z., **Demir, I.**, 'High-resolution rainfall-runoff modeling using graph neural network', *NeurIPS 2021 Workshop Tackling Climate Change with Machine Learning*, December 14, 2021, Virtual.
- [141] Sit, M. A., Demiray, B. Z., **Demir, I.**, 'Short-term Hourly Streamflow Prediction with Graph Convolutional GRU Networks', *38th International Conference on Machine Learning (ICML 2021)*, July 18-24, 2021, Virtual.
- [142] Sit, M. A., Seo, B., **Demir, I.**, 'IowaRain: A Statewide Rain Event Dataset Based on Weather Radars and Quantitative Precipitation Estimation', *38th International Conference on Machine Learning (ICML 2021)*, July 18-24, 2021, Virtual.
- [143] Sermet, Y. and Demir, I., An Immersive Decision Support System for Disaster Response. In 26th ACM Symposium on Virtual Reality Software and Technology, 40, pp. 1-3. November 2020.
- [144] Mount, J., Alabbad, Y., **Demir, I.**, 'Towards an Integrated and Realtime Wayfinding Framework for Flood Events', *2nd ACM SIGSPATIAL International Workshop on Advances in Resilient and Intelligent Cities (ARIC 2019)*, November 5, 2019, Chicago, Illinois, USA.
- [145] Sermet, Y., **Demir, I.**, Kucuksari, S., 'Overhead Power Line Sag Monitoring through Augmented Reality', *IEEE 2018 North American Power Symposium*, September 9-11, 2018, Fargo, ND.

- [146] Sermet, Y., **Demir, I.**, 'Flood Action VR: A Virtual Reality Framework for Disaster Awareness and Emergency Response Training', *15th International Conference on Modeling, Simulation and Visualization Methods (MSV'18)*, July 30-August 2, 2018, Las Vegas, NV.
- [147] Ebert-Uphoff, I., Thompson, D.R., **Demir, I.**, Gel, Y.R., Hill, M., Karpatne, A., Guereque, M., Kumar, V., Cabral-Cano, E., Smyth, P., 'A Vision for the Development of Benchmarks to Bridge Geoscience and Data Science', *Proceedings of the Seventh International Workshop on Climate Informatics (CI 2017)*, NCAR Technical Note NCAR/TN-536+PROC, September 20-22, 2017, Boulder, CO.
- [148] Xu, H. Hameed, H., Windsor, M., Muste, M., **Demir, I.**, Smith, J., Hunemuller, T., Stevenson, M. B., 'Decision-Support System for Collaborative Planning on Multi-Hazard Mitigation', *37th IAHR World Congress*, August 13-18, 2017, Kuala Lumpur, Malaysia.
- [149] **Demir, I.**, 'Interactive Web-based Hydrological Simulation System as an Education Platform using Augmented and Immersive Reality', *ASEE North Midwest Section Meeting*, October 16-18, 2014, Iowa City, IA, USA.
- [150] Haltas, I., **Demir, I.**, 'Toward a Flood Information System (TABIS) for Turkey', *HIC 2014 – 11th International Conference on Hydroinformatics*, August 17-21, 2014, New York, NY, USA.
- [151] **Demir, I.**, Small, S., Goska, R., Keahey, K., Armstrong, P., Riteau, P., Seo, B., Mantilla, R., Krajewski, W., 'Data Integration, Modeling and Information Communication for Flood Risk Mitigation using Cloud Computing', *8th International Congress on Environmental Modelling and Software (iEMSs)*, June 15-19, 2014, San Diego, CA, USA.
- [152] Beck, M. B., Walker, R. V., Jiang, F., **Demir, I.**, and Hall, J. W., 'Re-Engineering Cities as Forces for Good in the Environment: Paths of Transition to Distant Future Alternatives', Paper # 3078, *in Proceedings of World Water Congress and Exhibition*, September 19–24, 2010, Montréal, Canada.
- [153] **Demir, I.**, Jiang, F., Walker, R. V., Parker, A. K., and Beck, M. B., 'Information Systems and Social Legitimacy: Scientific Visualization of Water Quality', *in Proceedings of IEEE Int. Conference on Systems, Man, and Cybernetics*, p1093-1098, October 11-14, 2009, San Antonio, TX, USA.
- [154] **Demir, I.**, and Beck, M. B., 'GWIS: A Prototype Information System for Georgia Watersheds', Paper 6.6.4, *in Proceedings of Georgia Water Resources Conference: Regional Water Management Opportunities*, April 27-29, 2009, UGA, Athens, GA, USA.
- [155] Onkal-Engin, G., **Demir, I.**, and Engin, S. N., 'e-Nose Response Classification of Sewage Odours by Neural Networks and Fuzzy Clustering', *First International Conference on Natural Computation (ICNC'05)*, 27 - 29 August 2005, Changsha, China.
- [156] Karpuzcu, M., Onkal-Engin, G., and **Demir, I.**, 'Alternative Approaches for Wastewater Treatment and Disposal in Developing Countries', *5th Specialized Conference on Small Water and Wastewater Treatment Systems*, 24-26 September 2002, Vol. I, 187-194, Istanbul, TURKEY.

### Other Publications & Reports

- [157] UN WWDR 2023, United Nations World Water Development Report, Water and Climate Change,

- 2023 [contributor]
- [158] IWA Global Trends & Challenges in Water Science, Research and Management, International Water Association, 3<sup>rd</sup> Edition, 2023. [contributor]
- [159] Demir, I., and Freni, G., Monitoring and communication technologies for climate change, *HydroLink*, 3, 2022.
- [160] Cox, A. L., Meyer, D., Botero-Acosta, A., Sagan, V., **Demir, I.**, Muste, M., Data Anomaly Detection and Sediment Yield Estimation in the US Army Corps of Engineers' Reservoir Sedimentation Information (RSI) Database, July 2022, U.S. Army Corps of Engineers.
- [161] NSF Workshop Report, Convergence Accelerator (CA) - Open Knowledge Network (OKN) EarthCube Workshop, ESIP 2020 Winter Meeting, January 6, 2020, North Bethesda, MD. [contributor]
- [162] UN WWDR 2020, United Nations World Water Development Report, Water and Climate Change, 2020 [contributor]
- [163] Workshop Report, National Workshop on Developing a Research Agenda for Connected Rural Communities (CR17), September 7-8, 2017, Charlottesville, VA.
- [164] Muste, M., **Demir, I.**, Smith, J.T., Hunemuller, T. and Stevenson, M.B., 2017. 'Prototype Multi-Jurisdictional Decision-Making Web Platform for Integrated Water Resources Management: From Interagency Collaboration to Implementation in the Iowa-Cedar Watershed', Report G15AP0041, USGS & Institute of Water Resources, US Army Corps of Engineers, Baltimore, MD.
- [165] **Demir, I.**, Yildirim, E., 'HAZUS Flood Loss and Damage Estimation on the Web', *HAZUS HotZone Newsletter*, September Issue, September 2017.
- [166] Muste, M., **Demir, I.**, 'Serious Gaming for Community Engagement in Multi-Hazard Mitigation', *HydroLink, IAHR*, Issue 1, 2017.
- [167] **Demir, I.**, Krajewski, W.F., 'A Novel Cyberinfrastructure System for Integrated Data Collection, Dissemination and Sharing via Web Technologies', *The NHWC Transmission, The National Hydrologic Warning Council (NHWC)*, October Issue, 2015.
- [168] **Demir, I.** (as contributor), Submitted by Technology and Architecture Committee, 'EarthCube Strategic Technology Plan', *NSF EarthCube*, August 31, 2015.
- [169] Richard, S., **Demir, I.**, Arko, A., Fils, D., 'Standards and Standards Bodies Working Group Proposal', *NSF EarthCube*, March 5, 2015.
- [170] Haltas, I., **Demir, I.**, 'Flood Sensor Technologies and Trend Analysis Report', *The Scientific and Technological Research Council of Turkey (TUBITAK), Information Technology Institute*, 2014-2015.
- [171] Krajewski, W., **Demir, I.**, 'The Iowa Flood Information System Makes Iowans Safer, Better Informed', *HydroLink, IAHR*, Issue 1, 30-31, 2014.
- [172] Gil, Y, Deelman, E., **Demir, I.**, Duffy, C., Marru, S., Altintas, I., E. Pierce, M., et al. 'A Workflows Roadmap for the Geosciences', *EarthCube Workflows Community Group Report, NSF*, June 10,

2012.

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**Conference Abstracts & Presentations**


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- [173] Li, Z., **Demir, I.**, ‘MA-SARNets: One-Shot SAR Backscatter Nowcast Frameworks with Physical Driving Forces and Out-of-Scope Information’, AGU Fall Meeting, December 11-15, 2023, San Francisco, CA.
- [174] **Demir, I.**, ‘Conversational AI, Digital Twins, and Metaverse Systems in Hydrology & Water Resources Education and Operations’, AGU Fall Meeting, December 11-15, 2023, San Francisco, CA.
- [175] Li, Z., **Demir, I.**, ‘Flood Sequence Mapping with Multimodal Remote Sensing under the Influence of Dense Vegetation: Mississippi River Case Study’, AGU Fall Meeting, December 11-15, 2023, San Francisco, CA.
- [176] Erazo, C., Sermet, Y., Shahid, M., **Demir, I.**, ‘HydroRTC: A Web-Based Communication Library for Collaborative Data Sharing in the Hydrological Domain’, AGU Fall Meeting, December 11-15, 2023, San Francisco, CA.
- [177] Sermet, Y., Muste, M., **Demir, I.**, ‘RIMORPHIS: A Comprehensive Web-Based Cyberinfrastructure for River Morphology Research’, AGU Fall Meeting, December 11-15, 2023, San Francisco, CA.
- [178] Merwade, V., **Demir, I.**, Minear, J.T., Muste, M., Cox, A., Liang, C., Dey, S., Sermet, Y., ‘RIMORPHIS - An Information System for Accessing and Processing River Morphology Data’, AGU Fall Meeting, December 11-15, 2023, San Francisco, CA.
- [179] Larco, K., Nelson, J., Hales, R., Maidment, D.R., **Demir, I.**, Salas, F.R., et al., ‘Enhancing Collaborative Ensemble Flood Inundation Mapping with Standardized Data Sharing and Model Metadata’, AGU Fall Meeting, December 11-15, 2023, San Francisco, CA.
- [180] House, E., Meselhe, E.A., Muste, M., **Demir, I.**, ‘Numerical Modeling of Streamflow Hysteresis to Inform Protocols for Monitoring Unsteady Flow’, AGU Fall Meeting, December 11-15, 2023, San Francisco, CA.
- [181] House, E., Muste, M., Meselhe, E.A., **Demir, I.**, Cikmaz, B., Baydaroglu, O., Beg, N.A., ‘Novel Integration of Direct Measurements with Numerical Models for Real-Time Estimation and Forecasting of Streamflow Response to Cyclical Processes’, AGU Fall Meeting, December 11-15, 2023, San Francisco, CA.
- [182] Chi, N. C., Shanahan, A., Nguyen, K., **Demir, I.**, Fu, Y. K., Herr., K. ‘Usability Testing of the PACE-App to Support Family Caregivers in Managing Pain for People with Dementia’. Gerontological Society of America (GSA) 2023 Annual Scientific Meeting, Nov 8-12, 2023, Tampa, FL, US.
- [183] Erazo, C., Sermet, Y., **Demir, I.**, ‘HydroCompute: An Open-Source Web-Based Computational Library for Hydrology and Environmental Sciences’, IAHR 4th Young Professional Congress, Nov 22-24, 2023. Online.
- [184] **Demir, I.**, ‘Intelligent Data Analytics and Communication’, CIROH Science Meeting, October 2-4, 2023, Tuscaloosa, AL.

- 
- [185] Cikmaz, B., **Demir, I.**, 'A Comprehensive Flood Risk Assessment for the Railroad Network: Case Study for Iowa', APA Upper Midwest Conference, October 11-13, 2023, Cedar Falls, IA.
- [186] Erazo, C., Sermet, Y., **Demir, I.**, 'HydroLang, HydroLang-ML, and HydroCompute: A Web-based Software Suite for Client-Side Environmental and Hydrological Analyses', Iowa Water Conference, September 10-11, 2023, Coralville, IA.
- [187] Muste, M., Meselhe, E., **Demir, I.**, Loeser, T., Lynch, M., 'A New Paradigm for Monitoring Steady and Unsteady Flows in Rivers', Hydraulic Measurements & Experimental Methods Conference, June 25-29, 2023, Fort Collins, CO.
- [188] Prouty, C., Smith, W., Watkins, S., Moore, T., Cheek, L., Ellis, A., Davis, B., Zarger, R., Burke, M., Cwiertny, D., **Demir, I.**, Muller-Karger, F., Meyers, S., Trotz, M., 'Bridging communities upstream and downstream for nitrogen management: an inclusive, people-centered platform and capacity-building initiative', AEESP Research and Education Conference, June 20-23, 2023, Boston, MA.
- [189] House, E., Meselhe, E., Beg, N., Muste, M., **Demir, I.**, 'Real-Time Estimation and Forecasting of Streamflow Response to Cyclical Processes', The State of the Coast (SOC) Conference, May 31 – June 2, 2023, New Orleans, LA.
- [190] Erazo, C., Sermet, Y., **Demir, I.**, 'HydroLang, HydroLang-ML, and HydroCompute: A Web-based Software Suite for Client-Side Environmental and Hydrological Analyses', CIROH Annual Training and Developers Conference, May 16-18, 2023, Salt Lake City, UT.
- [191] Sermet, Y., Pursnani, V., Singh, N., **Demir, I.**, 'Development of an Intelligent Hydroinformatics Chatbot and Virtual Educational Assistant for Enhancing Learning and Research in the Hydrological Domain', CIROH Annual Training and Developers Conference, May 16-18, 2023, Salt Lake City, UT.
- [192] Merwade, V., Muste, M., **Demir, I.**, Cox, A., Minear, T., 'RIMORPHIS: River Morphology Information System', SEDHYD Sedimentation and Hydrologic Modeling Conference, May 8-12, 2023, St. Louis, MO.
- [193] Botero-Acosta, A., Cox, A., Sagan, V., **Demir, I.**, Muste, M., Boyd, P., Pathak, C., 'Anomaly Detection of Watershed Variables Related to Sedimentation in US Reservoirs', SEDHYD Sedimentation and Hydrologic Modeling Conference, May 8-12, 2023, St. Louis, MO.
- [194] Meyer, D., Cox, A., Botero-Acosta, A., Sagan, V., **Demir, I.**, Muste, M., Pathak, C., Boyd, P., 'Estimating Reservoir Sedimentation Using Deep Learning and The USACE RSI System Dataset', SEDHYD Sedimentation and Hydrologic Modeling Conference, May 8-12, 2023, St. Louis, MO.
- [195] Demiray, B.Z., Sit, M., **Demir, I.**, 'EfficientTempNet: Temporal Super-Resolution of Radar Rainfall', The Eleventh International Conference on Learning Representations (ICLR) - Tackling Climate Change with Machine Learning: Global Perspectives and Local Challenges, May 1-5, 2023, Kigali, Rwanda.
- [196] House, E., Meselhe, E., Beg, N., Muste, M., **Demir, I.**, 'Numerical Modeling of Riverine Streamflow Under Hysteretic Conditions', Lower Mississippi River Science Symposium, April 27-28, 2023, New Orleans, LA.

- [197] Alabbad, Y., Mount, J., **Demir, I.**, 'A Web-based Framework for Optimizing Road Network Accessibility and Location-Allocation During Flooding', Iowa Research Open House, April 20, 2023, University of Iowa.
- [198] Erazo, C., **Demir, I.**, 'HydroCompute: Computational Library for Hydrology and Environmental Sciences', Iowa Research Open House, April 20, 2023, University of Iowa.
- [199] **Demir, I.**, 'Next Generation Digital Twin Systems for Disaster Analytics and Communication', Fifth NAAHDRI Research Incubator Event, February 10, 2023, Online (virtual).
- [200] **Demir, I.**, 'AI and Machine Learning Applications for Operational Flood Forecasting and Communication', Flood Forecasting Meets Machine Learning Workshop, January 10-11, 2023, Online (virtual).
- [201] Ewing, G., **Demir, I.**, 'A Web-Based Generalized Hydrological Modelling Framework for Decision Support, Outreach, and Education', AGU Fall Meeting, December 12-16, 2022, Chicago, IL.
- [202] **Demir, I.**, 'Next Generation Hydroinformatics Applications for Scientific Computing and Communication', AGU Fall Meeting, December 12-16, 2022, Chicago, IL.
- [203] Li, Z., **Demir, I.**, 'U-Net-Based Semantic Classification for Flood Extent Extraction Using SAR Images: A Case Study for 2019 Central US Flooding', AGU Fall Meeting, December 12-16, 2022, Chicago, IL.
- [204] Erazo, C., Sermet, Y., Molkenthin, F. and **Demir, I.**, 'HydroLang: An open-source web-based programming framework for hydrological sciences', AGU Fall Meeting, December 12-16, 2022, Chicago, IL.
- [205] Alabbad, Y., Yildirim, E., **Demir, I.**, 'A Web-based Analytical Urban Flood Damage and Loss Estimation System', AGU Fall Meeting, December 12-16, 2022, Chicago, IL.
- [206] Merwade, V., Minear, J.T., Muste, M., Cox, A., **Demir, I.**, Dey, S., Liang, C.Y. and Sermet, Y., "Introducing RIMORPHIS, the River Morphology Information System: An Online Community Resource for River Morphology Data and Tools", AGU Fall Meeting. Dec. 14, 2022, Chicago, IL.
- [207] Erazo, C., Sermet, Y., **Demir, I.**, HydroLang Markup Language: Community-Driven Web Components for Hydrological Analyses, 3rd IAHR Young Professionals Congress, Nov 28 - Dec 02, 2022, Online (virtual).
- [208] Erazo, C., Sermet, Y., Molkenthin, F., **Demir, I.**, 'HydroLang: An Open-Source Web-Based Programming Framework for Hydrological Sciences', Iowa Water Conference, September 28-29, 2022, Dubuque, IA.
- [209] Alabbad, Y., Mount, J., Campbell, A., **Demir, I.**, 'Assessment of Transportation System Disruption and Accessibility to Critical Amenities During Flooding: Iowa Case Study', Iowa Water Conference, September 28-29, 2022, Dubuque, IA.
- [210] Ewing, G., **Demir, I.**, 'Interactive Environmental Modelling on Client-Side Web Systems; An Outreach and Educational Case Study', Iowa Water Conference, September 28-29, 2022, Dubuque, IA.



- [211] Demiray, B.Z., Sermet, Y., Yildirim, E., **Demir, I.**, 'FloodGame: A Serious Game on Flood Mitigation for K-12 and Public Education', Iowa Water Conference, September 28-29, 2022, Dubuque, IA.
- [212] Sermet, Y., **Demir, I.**, 'Next-Generation Environmental Information Systems using Immersive Technologies and Artificial Intelligence', Young Professionals Workshop - Lowering Flood Risk by Increasing Resilience: Next Generation Vision for Flood Science and Action, August 9-10, 2022, Iowa City, IA.
- [213] **Demir, I.**, 'Next Generation Web-based Digital Twin Systems for Hydrological Research and Education', HIC 2022: 14th International Conference on Hydroinformatics, July 4-8, 2022, Bucharest, Romania.
- [214] **Demir, I.**, Sermet, S., Muste, M., 'A Web-Based Cyberinfrastructure for River Morphology Data Analytics and Exploration', HIC 2022: 14th International Conference on Hydroinformatics, July 4-8, 2022, Bucharest, Romania.
- [215] Cikmaz, B., Yildirim, E., **Demir, I.**, 'Flood Risk Assessment and Quantification for Iowa Using Fuzzy Analytical Hierarchy Process', HIC 2022: 14th International Conference on Hydroinformatics, July 4-8, 2022, Bucharest, Romania.
- [216] Quintero, F., Li, Z., **Demir, I.**, Grout, T., Bates, B., 'Understanding the Mechanisms Behind the Performance of HAND Flood Inundation Model', Frontiers in Hydrology Meeting, June 19-24, 2022, San Juan, Puerto Rico.
- [217] Ewing, G., **Demir, I.**, 'Device-Agnostic Environmental Modelling Framework for The Web', Frontiers in Hydrology Meeting, June 19-24, 2022, San Juan, Puerto Rico.
- [218] Ewing, G., Mantilla, R., Krajewski, W., **Demir, I.**, 'A Client-Side Web Framework for Rainfall-Runoff Modelling in a Hybrid Learning Context', Frontiers in Hydrology Meeting, June 19-24, 2022, San Juan, Puerto Rico.
- [219] Sermet, S., Demiray, B.Z., Yildirim, E., **Demir, I.**, 'FloodGame: A Serious Game on Flood Mitigation for K-12 and Public Education', Frontiers in Hydrology Meeting, June 19-24, 2022, San Juan, Puerto Rico.
- [220] Sermet, S., **Demir, I.**, 'Camera-Based Intelligent Stream Stage Sensing', Frontiers in Hydrology Meeting, June 19-24, 2022, San Juan, Puerto Rico.
- [221] Sermet, S., **Demir, I.**, Muste, M., 'A Web-Based Visualization and Analytics Cyberinfrastructure for River Morphology', Frontiers in Hydrology Meeting, June 19-24, 2022, San Juan, Puerto Rico.
- [222] Cox, A., Muste, M., Merwade, V., **Demir, I.**, Minear, T., 'Engaging the Earth Science Community for Developing a River Morphology Information System (RIMORPHIS)', UCOWR/NIWR Annual Water Resources Conference, June 14-16, 2022, Greenville, SC.
- [223] **Demir, I.**, 'Next Generation Web-based Digital Twin Systems for Flood Risk Management', AWRA 2022 Spring Conference, April 25-27, 2022, Tuscaloosa, AL.
- [224] Ewing, G., **Demir, I.**, 'WebHLM: A Client-Side Web Environment for Hydrologic Modelling and Education', Research Open House, April 15, 2022, Iowa City, IA.

- 
- [225] Alabbad, Y., **Demir, I.**, 'Comprehensive Flood Vulnerability Analysis in Urban Communities: Iowa Case Study', Research Open House, April 15, 2022, Iowa City, IA.
- [226] **Demir, I.**, 'Next Generation Web-based Digital Twin Systems for Hydrological Research and Education', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [227] Li, Z., **Demir, I.**, 'A Comprehensive Web-based System for Flood Inundation Mapping and Analysis Based on Height Above Nearest Drainage', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [228] Yildirim, E., **Demir, I.**, 'Agricultural Flood Vulnerability Assessment and Risk Quantification in Iowa', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [229] Xiang, Z., **Demir, I.**, 'Fully Distributed Rainfall-Runoff Modeling Using Spatial-Temporal Graph Neural Network', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [230] Ewing, G., Mantilla, R., Krajewski, W., **Demir, I.**, 'WebHLM: A Client-Side Web Environment for Hydrologic Modeling and Education', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [231] Sermet, Y., **Demir, I.**, 'Camera-Based Intelligent Stream Stage Sensing for Citizen Science Applications', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [232] Sermet, Y., **Demir, I.**, Muste, M., 'A Web-Based Visualization and Analytics Cyberinfrastructure for River Morphology', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [233] Merwade, V., et al., **Demir, I.**, 'RIMORPHIS: River Morphology Information System', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [234] Xiang, Z., **Demir, I.**, 'A Regional Semi-Distributed Streamflow Model Using Deep Learning', 2021 Annual Water Resources Conference, November 8-11, 2021, Kissimmee, FL.
- [235] **Demir, I.**, 'Uncertainty in Visual Analytics Applications in Hydroinformatics', 2021 IEEE Visualization Conference, October 24-29, 2021, Virtual.
- [236] Demiray, B.Z., Sermet, Y., Yildirim, E., **Demir, I.**, 'FloodGame: A Serious Game on Flood Mitigation for K-12 and Public Education', WaterSmart Innovations (WSI) Conference, October 6-7, 2021, Las Vegas, NV.
- [237] Sit, M. A., Seo, B., **Demir, I.**, 'IowaRain: A Statewide Rain Event Dataset Based on Weather Radars and Quantitative Precipitation Analysis', NOAA Workshop on "Leveraging AI in Environmental Sciences", September 13-17, 2021, Boulder, Colorado & Virtual.
- [238] Xiang, Z., Demiray, B. Z., Sit, M. A., **Demir, I.**, 'WaterBench: A Large-scale Benchmark Dataset for Data-Driven Streamflow Forecasting', NOAA Workshop on "Leveraging AI in Environmental Sciences", September 13-17, 2021, Boulder, Colorado & Virtual.
- [239] Sit, M. A., Demiray, B. Z., **Demir, I.**, 'Short-term Hourly Streamflow Prediction with Graph Convolutional GRU Networks', NOAA Workshop on "Leveraging AI in Environmental Sciences", September 13-17, 2021, Boulder, Colorado & Virtual.
- [240] Xiang, Z., **Demir, I.**, 'Fully Distributed Rainfall-Runoff Modeling Using Spatial-Temporal Graph Neural Network', NOAA Workshop on "Leveraging AI in Environmental Sciences", September 13-

---

17, 2021, Boulder, Colorado & Virtual.

- [241] Sermet, Y., **Demir, I.**, 'Next-Generation Environmental Information Systems using Immersive Technologies and Artificial Intelligence', NOAA Workshop on "Leveraging AI in Environmental Sciences", September 13-17, 2021, Boulder, Colorado & Virtual.
- [242] Jones, C., **Demir, I.**, et al. 'Cyberinfrastructure Framework to Support Large-Scale Water-Quality Data Integration, Analyses, and Visualization in The Upper Mississippi River Basin (UMRB)', Iowa Water Conference, April 6-7, 2021, Virtual.
- [243] Li, Z., Mount, J., **Demir, I.**, 'An Interactive Real-Time Flood Mapping Framework on Web Systems', Iowa Water Conference, April 6-7, 2021, Virtual.
- [244] Sermet, Y., **Demir, I.**, 'GeospatialVR: A Web-based Virtual Reality Framework for Collaborative Disaster Simulations', Disaster PRIMR 2021, Jan 31 – Feb 4, 2021, Virtual.
- [245] **Demir, I.**, 'Next Generation Intelligent Information and Communication Systems for Flood Preparedness and Mitigation', Disaster PRIMR 2021, Jan 31 – Feb 4, 2021, Virtual.
- [246] **Demir, I.**, 'Next Generation Web Technologies for Hydrological Applications on Client-side Systems', AGU Fall Meeting, December 7-11, 2020, San Francisco, CA.
- [247] Yildirim, E., **Demir, I.**, 'Flood Mitigation and Data Analytics Framework: Middle Cedar Case Study', AGU Fall Meeting, December 7-11, 2020, San Francisco, CA.
- [248] Ewing, G., **Demir, I.**, 'Water Ethics Web Engine - A Web-Based Ethical Decision-Making Framework', AGU Fall Meeting, December 7-11, 2020, San Francisco, CA.
- [249] Merwade, V., Muste, M., **Demir, I.**, Cox, A., Minear, T., 'RiverMorph: A Web Platform for Enabling River Morphology Research', AGU Fall Meeting, December 7-11, 2020, San Francisco, CA.
- [250] Sermet, Y., **Demir, I.**, 'GeospatialVR: A Web-based Virtual Reality Framework for Collaborative Environmental Simulations', AGU Fall Meeting, December 7-11, 2020, San Francisco, CA.
- [251] Xiang, Z., **Demir, I.**, 'Generalized Streamflow Forecast Model using Deep Learning', AGU Fall Meeting, December 7-11, 2020, San Francisco, CA.
- [252] Chi, N.-C., Nakad, L., Fu, Y.-K., **Demir, I.**, Gilbertson-White, S., Herr, K., Demiris, G., Parker Oliver, D., Hagiwara, Y., 'Shared Decision-making for Family Caregivers Managing Patients' Pain in Hospice Care: A Web App Approach'. American Medical Informatics Annual Symposium, American Medical Informatics Association, Nov 14-18, 2020, Chicago, IL.
- [253] Sermet, Y., **Demir, I.**, 'GeospatialVR: A Web-based Virtual Reality Framework for Collaborative Environmental Simulations', VRST 2020 - ACM Symposium on Virtual Reality Software and Technology, November 1-4, 2020, Ottawa, Canada.
- [254] Xiang, Z., **Demir, I.**, 'An Application of Deep Learning-Based Streamflow Forecasting in the State of Iowa', AWRA Water Resources Conference, November 2020.
- [255] Chi, N.-C., Nakad, L., Fu, Y.-K., **Demir, I.**, Gilbertson-White, S., Herr, K., Demiris, G., Burnside, L. 'Tailored Strategies and Shared Decision-making for Caregivers Managing Patients' Pain: A Web

- App'. The Gerontological Society of America 2020 Annual Scientific Meeting, Nov 4-8, 2020, Philadelphia, PA.
- [256] Sermet, Y., **Demir, I.**, 'Virtual and Augmented Reality Applications for Disaster Planning and Education', ESRI Water GIS Conference, September 23-25, 2020.
- [257] Sermet, Y., **Demir, I.**, 'Next-Generation Environmental Information Systems using Immersive Technologies and Artificial Intelligence', 2020 ACM Richard Tapia Conference, September 16-19, 2020.
- [258] Muste, M., **Demir, I.**, Merwade, V., Wood, M., Boyd, P., 'RIO: Data Model for Supporting River Research and Management', 2020 AWRA Geospatial Water Technology Conference, August 4-13, 2020, Austin, TX.
- [259] **Demir, I.**, '21st Century Technologies to Prepare for Flooding', Soil and Water Conservation Society's 75th International Annual Conference, July 27-29, 2020.
- [260] **Demir, I.**, 'Flooding & Transportation Resilience: Future of Intelligent Risk Analytics & Communication', Nebraska DOT Future of Transportation Technology Forum, July 1, 2020.
- [261] **Demir, I.**, 'Interactive and Real-time Flood Inundation Mapping on Client-Side Web Systems', 2020 ASFPM Annual National Conference, June 9-11, 2020, Fort Worth, TX.
- [262] Luna, D., Chen, R., Yuan, C., Liang, Y., Liang, X., Bales, J., Castronova, A.M., **Demir, I.**, Hooper, R.P., Krajewski, W.F., Lin, L., Mantilla, R., Pamidighantam, S., Song, F., Zhang, Y., 'CyberWater—An open and sustainable framework for diverse data and model integration', AGU Fall Meeting, December 9-13, 2019, San Francisco, CA.
- [263] Hu, A., Li, Z., Manazir, A., **Demir, I.**, 'Interactive and Real-time Flood Inundation Mapping on Client-Side Web Systems', AGU Fall Meeting, December 9-13, 2019, San Francisco, CA.
- [264] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Sustainable Environmental Management', AGU Fall Meeting, December 9-13, 2019, San Francisco, CA.
- [265] Xiang, Z., **Demir, I.**, 'Sequence-to-Sequence Learning with Deep Neural Networks in Rainfall-Runoff Modeling in Iowa', AGU Fall Meeting, December 9-13, 2019, San Francisco, CA.
- [266] **Demir, I.**, Lee, J. S., 'An Integrated Big Data Framework for Water Quality Issues in the Upper Mississippi River Basin', MBDH All Hands Meeting, October 29-30, 2019, Rosemont, IL.
- [267] Langel, R., Sit, M.A., Cwiertny, D., **Demir, I.**, 'The Iowa Well Forecasting System (IWFoS): A web application to predict aquifers and groundwater quality', IGWA 2019 Fall Conference, October 17, 2019, Cedar Rapids, IA.
- [268] Sermet, Y., **Demir, I.**, 'Virtual Stage Sensors: Alternative Approaches for Smartphone-Based Crowdsourced Water Level Measurements', Tapia 2019 - ACM Richard Tapia Celebration of Diversity in Computing, September 18-21, 2019, San Diego, CA.
- [269] Hu, A., Li, Z., Manazir, A., **Demir, I.**, 'Interactive and Real-time Flood Inundation Mapping on Client-Side Web Systems', CUAHSI Informatics Conference, July 29-31, 2019, Provo, UT.

- [270] Sermet, Y., **Demir, I.**, 'Flood Action VR: A Virtual Reality Framework for Disaster Awareness and Emergency Response Training', ACM SIGGRAPH 2019, July 28 - August 1, 2019, Los Angeles, CA.
- [271] Powell, J., Karpatne, A., Garijo, D., Martin, J., Hardesty-Lewis<sup>1</sup>, D., Marchetto, P., Cleveland, S., Daniels, M., Athanasiadis, I., Keys, P., **Demir, I.**, Peckham, S., Hill, M., Ebert-Uphoff, I., Pennington, D., Jacobs, G., Gil, Y., Pierce, S., 'Creating Sustainable Knowledge Centric Communities with Artificial Intelligence Applications to Earth Science Problems', EarthCube Annual Meeting, June 12-14, 2019, Denver, CO.
- [272] **Demir, I.**, Krajewski, W. F., 'Next Generation Information and Communication Systems for Flooding', ASFPM Annual National Conference, May 19-23, 2019, Cleveland, OH.
- [273] Sermet, Y., **Demir, I.**, 'Virtual Stage Sensors: Alternative Approaches for Smartphone-Based Crowdsourced Water Level Measurements', The 17th Annual College of Engineering Research Open House, April 11, 2019, Iowa City, IA, USA.
- [274] **Demir, I.**, 'Iowa Flood Information System Demo and Workshop', Iowa Water Conference, March 12-13, 2019, Ames, IA.
- [275] **Demir, I.**, 'Intelligent Systems and Machine Learning Applications in Environmental Sciences', UIOWA Informatics Showcase, February 15, 2019, Iowa City, IA, USA.
- [276] Sit, M. A., Seo, B. C., Krajewski, W. F., **Demir, I.**, 'Deep Neural Networks Based Augmentation of Rainfall Data', AMS Annual Meeting, January 6-10, 2019, Phoenix, AZ.
- [277] Seo, B. C., Keem, M., **Demir, I.**, Krajewski, W. F., 'A Cloud Infrastructure for Rainfall Metadata Search and Product Generation Based on the Big Data of NEXRAD', AMS Annual Meeting, January 6-10, 2019, Phoenix, AZ.
- [278] **Demir, I.**, Demiray, B. Z., Sit, M. A., Yildirim, E., 'Enhancing Lidar Data using Generative Adversarial Networks', AGU Fall Meeting, December 10-14, 2018, Washington, DC.
- [279] **Demir, I.**, Sermet, Y., 'Integration of Intelligent Systems and Novel Visualization Techniques in Data-Driven Geoscience Education', AGU Fall Meeting, December 10-14, 2018, Washington, DC.
- [280] **Demir, I.**, Xiang, Z., 'Runoff Prediction using Long-Short Term Memory Model', AGU Fall Meeting, December 10-14, 2018, Washington, DC.
- [281] **Demir, I.**, Krajewski, W. F., Jones, C. S., Schilling, K., Weber, L. J., Lee, J. S., Warner, R. E., Gassman, P. W., 'An Integrated Big Data Framework for Water Quality Issues in the Upper Mississippi River Basin', MBDH All Hands Meeting, November 6-7, 2018, Cleveland, OH.
- [282] Yildirim, E., **Demir, I.**, 'Integrated Decision Support System for Flood Mitigation Practices', Upper Mississippi Conference, October 24-25, 2018, Moline, IL.
- [283] Chen, P., Campbell, A.M., **Demir, I.**, 'A Generalized Routing and Accessibility Analysis System for Flooding: Iowa Testbed', INFORMS Annual Meeting, September 19-22, 2018, Orlando, FL.
- [284] Sermet, Y., **Demir, I.**, 'Flood Action VR: A Virtual Reality Framework for Disaster Awareness and Emergency Response Training', Tapia 2018 - ACM Richard Tapia Celebration of Diversity in Computing, September 19-22, 2018, Orlando, FL.

- [285] Sit, M., **Demir, I.**, 'Artificial Neural Networks Based Flood Forecasting', Tapia 2018 - ACM Richard Tapia Celebration of Diversity in Computing, September 19-22, 2018, Orlando, FL.
- [286] Sermet, Y., **Demir, I.**, 'Flood AI: An Intelligent Systems for Discovery and Communication of Disaster Knowledge', *9th International Congress on Environmental Modelling and Software*, June 24-28, 2018, Fort Collins, CO.
- [287] **Demir, I.**, 'Disaster Communication Using Intelligent Systems, Holograms and Virtual Reality', *Moving Forward: Pathways to Building Community Resilience, National Academy of Science*, June 19, 2018, Cedar Rapids, IA.
- [288] Gariyo, D., Martin, J., Freed, N., Pierce, S., Gil, Y., Thompson, D. R., **Demir, I.**, Ebert-Uphoff, I., 'IS-GEO - A Research Coordination Network on Intelligent Systems Research to Support the Geosciences', *EarthCube All Hands Meeting (AHM)*, June 6-8, 2018, Washington, DC.
- [289] **Demir, I.**, 'Disaster Communication Using Intelligent Systems, Holograms and Virtual Reality', 2018 GeoRodeo, May 4, 2018, Austin, TX, USA.
- [290] Yildirim, Enes, **Demir, I.**, 'Integrated Disaster Decision Support and Visualization System', *The 15th Annual College of Engineering Research Open House*, April 12, 2018, Iowa City, IA, USA.
- [291] Sermet, Y., **Demir, I.**, 'Knowledge Discovery, Integration and Communication for Extreme Weather and Flood Resilience Using Artificial Intelligence: Flood Expert', *The 15th Annual College of Engineering Research Open House*, April 12, 2018, Iowa City, IA, USA.
- [292] **Demir, I.**, 'Communication of Extreme Events using Intelligent Systems and Visualization', UIOWA Informatics Showcase, March 23, 2018, Iowa City, IA, USA.
- [293] **Demir, I.**, Sermet, Y., Krajewski, W.F., 'An Intelligent System for Discovery and Communication of Extreme Events', AMS Annual Meeting, January 7-11, 2018, Austin, TX, USA.
- [294] Zanchetta, A.D.L., Mantilla, R., **Demir, I.**, Krajewski, W.F., 'IFIS Model-Plus: A Web-Based GUI for Visualization, Comparison and Evaluation of Distributed Flood Forecasts and Hindcasts', AGU Fall Meeting, December 11-15, 2017, New Orleans, LA, USA.
- [295] **Demir, I.**, Sermet, Y., 'Flood AI: An Intelligent Systems for Discovery and Communication of Disaster Knowledge', AGU Fall Meeting, December 11-15, 2017, New Orleans, LA, USA.
- [296] Ebert-Uphoff, I., Thompson, D.R., **Demir, I.**, Gel, Y.R., Hill, M., Karpatne, A., Guereque, M., Kumar, V., Cabral-Cano, E., Smyth., P., 'Building Bridges Between Geoscience and Data Science through Benchmark Data Sets', AGU Fall Meeting, December 11-15, 2017, New Orleans, LA, USA.
- [297] Sermet, Y., **Demir, I.**, 'Knowledge Discovery, Integration and Communication for Extreme Weather and Flood Resilience Using Artificial Intelligence: Flood AI Alpha', Tapia Conference, September 20-23, 2017, Atlanta, GA, USA.
- [298] Zanchetta, A.D.L., Mantilla, R., **Demir, I.**, 'IFIS Model-Plus: A Web-Based GUI for Visualization, Comparison and Evaluation of Distributed Hydrologic Model Outputs', 2017 CUAHSI Conference on Hydroinformatics, July 25-27, 2017, Tuscaloosa, AL, USA.
- [299] **Demir, I.**, Sermet, Y., 'Intelligent Systems and Knowledge Discovery for Data-Driver

- Communication and Education’, 2017 CUAHSI Conference on Hydroinformatics, July 25-27, 2017, Tuscaloosa, AL, USA.
- [300] Sermet, Y., Sit, M.A., **Demir, I.**, ‘Benchmark of Client and Server-Side Catchment Delineation Approaches on Web-Based Systems’, 2017 CUAHSI Conference on Hydroinformatics, July 25-27, 2017, Tuscaloosa, AL, USA.
- [301] Muste, M., **Demir, I.**, ‘Prototypes for Flood Information and Decision-Support Systems’, Global Flood Partnership 2017 Conference, June 27-29, 2017, Tuscaloosa, AL, USA.
- [302] Gil, Y., ..., **Demir, I.**, et al., ‘The OntoSoft Geosciences Paper of the Future Initiative: Promoting Best Practices for Digital Scholarship, Reproducible Research, and Open Science’, EarthCube All Hands Meeting, June 7-9, 2017, Seattle, WA, USA.
- [303] Sermet, Y., Sit, M., **Demir, I.**, ‘Real-Time Web-Based Watershed Delineation Using JavaScript, Python and WebGL’, AWWA Annual Conference and Exposition (ACE17), June 11-14, 2017, Philadelphia, PA, USA.
- [304] Yildirim, E., Sermet, Y., **Demir, I.**, ‘Flood Emergency Decision Support System and Loss Estimation on the Web using HAZUS’, 15th Annual College of Engineering Research Open House, April 6, 2017, Iowa City, IA, USA.
- [305] Yildirim, E., Sermet, Y., **Demir, I.**, ‘Flood Loss Estimation and Decision Support Framework on the Web’, 19th Annual James F. Jakobsen Memorial Graduate Conference, March 25, 2017, Iowa City, IA, USA.
- [306] Sermet, Y., Agliamzanov, R., Sit, M., **Demir, I.**, ‘Scientific Computations on GPU on The Web: A Use Case of Distributed Volunteer Computing for Hydrological Applications’, *GPU Technology Conference*, May 8-11, 2017, San Jose, CA, USA.
- [307] **Demir, I.**, Sermet, Y., ‘Intelligent Systems and Knowledge Discovery for Communication of Extreme Weather and Disaster Preparedness’, *GPU Technology Conference*, May 8-11, 2017, San Jose, CA, USA.
- [308] Sermet, Y., Sit, M., **Demir, I.**, ‘Benchmark of Client and Server-Side Catchment Delineation Approaches on Web-Based Systems’, *Iowa Water Conference*, March 22-23, 2017, Ames, IA, USA.
- [309] Yildirim, E., Sermet, Y., **Demir, I.**, ‘Web-based Flood Hazard Estimation and Emergency Management’, *Iowa Water Conference*, March 22-23, 2017, Ames, IA, USA.
- [310] Xu, H. Hameed, H., Windsor, M., Smith, J., Hunemuller, T., Muste, M., **Demir, I.**, Stevenson, M. B., ‘An Iowa Prototype for a Generic Watershed Decision Support System’, *Iowa Water Conference*, March 22-23, 2017, Ames, IA, USA.
- [311] Seo, B.C., **Demir, I.**, Keem, M., Goska, R., Krajewski, W. F., ‘Cloud-based NEXRAD Data Processing and Analysis for Hydrologic Applications’, *American Geophysical Union (AGU) Fall Meeting*, December 12-16, 2016, San Francisco, CA, USA.
- [312] Villanueva, P., Sermet, Y., **Demir, I.**, ‘Virtual Stream Stage Sensor Using Projected Geometry and Augmented Reality for Crowdsourcing Citizen Science Applications’, *American Geophysical Union*

(AGU) Fall Meeting, December 12-16, 2016, San Francisco, CA, USA.

- [313] **Demir, I.**, Sermet, Y., 'Knowledge Discovery, Integration and Communication for Extreme Weather and Flood Resilience Using Artificial Intelligence: Flood AI Alpha', American, *American Geophysical Union (AGU) Fall Meeting*, December 12-16, 2016, San Francisco, CA, USA.
- [314] Yu, X., Gil, Y., David, C., **Demir, I.**, Essawy, B., Fulweiler, R., Goodall, J., Karlstrom, L., Lee, H., Mills, H., Pierce, S., Pope, A., Tzeng, M., Villamizar, S., 'The Geoscience Paper of the Future: Best Practices for Documenting and Sharing Research from Data to Software to Provenance', *American Geophysical Union (AGU) Fall Meeting*, December 12-16, 2016, San Francisco, CA, USA.
- [315] Hossein-Hosseiny, S. M., Zarzar, C., Gomez, M., Siddique, R., Smith, V., Mejia, A., **Demir, I.**, 'Quantifying Uncertainty in Flood Inundation Mapping Using Streamflow Ensembles and Multiple Hydraulic Modeling Techniques', *American Geophysical Union (AGU) Fall Meeting*, December 12-16, 2016, San Francisco, CA, USA.
- [316] Sit, M.A., Sermet, Y., **Demir, I.**, 'Flood and Weather Monitoring Using Real-time Twitter Data Streams', *American Geophysical Union (AGU) Fall Meeting*, December 12-16, 2016, San Francisco, CA, USA.
- [317] Sermet, Y., Sit, M.A., **Demir, I.**, 'Benchmark of Client and Server-Side Catchment Delineation Approaches on Web-Based Systems', *American Geophysical Union (AGU) Fall Meeting*, December 12-16, 2016, San Francisco, CA, USA.
- [318] Yildirim, E., Sermet, Y., **Demir, I.**, 'Flood Damage and Loss Estimation for Iowa on Web-based Systems using HAZUS', *American Geophysical Union (AGU) Fall Meeting*, December 12-16, 2016, San Francisco, CA, USA.
- [319] E. Yildirim, **Demir, I.**, 'Real Time Flood Loss Estimation and Emergency Decision Support Systems on the Web', *CyberGIS'16 - Third International Conference on CyberGIS and Geospatial Data Science*, July 26-28, 2016, Urbana, IL, USA.
- [320] Y. Sermet, **Demir, I.**, 'Real-Time Web-Based Watershed Delineation Using JavaScript, Python and WebGL', *CyberGIS'16 - Third International Conference on CyberGIS and Geospatial Data Science*, July 26-28, 2016, Urbana, IL, USA.
- [321] Xu, H., Hameed, H., **Demir, I.**, Muste, M., Smith, J., Stevenson, M.B., Hunemuller, T., 'Visualization Platform for Collaborative Modeling', *2016 AWRA Summer Specialty Conference, GIS and Water Resources IX*, July 11-13, 2016, Sacramento, CA, USA.
- [322] Muste, M., **Demir, I.**, Xu, H., Windsor, M., Hameed, H., 'Iowa Watershed Decision Support System: Prototype DSS for interjurisdictional collaboration in water resource management', *UIOWA Informatics Showcase*, April 22, 2016, Iowa City, IA, USA.
- [323] A.D.L. Zanchetta, R. Mantilla, **Demir, I.**, 'An Interface for Comparison of Iowa Flood Center Simulation Products', *UIOWA Informatics Showcase*, April 22, 2016.
- [324] Y. Sermet, **Demir, I.**, 'Computational Knowledge Engine for Hydrological Systems using Semantic Web', *UIOWA Informatics Showcase*, April 22, 2016, Iowa City, IA, USA.



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- [325] E. Yildirim, **Demir, I.**, 'Real-Time Emergency Response and Flood Loss Estimation via HAZUS-MH on the Web', *UIOWA Informatics Showcase*, April 22, 2016, Iowa City, IA, USA.
- [326] **Demir, I.**, 'Next Generation Hydroinformatics Systems for Big Data Management, Analysis, and Visualization', *UIOWA Informatics Showcase*, April 22, 2016, Iowa City, IA, USA.
- [327] **Demir, I.**, Krajewski, W.F., 'GPGPU Applications for Hydrological and Atmospheric Simulations and Visualizations on the Web', *GPU Technology Conference*, April 4-7, 2016, San Jose, CA, USA.
- [328] Sermet, Y., **Demir, I.**, 'Client-side GPGPU Web Application for Catchment Delineation and Watershed Segmentation', *GPU Technology Conference*, April 4-7, 2016, San Jose, CA, USA.
- [329] Sermet, Y., **Demir, I.**, Krajewski, W.F., 'Voice-enabled Knowledge Engine using Ontologies and Natural Language Processing for Weather and Hydrological Data', *Iowa Water Conference, March 23-24, 2016*, Ames, IA, USA.
- [330] Sit, M.A., Sermet, Y., **Demir, I.**, Krajewski, W.F., 'Real-time Social Media Analysis for Flood Preparedness and Response', *Iowa Water Conference, March 23-24, 2016*, Ames, IA, USA.
- [331] Onkal-Engin, G., **Demir, I.**, Adiller, A., Çelen, M., Dogan, A., Varank, G., Engin, S.N., 'Web-based Watershed Information Systems – Advantages for Decision Support Systems', *International Water Conference 2016 on Water Resource in Arid areas: The Way Forward*, March 13-16, 2016, Muscat, Oman.
- [332] **Demir, I.**, Sermet, Y., Krajewski, W., 'Voice-enabled Knowledge Engine using Ontologies and Natural Language Processing for Weather and Hydrological Data', in *Proceedings of 32th Conference on Environmental Information Processing Technologies, 2016 AMS Annual Meeting*, January 10-14, 2016, New Orleans, LA, USA.
- [333] **Demir, I.**, Krajewski, W., 'Novel Cyberinfrastructure Systems for Scientific Visualization of Large-Scale Radar and Satellite Data on the Web', in *Proceedings of 32th Conference on Environmental Information Processing Technologies, 2016 AMS Annual Meeting*, January 10-14, 2016, New Orleans, LA, USA.
- [334] Sit, M.A., Sermet, Y., **Demir, I.** 'Real-time Social Media Analysis for Flood Monitoring and Prediction - Twitter Use Case', *American Geophysical Union (AGU, Virtual Showcase*, December 2015, Washington, DC, USA.
- [335] Sermet, Y., **Demir, I.**, 'A Comprehensive Flood Ontology for Environmental Cyberinfrastructure Systems', *American Geophysical Union (AGU, Virtual Showcase*, December 2015, Washington, DC, USA.
- [336] **Demir, I.**, Szczepanek, R., 'Analysis and Benchmark of Hydrological Network Representation Models for Improved Access and Query in Web-based System', *American Geophysical Union (AGU) Fall Meeting*, December 14-18, 2015, San Francisco, CA, USA.
- [337] **Demir, I.**, Sermet, Y., Krajewski, W.F., 'Voice-enabled Knowledge Engine using Flood Ontology and Natural Language Processing', *American Geophysical Union (AGU) Fall Meeting*, December 14-18, 2015, San Francisco, CA, USA.

- [338] **Demir, I.**, 'Novel Web-based Education Platforms for Information Communication utilizing Gamification, Virtual and Immersive Reality', *American Geophysical Union (AGU) Fall Meeting*, December 14-18, 2015, San Francisco, CA, USA.
- [339] Gil, Y., Duffy, C., Mattmann, C., Robinson, E., David, C., **Demir, I.**, Essawy, B., Fulweiler, R., Goodall, J., Karlstrom, L., Lee, H., Mills, H., Oh, J., Pierce, S., Pope, A., Tzeng, M., Venayagamoorthy, K., Villamizar, S., Yu, X., 'The Geoscience Paper of the Future Initiative: Training Scientists in Best Practices of Software Sharing', *3rd Workshop on Sustainable Software for Science Practice and Experiences (WSSSPE3)*, September 28-29, 2015, Boulder, CO, USA.
- [340] Weber, L. J., Krajewski, W., **Demir, I.**, 'Iowa Flood Center and Iowa Nutrient Research Center: Critical Resources for Improved Watershed Resiliency and Decision-Making', *3rd CUAHSI Conference on HydroInformatics. Model and Data Interoperability: From Theory to Practice*, July 15-17, 2015, Tuscaloosa, AL, USA.
- [341] **Demir, I.**, 'Novel Cyberinfrastructure Systems for Scientific Visualization of Large-Scale Environmental Observation and Simulation Data', *3rd CUAHSI Conference on HydroInformatics. Model and Data Interoperability: From Theory to Practice*, July 15-17, 2015, Tuscaloosa, AL, USA.
- [342] **Demir, I.**, Krajewski, W., 'Towards an Interoperable Flood Preparedness and Response Cyberinfrastructure', *3rd CUAHSI Conference on HydroInformatics. Model and Data Interoperability: From Theory to Practice*, July 15-17, 2015, Tuscaloosa, AL, USA.
- [343] **Demir, I.**, 'Scientific Visualization of Large-Scale Geospatial Data using Web Technologies', *2015 Unidata Users Workshop: Data-Driven Geoscience: Applications, Opportunities, Trends, and Challenges*, June 22-25, 2015, Boulder, CO, USA.
- [344] **Demir, I.**, Szczepanek, R., 'Benchmark Toolkit for Hydrological Network Representation Models', *NSF EarthCube All Hands Meeting, May 27-29, 2015, Arlington, VA, USA.*
- [345] Gil, Y., **Demir, I.**, Mills, H., Oh, J., Pierce, S., Tzeng, M., Yu, X., Robinson, E., 'Geoscience Papers of the Future: The Importance of Software Sharing for Science Reproducibility', *NSF EarthCube All Hands Meeting, May 27-29, 2015, Arlington, VA, USA.*
- [346] **Demir, I.**, 'Scientific Visualization of Large-Scale Geospatial Data using Web Technologies', *NSF EarthCube All Hands Meeting, May 27-29, 2015, Arlington, VA, USA.*
- [347] **Demir, I.**, 'Towards an Integrated Flood Preparedness and Response in Iowa using Cyberinfrastructure', *127th Iowa Academy of Science (IAS) Annual Meeting*, April 17-18, 2015, Iowa City, IA, USA.
- [348] **Demir, I.**, 'Game-based Learning and Simulation System using Web Technologies and GPU', *GPU Technology Conference*, March 17-20, 2015, San Jose, CA, USA.
- [349] **Demir, I.**, Agliamzanov, R., 'Web-based Distributed Voluntary Computing for Large Scale Scientific Computations using GPU', *GPU Technology Conference*, March 17-20, 2015, San Jose, CA, USA.
- [350] **Demir, I.**, 'Towards an Integrated Flood Preparedness and Response in Iowa: Centralized Data access, Analysis, and Visualization', *Iowa Water Conference, March 2-3, 2015, Ames, IA, USA.*

- 
- [351] **Demir, I.**, 'A Web-based Distributed Voluntary Computing Platform for Large Scale Hydrological Computations', *Iowa Water Conference, March 2-3, 2015, Ames, IA, USA*.
- [352] **Demir, I.**, Agliamzanov, R., 'A Web-based Distributed Voluntary Computing Platform for Large Scale Hydrological Computations', *American Geophysical Union (AGU) Fall Meeting*, December 15-19, 2014, San Francisco, CA, USA.
- [353] **Demir, I.**, 'Interactive Web-based Hydrological Simulation System as an Education Platform using Augmented and Immersive Reality', *American Geophysical Union (AGU) Fall Meeting*, December 15-19, 2014, San Francisco, CA, USA.
- [354] **Demir, I.**, Krajewski, W., 'Towards an Integrated Flood Preparedness and Response: Centralized Data Access, Analysis, and Visualization', *American Geophysical Union (AGU) Fall Meeting*, December 15-19, 2014, San Francisco, CA, USA.
- [355] **Demir, I.**, Goska, R., Krajewski, W., 'Field Experiment Planning and Data Management using Cyberinfrastructure', *CUAHSI Virtual Workshop: Field Data Management Solutions*, October 30, 2014, USA.
- [356] Haltas, I., **Demir, I.**, 'Toward a Flood Information System (TABİS) for Turkey', 11th International Congress on Advances in Civil Engineering - ACE 2014, October 21-25, 2014, Istanbul, TURKEY.
- [357] Haltas, I., **Demir, I.**, 'Turkey Flood Information System (TABİS)', *Remote Sensing and Geographical Information Systems (UZAL-CBS)*, October 14-17, 2014, Istanbul, TURKEY. [Turkish]
- [358] **Demir, I.**, 'Novel Scientific Visualization Techniques for Communicating Environmental Information', *Iowa Space Grant Consortium Regional Meeting*, September 19-20, 2014, Des Moines, IA, USA.
- [359] Haltas, I., **Demir, I.**, 'Flood Information System (TABİS) for Turkey', 6th International Conference on Flood Management (ICFM6) - Floods in a Changing Environment, September 16-18, 2014, São Paulo, BRAZIL.
- [360] **Demir, I.**, 'Interactive Web-based Flood Simulation System as an Education Platform for Hydrological Concepts', *HIC 2014 – 11th International Conference on Hydroinformatics*, August 17-21, 2014, New York, NY, USA.
- [361] **Demir, I.**, Small, S., Goska, R., Keahey, K., Armstrong, P., Riteau, P., Seo, B., Mantilla, R., Krajewski, W., 'Hydroinformatics on the Cloud: Data Integration, Modeling and Information Communication for Flood Risk Management', *HIC 2014 – 11th International Conference on Hydroinformatics*, August 17-21, 2014, New York, NY, USA.
- [362] **Demir, I.**, 'Interactive Web-based Hydrological Simulation System as an Education Platform', *CUAHSI 2014 Biennial Colloquium*, July 28-30, 2014, Shepherdstown, WV, USA.
- [363] Krajewski, W., **Demir, I.**, 'An Information System for the NASA GPM Iowa Flood Studies (IFloodS) Field Campaign', *8th International Congress on Environmental Modelling and Software (iEMSs)*, June 15-19, 2014, San Diego, California, USA.
- [364] **Demir, I.**, 'Interactive Web-based Hydrological Simulation System as an Education Platform', *8th*

- International Congress on Environmental Modelling and Software (iEMSs)*, June 15-19, 2014, San Diego, California, USA.
- [365] **Demir, I.**, 'Gesture-based Interactive Visualization of Large-Scale Data using GPU and Latest Web Technologies', *GPU Technology Conference*, March 24-27, 2014, San Jose, CA, USA.
- [366] **Demir, I.**, 'Interactive Web-based Flood Simulation System for Realistic Experiments of Flooding and Flood Damage', *Iowa Water Conference*, March 3-4, 2014, Ames, IA, USA.
- [367] **Demir, I.**, 'Interactive Visualization of Large-Scale Hydrological Data using Emerging Technologies in Web Systems and Parallel Programming', *Iowa Water Conference*, March 3-4, 2014, Ames, IA, USA.
- [368] **Demir, I.**, Krajewski, W., 'Interactive Visualization of Large-Scale Radar and Rainfall Data using Graphical Processing Unit and Latest Web Technologies', in *Proceedings of 30th Conference on Environmental Information Processing Technologies, 2014 AMS Annual Meeting*, February 2-6, 2014, Atlanta, GA, USA.
- [369] **Demir, I.**, Krajewski, W., 'Interactive Visualization of Large-Scale Hydrological Data using Emerging Technologies in Web Systems and Parallel Programming', *American Geophysical Union (AGU) Fall Meeting*, December 9-13, 2013, San Francisco, CA, USA.
- [370] **Demir, I.**, 'Interactive Web-based Floodplain Simulation System for Realistic Experiments of Flooding and Flood Damage', *American Geophysical Union (AGU) Fall Meeting*, December 9-13, 2013, San Francisco, CA, USA.
- [371] **Demir, I.**, Krajewski, W., 'Interactive Visualization of Large-Scale Hydrological Data using Graphical Processing Unit and Latest Web Technologies', *CUAHSI Conference on Hydroinformatics and Modeling*, July 17-19, 2013, Logan, UT, USA.
- [372] Sonmez, O., Dogan, E., **Demir, I.**, 'Investigation of Flood Risk of The Lower Evros River', *The 15th Annual James F. Jakobsen Graduate Conference*, April 6, 2013, Iowa City, IA, USA.
- [373] Sonmez, O., Dogan, E., Ceribasi, G., **Demir, I.**, 'Investigation of Flood Risk Assessment in Lower Sakarya River, Turkey', *Research Open House*, April 4-5, 2013, Iowa City, IA, USA.
- [374] **Demir, I.**, Krajewski, W., 'Flood Risk Management in Iowa through an Integrated Flood Information System', *European Geosciences Union (EGU) General Assembly*, April 7-12, 2013, Vienna, Austria.
- [375] Krajewski, W., Seo, B., Goska, R., **Demir, I.**, Elsaadani, M., 'Precipitation Datasets for the GPM Iowa Flood Studies (IFloodS) Field Experiment', *European Geosciences Union (EGU) General Assembly*, April 7-12, 2013, Vienna, Austria.
- [376] **Demir, I.**, 'Novel Web-based Interfaces for Interactive Visualization of Large-Scale Hydrological and Meteorological Data', *Iowa Water Conference*, March 4-5, 2013, Ames, IA, USA.
- [377] Sonmez, O., Goska, R., Lee, K., **Demir, I.**, Krajewski, W.F., 'Discharge Estimations for Iowa Flood Center Stage Sensors', *Iowa Water Conference*, March 4-5, 2013, Ames, IA, USA.
- [378] Yolanda, G., Deelman, E., **Demir, I.**, Duffy, C., Marru, S., Pierce, M., Wiener, G., 'Designing a

- Roadmap for Workflow Cyberinfrastructure in the Geosciences: From Big Data to the Long Tail', *American Geophysical Union (AGU) Fall Meeting*, December 3-7, 2012, San Francisco, CA, USA.
- [379] Sonmez, O., Dogan, E., **Demir, I.**, 'Creating Flood Inundation Maps Using 1D Hydrologic Model and GIS for Lower Meric River Basin, Turkey', *American Geophysical Union (AGU) Fall Meeting*, December 3-7, 2012, San Francisco, CA, USA.
- [380] Krajewski, W.F., Kruger, A., Niemeier, J.J., Mantilla, R., Ceynar, D.L., Goska, R., **Demir, I.**, Fahim Rezaei, H., Gaynor, K.T., 'The Iowa Flood Center's River Stage Sensor Network—Overview', *American Geophysical Union (AGU) Fall Meeting*, December 3-7, 2012, San Francisco, CA, USA.
- [381] **Demir, I.**, Krajewski, W., 'Future of Hydroinformatics: Towards Open, Integrated and Interactive Online Platforms', *American Geophysical Union (AGU) Fall Meeting*, December 3-7, 2012, San Francisco, CA, USA.
- [382] **Demir, I.**, Krajewski, W., 'Novel Scientific Visualization Interfaces for Interactive Information Visualization and Sharing', *American Geophysical Union (AGU) Fall Meeting*, December 3-7, 2012, San Francisco, CA, USA.
- [383] **Demir, I.**, Krajewski, W., 'Information Communication using Knowledge Engine on Flood Issues', *Tenth International Conference on Hydroscience & Engineering (ICHE)*, November 4-7, 2012, Orlando, FL, USA.
- [384] Krajewski, W., Weber, L. J., **Demir, I.**, Mantilla, R., Young, N., Goska, R., Ceynar, D., Seo, B-C., Small, S., Kruger, A., Niemeier, J., Langel, C., 'Leveraging Federal and State Funding to Advance Flood Research and Benefit Local Public: Iowa Flood Information System', *CUAHSI 3rd Biennial Colloquium on Hydrologic Science and Engineering*, July 14-19, 2012, Boulder, CO, USA.
- [385] **Demir, I.**, Krajewski, W., 'A Novel Information Sharing Tool: IFIS Knowledge Engine', *CUAHSI 3rd Biennial Colloquium on Hydrologic Science and Engineering*, July 14-19, 2012, Boulder, CO, USA.
- [386] Krajewski, W., Weber, L., **Demir, I.**, 'Leveraging NSF Investments for Local Benefits', *American Geophysical Union (AGU) Science Policy Conference*, April 30 - May 3, 2012, Washington, DC, USA.
- [387] **Demir, I.**, Krajewski, W., 'Information Communication using Knowledge Engine on Flood Issues', *European Geosciences Union (EGU) General Assembly*, April 22-27, 2012, Vienna, Austria.
- [388] **Demir, I.**, Krajewski, W., 'A Web-based Data Intensive Visualization of Real-time River Drainage Network Response to Rainfall', *European Geosciences Union (EGU) General Assembly*, April 22-27, 2012, Vienna, Austria.
- [389] **Demir, I.**, Krajewski, W., Goska, R., Mantilla, R., Weber, L., Young, N., 'Iowa Flood Information System: Towards Integrated Data Management, Analysis and Visualization', *European Geosciences Union (EGU) General Assembly*, April 22-27, 2012, Vienna, Austria.
- [390] **Demir, I.**, Krajewski, W., Goska, R., Mantilla, R., Weber, L., Young, N., 'Iowa Flood Information System', *Second National Flood Workshop*, February 27 - March 1, 2012, Houston, TX, USA.
- [391] **Demir, I.**, Krajewski, W., 'A Prototype Visualization of Real-time River Drainage Network Response to Rainfall', *American Geophysical Union (AGU) Fall Meeting*, December 5-9, 2011, San

Francisco, CA, USA.

- [392] **Demir, I.**, Krajewski, W., Goska, R., Mantilla, R., Weber, L., Young, N., 'Iowa Flood Information System', *American Geophysical Union (AGU) Fall Meeting*, December 5-9, 2011, San Francisco, CA, USA.
- [393] Young, N., Krajewski, W., Weber, L., Mantilla, R., **Demir, I.**, Goska, R., 'The Iowa Flood Center', *Minnesota Association of Floodplain Managers (MnAFPM) Conference*, November 16-18, 2011, Mankato, MN, USA.
- [394] Krajewski, W., **Demir, I.**, Goska, R., Mantilla, R., Weber, L., Young, N., 'Iowa Flood Information System (IFIS)', *The Geological Society of America (GSA) Annual Meeting*, October 9-12, 2011, Minneapolis, MN, USA.
- [395] Krajewski, W., **Demir, I.**, Goska, R., Mantilla, R., Weber, L., Young, N., 'Iowa Flood Information System (IFIS)', *CUAHSI Conference on Hydrologic Data and Information Systems*, June 22-24, 2011, Utah State University, Logan, UT, USA.
- [396] Beck, M. B., **Demir, I.**, 'Models, Informatics, & The Growth of Knowledge', *7th International Conference on Ecological Informatics (ISEI7)*, December 13-16, 2010, Ghent, Belgium.
- [397] **Demir, I.**, Beck, M. B., 'Cities as Forces for Good in the Environment: Scientific Visualization and Stakeholder Dialogue', *2nd Annual Scientific Research Day, Graduate Students and Postdocs in Science (GSPS)*, June 18, 2010, University of Georgia, Athens, GA, USA.
- [398] **Demir, I.**, Parker, A. K., Beck, M. B., 'Cities as Forces for Good in the Environment: Scientific Visualization and Stakeholder Dialogue', *2010 AWRA Spring Specialty Conference: Geographic Information Systems (GIS) and Water Resources VI*, March 29-31, 2010, Orlando, FL, USA.
- [399] **Demir, I.**, Beck, M. B., 'Cities as Forces for Good in the Environment: The Role of Environmental Information Systems', *10th Annual Graduate Interdisciplinary Conference*, March 27, 2010, University of Georgia, Athens, GA, USA.
- [400] **Demir, I.**, Beck, M. B., 'Scientific Visualization and Stakeholder Dialogue', *2010 Warnell Graduate Student Research Symposium, University of Georgia, March 4-5, 2010, Athens, GA, USA.*
- [401] **Demir, I.**, Beck, M. B., 'Dynamic Spatial Information Interface for USGS Monitoring Sites', *Southern Forestry & Natural Resource Management GIS Conference*, December 7-9, 2009, Athens, GA, USA.
- [402] **Demir, I.**, Beck, M. B., 'GWIS: Georgia Watershed Information System', *Interdisciplinary Scientific Research Day*, July 1, 2009, University of Georgia, Athens, GA, USA.
- [403] **Demir, I.**, Beck, M. B., 'An Information Management System for Georgia Watersheds', *11th Annual Warnell School of Forestry and Natural Resources Graduate Student Symposium*, University of Georgia, February 26-27, 2009, Athens, GA, USA.
- [404] Walker, R. V., Shi, F., **Demir, I.**, Beck, M. B., 'High-frequency Monitoring and Modeling of Weracoba Creek Dynamic Behavior', *Weracoba Creek Water Quality Improvement Workshops*, July 25-26, 2008, Columbus State University, GA, USA.

- [405] **Demir, I.**, Beck, M. B., 'Data-processing in Management of Water Quality: Self Organizing Maps as a Multivariate Prediction Method', *10th Annual Warnell School of Forestry and Natural Resources Graduate Student Symposium*, University of Georgia, February 28-29, 2008, Athens, GA, USA.
- [406] Walker, R.V., Shi, F., **Demir, I.**, Beck, M. B., 'Hydrologic and Nutrient Behavior of a Small Basin in the Upper Chattahoochee Watershed using Near Real-time Monitoring', *Carl E. Kindsvater Symposium*, February 5, 2007, Atlanta, GA, USA.
- [407] Sunlu, F., **Demir, I.**, Onkal-Engin, G., Sunlu, U., Buyukisik, B., Koray, T., Sever, T., Kukrer, S., and Aydin, A., 'Prediction of Nano-plankton Change in Izmir Bay (Aegean Sea - TURKEY) with Time by Neural Networks', *Rapp. Comm. Int. Mer. Médit.*, 38, *38th CIESM Congress*, 9-13 April 2007, Istanbul, TURKEY.
- [408] **Demir, I.**, Beck, M. B., 'Determining the relationship between TON and NO<sub>2</sub> by using Artificial Neural Networks', *9th Annual Warnell School of Forestry and Natural Resources Graduate Student Symposium*, University of Georgia, 23-24 February 2006, Athens, GA, USA.

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### Invited Talks, Workshops & Presentations

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- [409] Erazo, C., **Demir, I.**, 'Workshop Training - HydroSuite: Open-Source Community-Oriented Software Suite for Hydrological Research and Education', *CIROH Developers Conference*, May 29 - Jun 1, 2024, Salt Lake City, UT.
- [410] Li, Z., **Demir, I.**, 'Flood Mapping with Multimodal Remote Sensing Imagery: Application and Adjustment', *Iowa Flood Center*, Aug 30, 2023.
- [411] Erazo, C., **Demir, I.**, 'Workshop Training - HydroCompute: A Web-Based Parallel Computation Framework for Hydrological Analysis', *CIROH Annual Training and Developers Conference*, May 16-18, 2023, Salt Lake City, UT.
- [412] Erazo, C., **Demir, I.**, 'Workshop Training - HydroLang: A Web-Based Framework for Hydrological Research', *CIROH Annual Training and Developers Conference*, May 16-18, 2023, Salt Lake City, UT.
- [413] Sermet, Y., **Demir, I.**, 'Next-Generation Web Technologies, AI and Intelligent Systems Applications in Geoscience', *Iowa Flood Center*, February 1, 2023.
- [414] **Demir, I.**, Sermet, Y., Sajja, R., 'AI-Enabled Intelligent Assistant (AIIA) for Personalized and Adaptive Learning and Advising', *Support Community for Instructional Technology Meeting*, University of Iowa, February 1, 2023.
- [415] Alabbad, Y., **Demir, I.**, 'Be Ready for Flooding', *Three Minute Thesis Competition*, October 17, 2022, College of Engineering, University of Iowa.
- [416] Sermet, Y., **Demir, I.**, 'River Morphology Information System Cyberinfrastructure Overview and Demo', *Rimorphis 2nd Annual Stakeholder Workshop*, May 19, 2022.
- [417] **Demir, I.**, Muste, M., Sermet, Y., 'RIMORPHIS: River Morphology Information System', *ASCE Lehigh Valley Section*, February 23, 2022.

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- [418] **Demir, I.**, 'Next Generation Hydroinformatics Applications in Environmental Science and Water Resources', ASCE Lehigh Valley Section, February 23, 2022.
- [419] Li, Z., **Demir, I.**, 'Evaluation of HAND-based Inundation Predictions from the National Water Center and A Web-based System: A Case Study in Iowa', Iowa Flood Center, February 2, 2022.
- [420] Xiang, Z., **Demir, I.**, 'Fully distributed rainfall-runoff modeling using graph neural network', Iowa Flood Center, January 26, 2022.
- [421] Yildirim, E., **Demir, I.**, 'Flood Risk Assessment and Quantification at the Community and Property Level in the State of Iowa', Iowa Flood Center, December 8, 2021.
- [422] Alabbad, Y., **Demir, I.**, 'Flood Mitigation Data Analytics and Decision Support Framework: Iowa Middle Cedar Watershed Case Study', Iowa Flood Center, December 1, 2021.
- [423] **Demir I.**, 'Next Generation Hydroinformatics Applications for Disaster Analytics and Communication', *Australian Water School*, December 1, 2021, Online.
- [424] **Demir I.**, 'AI and Intelligent Systems Applications in Geoscience', *Department of Geographical and Sustainability Sciences*, November 19, 2021, University of Iowa.
- [425] **Demir, I.**, 'Next Generation Data-Driven Flood Forecasting, Mapping and Analytics Framework on Client-side Web Systems', Google Flood Forecasting Workshop, October 5-7, 2021, Virtual.
- [426] Ewing, G., **Demir, I.**, 'WebHLM: A Client-Side Web Environment for Hydrologic Modeling and Education', Iowa Flood Center, August 18, 2021.
- [427] Xiang, Z., **Demir, I.**, 'Regional Streamflow Modeling Using Deep Learning', Iowa Flood Center, August 4, 2021.
- [428] Erazo, C., Sermet, Y., Molkenhain, F., **Demir, I.**, 'HydroLang: An Open-Source Web-Based Programming Framework for Hydrological Sciences', Iowa Flood Center, July 14, 2021.
- [429] Jones, C., et al., **Demir, I.**, 'Upper Mississippi Information System', Water Data Forum, Cleveland Water Alliance, April 20, 2021, Virtual.
- [430] **Demir, I.**, 'Panel: AI in High-Stakes Situations: AI Systems for Flood Communication and Analytics', ISI AI Futures Symposium, January 12-13, 2021, Virtual.
- [431] Yildirim, E., **Demir, I.**, 'Flood Mitigation and Data Analytics Framework: Middle Cedar Case Study', Iowa Flood Center, December 16, 2020.
- [432] Sermet, Y., **Demir, I.**, 'GeospatialVR: A Web-based Virtual Reality Framework for Collaborative Environmental Simulations', Iowa Flood Center, December 16, 2020.
- [433] Alabbad, Y., **Demir, I.**, 'Wayfinding and accessibility analysis for critical amenities in Iowa during flood events', Iowa Flood Center, July 22, 2020.
- [434] Xiang, Z., **Demir, I.**, 'Long-term forecasting of streamflow with deep learning models', Iowa Flood Center, July 15, 2020.
- [435] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', Cloud2Street, July 10, 2020.



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- [436] Ewing, G., **Demir, I.**, 'An Ethical Decision-Making Framework: Smart Water Case Study on Flooding', Iowa Flood Center, July 1, 2020.
- [437] Li, Z., **Demir, I.**, 'HAND Model Evaluation Study and Real-Time Flood Mapping System', Iowa Flood Center, June 24, 2020.
- [438] **Demir, I.**, 'Interactive and Real-time Flood Inundation Mapping on Client-side Web Systems', IS-GEO Meeting, April 7, 2020.
- [439] Liang, X., et al., **Demir, I.**, 'Collaborative Research: CyberWater—An Open and Sustainable Framework for Diverse Data and Model Integration with Provenance and Access to HPC', NSF CSSI PI Meeting, February 13-14th, 2020, Seattle, WA.
- [440] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', IBM Precision Agriculture Workshop, January 7, 2020, Iowa City, IA.
- [441] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', NSF Convergence Accelerator-Open Knowledge Network EarthCube Workshop, January 6, 2020, Bethesda, MD.
- [442] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', Emerging Issues in Big Data, Environmental Health, and Geospatial Science Workshop, December 6, 2019, University of Iowa, Iowa City, IA.
- [443] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', NSF Convergence Accelerator Planning Symposium, December 3-4, 2019, Univ. of South Carolina, Columbia, SC.
- [444] **Demir, I.**, 'Next Generation Data Analytics and Communication Systems for Flooding', 2019 MATC Flood Research Workshop, November 25, 2019, University of Nebraska, Lincoln, NE.
- [445] **Demir, I.**, Campbell, A., 'Transportation Planning for Floods', 2019 MATC Flood Research Workshop, November 25, 2019, University of Nebraska, Lincoln, NE.
- [446] **Demir, I.**, 'Iowa Flood Information System (IFIS) Vision and Demo', 2019 MATC Flood Research Workshop, November 25, 2019, University of Nebraska, Lincoln, NE.
- [447] **Demir, I.**, 'Intelligent Systems and Data Analytics for Disaster Risk Communication', November 22, 2019, Purdue University, Online.
- [448] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', GIS Day 2019, November 13, 2019, University of Kansas, Lawrence, KS.
- [449] **Demir, I.**, Bruner, R., 'Water Quality Information Systems and Data Exchange Network', R7/R8 EPA Exchange Network Workshop, October 1, 2019, Online.
- [450] **Demir, I.**, Langel, R., Sit, M.A., 'The Iowa Well Forecasting System (IWfOS)', Iowa Flood Center, August 21, 2019, Iowa City, IA.
- [451] **Demir, I.**, Hu, A., Li, Z., Manazir, A., 'Interactive and Real-time Flood Inundation Mapping on Client-Side Web Systems', Iowa Flood Center, August 8, 2019, Iowa City, IA
- [452] **Demir I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', *Canada Centre for Mapping and Earth Observation, Natural Resources Canada*, June 20, 2019, Online.

- [453] **Demir, I.**, 'Communication of Extreme Events using Intelligent Systems and Visualization', *Department of Geographical and Sustainability Sciences*, April 19, 2019, Iowa City, IA, USA.
- [454] **Demir, I.**, 'Intelligent Data Analytics and Visualization Systems for Transportation', *Iowa DOT Meeting*, UIOWA, November 9, 2018, Iowa City, IA, USA.
- [455] **Demir, I.**, 'Cyberinfrastructure Systems for Visualization and Communication of Scientific Data', Guest Lecture, Department of Landscape Architecture, College of Design, ISU, August 25, 2017, Iowa City, IA, USA.
- [456] **Demir, I.**, 'Flood Damage and Loss Estimation on Web-based Systems', Guest Lecture, HAZUS User Call, August 8, 2017, Webinar.
- [457] **Demir, I.**, 'Cyberinfrastructure Systems for Big Data Management, Analysis, and Visualization', Guest Lecture, Computer Science, UIOWA, April 28, 2017, Iowa City, IA, USA.
- [458] **Demir, I.**, Machine Learning: Farm-to-Table Workshop, April 18-19, 2017, University of Illinois in Urbana-Champaign, Urbana, IL, USA.
- [459] **Demir, I.**, 'Cyberinfrastructure Systems for Big Data Management, Analysis, and Visualization', Guest Lecture, Geographical and Sustainability Sciences, UIOWA, April 10, 2017, Iowa City, IA, USA.
- [460] **Demir, I.**, 'Novel Systems Big Data Analytics and Scientific Visualization', Guest Lecture, Explore Engineering@Iowa, University of Iowa, April 8, 2017, Iowa City, IA, USA.
- [461] **Demir, I.**, 'Knowledge Discovery, Integration and Communication for Extreme Weather and Flood Resilience Using Artificial Intelligence', Guest Lecture, IS-GEO Working Group, April 4, 2017, Iowa City, IA, USA.
- [462] **Demir, I.**, 'Cyberinfrastructure Systems for Big Data Management, Analysis, and Visualization', Webinar, HDR Engineering, February 7, 2017, Iowa City, IA, USA.
- [463] **Demir, I.**, 'Cyberinfrastructure Systems for Big Data Management, Analysis, and Visualization', Guest Lecture, Human Dimensions of Big Data, University of Iowa, November 2, 2016, Iowa City, IA, USA.
- [464] **Demir, I.**, 'Iowa Flood Center Data Resources and Iowa Flood Information System', National Water Center Summer Institute, June 13, 2016, Tuscaloosa, AL, USA.
- [465] **Demir, I.**, 'Next Generation Cyberinfrastructure Systems for Big Data Management, Analysis, and Visualization', Midwest Big Data Hub - Digital Agriculture Spoke All-Hands Meeting, May 16-17, 2016, Iowa State University, Ames, IA, USA.
- [466] **Demir, I.**, 'NSF Career Workshop', Training, UIOWA, OVPR, March 24, 2016.
- [467] **Demir, I.**, 'Next Generation Hydroinformatics Systems for Big Data Management, Analysis, and Visualization', Lightning Talk, NSF Midwest Big Data Hub All-Hands Meeting, March 21, 2016.
- [468] **Demir, I.**, 'Next Generation Hydroinformatics Systems for Big Data Management, Analysis, and Visualization', Invited Talk, XSEDE Science Gateway Community Webinar, February 26, 2016.

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- [469] **Demir, I.**, ‘Scientific Visualization and Information Communication in Hydrological Sciences’, Guest Lecture, IIHR, University of Iowa, February 4, 2016, Iowa City, IA, USA.
- [470] **Demir, I.**, ‘Applications and Services 2021: Disaster Preparedness and Response’, NSF Workshop on Applications and Services in the Year 2021, January 27-28, 2016, Washington, DC, USA
- [471] **Demir, I.**, ‘Game-based and Interactive Learning Environments’, Tenth Annual Sonia Kovalevsky High School Mathematics Day, April 11, 2015, Iowa City, IA, USA
- [472] **Demir, I.**, Krajewski, W., ‘Towards an Integrated Flood Preparedness and Response: Centralized Data Access, Analysis, and Visualization’, *UI GIS Users Meeting*, February 3, 2015, Iowa City, IA, USA
- [473] **Demir, I.**, ‘Interactive Visualization of Scientific Data using Web Technologies’, PDE Seminar, Mathematics Department, University of Iowa, December 3, 2014, Iowa City, IA, USA
- [474] **Demir, I.**, Invitation to the **White House** Innovation for Disaster Response and Recovery Demo Day, July 29, 2014, Washington, DC, USA
- [475] **Demir, I.**, Collaboration Visit at NASA Scientific Visualization Studio at NASA Goddard Space Flight Center, June 2-6, 2014, Greenbelt, MD, USA
- [476] **Demir, I.**, ‘Trends and Challenges on Future of Emergency Preparedness and Early Warning Systems’, Workshop on Grand Challenges in Engineering and Applied Sciences, May 24-26, 2014, Newark, NJ, USA
- [477] **Demir, I.**, Krajewski, W., ‘Future of Emergency Preparedness: Towards Open, Integrated and Interactive Online Platforms’, The International Conference on Hot Topics in Engineering and Applied Sciences – Mini Symposium and Planning Meeting (HotEng 2014), September 28-29, 2013, Buffalo, NY, USA
- [478] **Demir, I.**, Krajewski, W., ‘Novel Scientific Visualization Interfaces for Interactive Data Visualization and Analytics’, The International Conference on Hot Topics in Engineering and Applied Sciences – Mini Symposium and Planning Meeting (HotEng 2014), September 28-29, 2013, Buffalo, NY, USA
- [479] **Demir, I.**, ‘FloodCube: National Flood Information System’, US Ignite – Gigabit Explorer Challenge, November 1-3, 2013, Kansas City, MO, USA.
- [480] **Demir, I.**, Mentor Summit, Google Summer of Code 2013, October 19-20, 2013, Mountain View, CA, USA.
- [481] **Demir, I.**, 17th GENI (The Global Environment for Network Innovations) Engineering Conference (GEC17), July 21-23, 2013, Madison, WI, USA.
- [482] **Demir, I.**, ‘Flood Cube – National Flood Information Platform’, US Ignite – Next Generation Application Summit, June 24-26, 2013, Chicago, IL, USA.
- [483] **Demir, I.**, ‘Science 2.0 – In the Light of Environmental Information Systems and Scientific Visualization’, Department of Civil Engineering, Zirve University, June 18, 2013, Gaziantep, TURKEY.
- [484] **Demir, I.**, ‘Information Systems for Resource Management’, Course Lecture, Civil and

- Environmental Engineering, University of Iowa, May 29, 2013, Iowa City, IA, USA.
- [485] **Demir, I.**, 'Iowa Flood Information System (IFIS): Towards Integrated Data Management, Analysis and Visualization', GIS Day 2013, University of Iowa, April 25, 2013, Iowa City, IA, USA.
- [486] **Demir, I.**, 'Future of Scientific Visualization and Online Mapping', GIS Day 2013, University of Iowa, April 25, 2013, Iowa City, IA, USA.
- [487] **Demir, I.**, 'EarthCube Charette: Building the Cyberinfrastructure to Better Understand Our Complex and Changing Planet', June 12-14, 2012, Arlington, VA, USA.
- [488] **Demir, I.**, 'EarthCube Community Workshop: Designing A Roadmap for Workflows in Geosciences', One-day Workshops, March 13 / April 13 / May 16 / Jun 5, 2012 [Workshops].
- [489] **Demir, I.**, 'Iowa Flood Information System', Hawkeye Caucus Day, Iowa State Capitol, March 27, 2012, Des Moines, IA, USA. [Live Demonstration]
- [490] **Demir, I.**, 'Iowa Flood Information System', Iowa Water Conference, Iowa State University, March 6-7, 2012, Ames, IA, USA. [Live Demonstration]
- [491] **Demir, I.**, 'Science 2.0 – In the Light of Environmental Informatics and Information Visualization', Department of Mechanical and Industrial Engineering, University of Iowa, January 26, 2012, Iowa City, IA, USA. [Presentation]
- [492] **Demir, I.**, 'Science 2.0 – In the Light of Data Informatics and Scientific Visualization', Iowa Flood Center, IIHR – Hydraulics Engineering, University of Iowa, November 3, 2011, Iowa City, IA, USA. [Presentation]
- [493] **Demir, I.**, 'Environmental Information Systems (GWIS and IFIS) and Scientific Visualization', Turkish American Academics of Midwest (TAAM), May 21, 2011, Chicago IL, USA. [Presentation]
- [494] **Demir, I.**, 'Environmental Information Systems (GWIS, GWP and IFIS) and Scientific Visualization', Gebze Institute of Technology, April 28, 2011, Kocaeli, TURKEY. [Presentation]
- [495] **Demir, I.**, 'Environmental Information Systems (GWIS and GWP) and Scientific Visualization', Iowa Flood Center, IIHR – Hydraulics Engineering, University of Iowa, December 14, 2010, Iowa City, IA, USA. [Presentation]
- [496] **Demir, I.**, 'Scientific Visualization and Stakeholder Dialogue', *Workshop on Cities as Forces for Good in the Environment*, Warnell School of Forestry and Natural Resources, University of Georgia, November 18, 2009, Athens, GA, USA. [Presentation]
- [497] **Demir, I.**, 'Semantic Web and Environmental Information Systems', *Department of Geography*, University of Georgia, October 28, 2009, Athens, GA, USA. [Invited Talk]
- [498] **Demir, I.**, 'Popular Scientific Publishing', *Second Annual Workshop for Young Scholars*, Southern Polytechnic State University, August 16, 2009, Atlanta, Georgia, USA. [Invited Talk]
- [499] **Demir, I.**, 'GWIS: Georgia Watershed Information System', *Second Annual Workshop for Young Scholars*, Southern Polytechnic State University, August 16, 2009, Atlanta, GA, USA. [Invited Talk]
- [500] **Demir, I.**, 'GWIS: Georgia Watershed Information System', Athens EPA Meeting, *Warnell School*

- of Forestry and Natural Resources*, June 3, 2009, University of Georgia, Athens, GA, USA. [Invited Talk]
- [501] **Demir, I.**, 'GWIS: Georgia Watershed Information System', *Center for Research in Water Resources*, University of Texas at Austin, May 8, 2009, Austin, TX, USA. [Invited Talk]
- [502] **Demir, I.**, 'GWIS: Georgia Watershed Information System', *Utah Water Research Laboratory*, Utah State University, May 6, 2009, Logan, Utah, USA. [Invited Talk]
- [503] **Demir, I.**, 'GWIS: Georgia Watershed Information System', *River Basin Center 2nd Friday Symposium*, University of Georgia, April 10, 2009, Athens, GA, USA. [Invited Talk]
- [504] **Demir, I.**, 'Assessment of urban air quality using fuzzy synthetic evaluation', April 2005, *Warnell School of Forestry and Natural Resources*, University of Georgia, Athens, GA, USA. [Presentation]
- [505] **Demir, I.**, 'Determination of the relationship between sewage odour and BOD by neural networks', April 2005, *Warnell School of Forestry and Natural Resources*, University of Georgia, Athens, GA, USA. [Presentation]
- [506] **Demir, I.**, 'Neural Network and Fuzzy Logic Applications in Environmental Science', 2004, *Gebze Institute of Technology*, Kocaeli, TURKEY. [Presentation]

## GRANTS, RESEARCH FUNDING & ACADEMIC SUPPORT

### Active Grants and Projects (Role: PI/co-PI)

- [1] **Demir, I.** (PI), 'Phase 3: AI-Enabled Intelligent Assistant (AIIA) for Personalized and Adaptive Learning and Advising', 2023-24. Source: UI ATAC, Support: \$54K
- [2] **Demir, I.** (PI), 'Open-Source Community Development for Next-Gen Web Technologies in Hydrological Research and Education', 2023-24. Source: NSF MBDH, Support: \$35K
- [3] **Demir, I.** (co-PI), 'Improving Data Anomaly Detection and Forecasting in the US Army Corps of Engineers Reservoir Sedimentation Information (RSI) Database', 2023-24. Source: USACE, Support: \$100K
- [4] **Demir, I.** (PI), 'FloodRSS: Flood Resilience Support System for Participatory Community Action'. Source: *Iowa Water Center Seed Grant Program*, 2023-24. Support: \$20K
- [5] **Demir, I.** (PI), 'CyberTraining: Implementation: Small: Inclusive Cyberinfrastructure and Machine Learning Training to Advance Water Science Research', 2023-26. Source: NSF CyberTraining, Support: \$125K
- [6] **Demir, I.** (PI), 'Intelligent Transportation Network Decision Support with Real-time Routing and Data Analytics'. Source: *MATC, US DOT*, 2023-28. Support: \$450K
- [7] **Demir, I.** (PI), 'CIROH: AI-Augmented Immersive Digital Twin and Visual Analytics Framework for Hydrology'. Source: *NOAA Cooperative Institute*, 2023-24. Support: \$250K

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- [8] **Demir, I.** (PI), 'CIROH: Novel Geospatial Architecture of Channel and Floodplain Morphological Attributes within the OWP Hydrofabrics'. Source: *NOAA Cooperative Institute*, 2023-25. Support: \$185K
- [9] **Demir, I.** (PI), 'CIROH: Comparative Assessment of the NWM Channel Routing Models for Enhanced Streamflow Data Assimilation'. Source: *NOAA Cooperative Institute*, 2023-25. Support: \$395K
- [10] **Demir, I.** (PI), 'CIROH: A Collaborative Approach to Develop Comprehensive FIM Data, Models, and Methods with Emphasis on Transportation Infrastructure'. Source: *NOAA Cooperative Institute*, 2023-25. Support: \$140K
- [11] **Demir, I.** (co-PI), 'CIROH: Novel Physically-based Streamflow Monitoring Methodology'. Source: *NOAA Cooperative Institute*, 2023-25. Support: \$390K
- [12] **Demir, I.** (PI), 'Collaborative Research: A Physics-Informed Flood Early Warning System for Agricultural Watersheds with Explainable Deep Learning and Process-Based Modeling', 2023-26. Source: NSF Hydrology, Support: \$200K
- [13] **Demir, I.** (PI), 'An Intelligent Human-Centric Communication System for Adverse Weather and Road Conditions'. Source: *DOT Aurora*, 2023-25. Support: \$190K
- [14] **Demir, I.** (PI), 'A Digital Twin Framework for Civic and Environmental Analysis of Railways'. Source: *UI OVPR Community Engaged Scholars*, 2023-24. Support: \$50K
- [15] **Demir, I.** (co-PI), 'Climate-Driven Health Vulnerabilities of Rural Well Users'. Source: *UI OVPR Interdisciplinary Scholars*, 2023-24. Support: \$100K
- [16] **Demir, I.** (co-PI), 'Co-LEARN: A Midwestern Community of Learning for Empowerment, Climate Adaptation and Resilience for the Next Generation'. Source: *NOAA RISA*, 2023-28. Support: \$6M.
- [17] **Demir, I.** (co-PI), 'Convergence Accelerator Track E: Linking the Green Economy to the Blue Economy at the Coast (Phase 2)', 2022-24. Source: NSF Convergence, Support: \$1.5M
- [18] **Demir, I.** (PI), 'Actionable Flood Warnings Based on Ground-truth Data to Support Iowa DOT BridgeWatch Platform'. Source: *Iowa DOT*, 2022-24. Support: \$60K.
- [19] **Demir, I.** (PI), 'Maintenance: Information and Decision System for Poultry Infectious Diseases'. Source: *Iowa Poultry Association*, 2024-25. Support: \$5K.
- [20] **Demir, I.** (co-PI), 'E-Tailored Pain Management Support for Dementia Family Caregivers'. Source: *Alzheimer's Association*, 2022-24. Support: \$150K.
- [21] **Demir, I.** (co-PI), 'CIROH: Intelligent Data Analytics and Communication Cyberinfrastructure for Research to Operations in Hydrology'. Source: *NOAA Cooperative Institute*, 2022-27. Support: \$2.25M (Total Budget: \$21M)
- [22] **Demir, I.** (co-PI), 'Novel Integration of Direct Measurements with Numerical Models for Real-time Estimation and Forecasting of Streamflow Response to Cyclical Processes: Time Varying Flow and Seasonal Changes of Riparian Roughness', 2021-24. Source: NSF Hydrology, Support: \$403K
- [23] **Demir, I.** (co-PI), 'GP-GO: Iowa Environmental Internship Pathways Program', 2021-24. Source:

NSF IUUSE:GEOPaths, Support: \$425K

- [24] **Demir, I.** (co-PI), 'Assessing the Flood Reduction Benefits of On-road Structures', 2021-24. Source: Iowa Department of Transportation (DOT), Support: \$450K
- [25] **Demir, I.** (co-PI), 'Design Guidelines and Mitigation Strategies for Reducing Sedimentation of Multi-Barrel Culverts', 2020-24. Source: US DOT, Support: \$270K
- [26] **Demir, I.** (PI), 'River Morphology Data and Analysis Tools (RiverMorph) – A web platform for enabling river morphology research', Source: NSF Geoinformatics, 2020-24. Support: \$504K
- [27] **Demir, I.** (PI), 'Maintenance and Support for Big Sioux Flood Information System', 2020-24. Source: South Dakota DNR / RESPEC. Support: \$110K
- [28] **Demir, I.** (PI), 'UIOWA Hackathon'. Source: *NSF, MBDH, UIOWA & Industrial Partners*, 2016-24.

### Completed Grants and Projects (Role: PI/co-PI)

- [29] **Demir, I.** (PI), 'Watershed-Level Multi-Criteria Quantification of Agricultural Sustainability for Iowa'. Source: *UIOWA ISSFP*, 2022-23. Support: \$40K.
- [30] **Demir, I.** (PI), 'Phase 2 - AI-Enabled Intelligent Assistant (AIIA) for Personalized and Adaptive Learning and Advising'. Source: *UI ATAC*, 2022-23. Support: \$30K
- [31] **Demir, I.** (PI), 'Information and Decision System for Poultry Infectious Diseases'. Source: *Iowa Poultry Association*, 2022-23. Support: \$25K.
- [32] **Demir, I.** (PI), 'Identification of Dominant Factors and Modeling Harmful Algal Bloom Dynamics for Major Lakes in Iowa'. Source: *Iowa Healthy Lakes Initiative*, 2022-23. Support: \$22K.
- [33] **Demir, I.** (PI), 'Extension for Big Sioux Flood Information System', 2022-23. Source: South Dakota DNR / RESPEC. Support: \$16K
- [34] **Demir, I.** (co-PI), 'Disaster Route Planning for Floods'. Source: *MATC, US DOT*, 2017-23. Support: \$400K
- [35] **Demir, I.** (co-PI), 'HydroLang: An Open-Source Web-Based Programming Framework for Hydrological Community'. Source: *CUAHSI HIF*, 2022-23. Support: \$5K
- [36] **Demir, I.** (co-PI), 'NSF Convergence Accelerator Track E: Linking the Green Economy to the Blue Economy at the Coast', 2021-22. Source: NSF Convergence, Support: \$750K
- [37] **Demir, I.** (PI), 'AI-Enabled Intelligent Assistant (AIIA) for Personalized and Adaptive Learning and Advising'. Source: *UI ATAC*, 2021-22. Support: \$25K
- [38] **Demir, I.** (co-PI), 'Coupling Physical and Societal Objectives for Decision Making in Water Resources Management', 2021-22. Source: *IWC*. Support: \$5K
- [39] **Demir, I.** (co-PI), 'A Serious Game on Flood Mitigation for K-12 and Public Education', 2021-22. Source: *IWC*. Support: \$5K
- [40] **Demir, I.** (co-PI), 'Data Anomaly Detection and Sediment Yield Estimation in the USACE's Reservoir Sedimentation Information (RSI) Database', 2020-22. Source: USACE, Support: \$50K

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- [41] **Demir, I.** (co-PI), 'Evaluation of HAND Flood Inundation Maps in Iowa', 2020-21. Source: UCAR Comet Program, Support: \$15K
- [42] **Demir, I.** (collaborator), 'Multimorbidity in Patients with Alzheimer's Disease and Association with Pain and Health Care Utilization using Big Data Approaches', 2020-21. Source: NIH, Support: \$375K
- [43] **Demir, I.** (co-PI), 'Missouri River Flood Inundation Model and Information System', 2020-21. Source: Iowa Economic Development Authority, Support: \$800K
- [44] **Demir, I.** (co-PI), 'Enhancing Ethical Context in the Engineering Curriculum: Ethical Dilemmas in Building New Buildings Card Game', 2020-21. Source: COE Ethics, Support: \$5K
- [45] **Demir, I.** (co-PI), 'Next-Generation Stage Measurement at Ungauged Locations using IoT', 2020-21. Source: IWC. Support: \$5K
- [46] **Demir, I.** (PI), 'NVIDIA Deep Learning Institute Access - Teaching Kits', 2019-20. Source: NVIDIA. Support: \$18K (Teaching Kits x 200)
- [47] **Demir, I.** (co-PI), 'Semi-Volatile PCBs: Sources, Exposures, Toxicities', 2019-21. Source: US NIH. Support: \$1.1M
- [48] **Demir, I.** (PI), 'Spatial and Temporal Data Augmentation for Radar-Rainfall Products Using Deep Neural Networks'. Source: *NVIDIA Academic Partnership Program, NVIDIA Inc.*, 2019. Support: NVIDIA GPU Hardware (Supplementary Support - \$7K)
- [49] **Demir, I.** (co-PI), 'Critical Zone Observatory for Intensively Managed Landscapes (IML-CZO)'. Source: *NSF CZO*, 2019-20. Support: \$25K
- [50] **Demir, I.** (PI), 'Inundation Damage Assessment Maps for Non-leveed Iowa Communities Mississippi River Front'. Source: *USACE*, 2019. Support: \$30K
- [51] **Demir, I.** (PI), 'Ethical and Moral Challenges for Engineers and AI: A Web-Based Serious Game for Engineering Decision Making'. Source: *CoE, UIOWA*, 2019-20. Support: \$20K
- [52] **Demir, I.** (PI), 'Quantum Computing Applications in Environmental Science'. Source: *Rigetti Quantum Cloud Services*, 2019. Support: \$5K
- [53] **Demir, I.** (co-PI), 'Connecting Rural and Peri-urban Farmers to Demonstrate and Disseminate Innovative Nutrient and Sediment Reduction Practices'. Source: *EPA*, 2019-2022. Support: \$1M
- [54] **Demir, I.** (PI), 'Framework: Software: Collaborative Research: CyberWater—An open and sustainable framework for diverse data and model integration with provenance and access to HPC'. Source: *NSF CSSI*, 2019-2022. Support: \$125K (Total Grant: \$1M)
- [55] **Demir, I.** (collaborator), 'Development of Caregivers' Barriers to Pain Management Screening Questions and Revision of the Educational Material in the Caregiver Pain Management Manual', 2018-21. Source: Woodrow W. Morris Gerontology Research Award for Faculty, Support: \$10K
- [56] **Demir, I.** (PI), 'Water Quality Data Visualization'. Source: *UIOWA CHEEC*, 2018-2019. Support: \$38K



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- [57] **Demir, I.** (PI), 'Improving Data Integration and Exchange for EPA Current Discovery Tool'. Source: *EPA*, 2018-2020. Support: \$192K
- [58] **Demir, I.** (PI), 'Integrated Data Framework for Agricultural Flood Damage and Loss Analysis'. Source: *NSF Big Data Hub – DigitalAg Spoke*, 2018-2019. Support: \$5K
- [59] **Demir, I.** (co-PI), 'An Integrated Big Data Framework for Water Quality Issues in the Upper Mississippi River Basin'. Source: *NSF Big Data Hub Spokes*, 2018-2021. Support: \$1M
- [60] **Demir, I.** (PI), 'Interactive Projector System for Collaborative Research, Communication and Outreach Activities'. Source: *UIOWA CEE Infrastructure Grant*, 2018-2019. Support: \$6.5K
- [61] **Demir, I.** (co-PI), 'Transfer of the Iowa DOT Culverts Web-Tool Prototype to Iowa DOT Mainframe'. Source: *Iowa DOT*, 2018-19. Support: \$75K
- [62] **Demir, I.** (PI), 'Data Visualization Project for Homeland Security'. Source: *Iowa Homeland Security*, 2017-18. Support: \$61K
- [63] **Demir, I.** (PI), 'Data Visualization of IWA Data and Project Sites'. Source: *Iowa Homeland Security*, 2017-21. Support: \$68K
- [64] **Demir, I.** (co-PI), 'EAGER: PPER: Validation and Utilization of a New Tool for Citizen-Led Water Quality Monitoring in Agricultural Watersheds'. Source: *NSF*, 2017-18. Support: \$88K
- [65] **Demir, I.** (PI), 'Knowledge Discovery, Integration and Communication for Extreme Weather and Flood Resilience Using Artificial Intelligence'. Source: *AI for Earth, Microsoft & ESRI*, 2017-20. Support: \$20K (Credits for Cloud Services and ESRI Software)
- [66] **Demir, I.** (co-PI), 'Decision Support Tool for the Texas Multi-Hazard Tournament'. Source: *USACE*, 2017. Support: \$41K
- [67] **Demir, I.** (PI), 'GPGPU Techniques for Environmental Modeling Applications'. Source: *NVIDIA Academic Partnership Program, NVIDIA Inc.*, 2016. Support: NVIDIA GPU Hardware (Supplementary Support - \$3K)
- [68] **Demir, I.** (co-PI), 'Develop a Hydrologic and Hydraulic Model of the Big Sioux River Basin'. Source: *South Dakota DNR*, 2016-20. Support: \$190K
- [69] **Demir, I.** (PI), 'Interactive Web-based Digital Exhibit for Rainfall and Flood Data and Tools'. Source: *UIOWA*, 2016. Support: \$3K
- [70] **Demir, I.** (co-PI), 'Smart Ag-Practice Forecasting for Interconnected Communities: Supplemental request for BCS #1114978'. Source: *National Science Foundation*, 2016-2019. Support: \$1.2M
- [71] **Demir, I.** (co-PI), 'A Pilot Project for Cloud-based NEXRAD Data Processing, Analysis, and Visualization for Flood Forecasting and Water Resources Management'. Source: *Unidata*, 2016-17. Support: \$16K
- [72] **Demir, I.** (co-PI), 'Initial All-Hands Meeting in Digital Agriculture'. Source: *NSF, Midwest Big Data Hub*, 2016. Support: \$20K
- [73] **Demir, I.** (co-PI), 'Iowa Watershed Approach for Urban and Rural Resilience'. Source: *Iowa*
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- Economic Development Authority, U.S. Department of Housing and Urban Development, 2016-2021. Support: \$6.5M*
- [74] **Demir, I.** (PI), 'AWS Educate Program for Institutions'. Source: *Amazon*, 2015. Support: Amazon Cloud Resources for Education. Support: \$20K (credit)
- [75] **Demir, I.** (co-PI), 'Iowa Water Quality Information System'. Source: *Carver Foundation*, 2015-18. Support: \$453K
- [76] **Demir, I.** (co-PI), 'Prototype Multi-Jurisdictional Decision-Making Web Platform for Integrated Water Resources Management: From Interagency Collaboration to Implementation in Iowa-Cedar Watershed (Iowa)'. Source: US Department of Defense, Army Corps of Engineers, 2014-16. Support: \$180K
- [77] **Demir, I.** (PI), 'Web-based Augmented and Virtual Reality Flood Simulation Platform for Game-based Learning of Hydrological Concepts'. Source: ITS UIOWA – Game-based Learning Institute, 2014-15. Support: \$1K
- [78] **Demir, I.** (PI), 'Improving Visualization and Access to Radar Data using Unidata Tools for Flood Prediction and Management'. Source: Unidata Equipment Awards Program, 2014-15. Support: \$11K
- [79] **Demir, I.** (co-PI), 'Exploring Cloud Computing Capabilities for Iowa Flood Information System'. Source: *Amazon Web Services in Education Grant*, 2013-14. Support: \$30K (credit)
- [80] **Demir, I.** (PI), 'Collaboration with Scientific Visualization Studio (SVS) at Goddard Space Flight Center'. Source: *NASA EPSCoR Program*, 2013. Support: \$3K
- [81] **Demir, I.** (PI), 'Web-based Augmented and Virtual Reality Flood Simulation Platform for Game-based Learning of Hydrological Concepts'. Source: *UI ATAC*, 2013-14. Support: \$12K
- [82] **Demir, I.** (PI), 'Design and Development of GPU-based Information Visualization Interfaces for Hydrological and Meteorological Data'. Source: *NVIDIA Academic Partnership Program, NVIDIA Inc.*, 2013. Support: NVIDIA GPU Hardware (Supplementary Support - \$5K)
- [83] **Demir, I.** (PI), 'Google Maps Engine Public Data Program'. Source: Google, 2013. Support: \$5K (Google Maps Engine Credit)
- [84] **Demir, I.** (PI), 'National Flood Information System'. Source: Google, 2013. Support: \$4K (Google Compute Engine for Research Computing)
- [85] **Demir, I.** (PI), 'FloodCube: National Flood Information System'. Source: US Ignite / Mozilla - Gigabit Explorer Challenge, 2013. Support: \$5K (Travel and Research Computing)
- [86] **Demir, I.** (PI), 'Design and Development of Open Source Programming Projects for the Iowa Flood Center, University of Iowa'. Source: Google Summer of Code, 2013. Support: \$18K
- [87] **Demir, I.** (PI), 'Design and Development of UCF CHAMPS Hydrologic Information System'. Source: University of Central Florida, 2013. Support: \$16K
- [88] **Demir, I.** (PI), 'Design and Development of GPU-based Information Visualization Interfaces for Hydrological and Meteorological Data'. Source: *NVIDIA Academic Partnership Program, NVIDIA*

- Inc.*, 2013. Support: NVIDIA GPU Hardware (\$10K)
- [89] **Demir, I.** (PI), 'Design and Development of BlackBerry Smartphone and Tablet Applications'. Source: *BlackBerry Academic Program*, 2012. Support: BlackBerry Hardware Support (\$7K).
- [90] **Demir, I.** (co-Chair), 'EarthCube Community Workshop: Designing A Roadmap for Workflows in Geosciences'. Source: *NSF – EarthCube*, 2012. Support: \$100K.
- [91] **Demir, I.** (co-PI), 'Global Water Platform – Phase IA: Planning, Design and Development of A Web-Based Platform on Water and Sustainability Issues'. Source: *International Water Association*, 2009. Support: \$50K.
- [92] **Demir, I.** (PI), Companies and organizations providing in-kind support for research (hardware, software, and services): Google (App Engine, Compute Engine, Map Engine), Microsoft, Amazon, NVidia, Leap Motion, BlackBerry, Mozilla Foundation, GitHub, GenMyModel.
- [93] **Demir, I.** (Senior Personnel), 'Iowa Flood Center'. Source: *State of Iowa*. 2011-16. Support: \$188K (Project budget: \$1.3M+/year).
- [94] **Demir, I.** (Senior Personnel), 'Iowa Floodplain Mapping Program'. Source: *Iowa Department of Natural Resources*. 2011-16. Support: \$185K (Project budget: \$10M).

## CREATIVE ENVIRONMENTAL AND INFORMATION SCIENCE WORKS

### Information Systems and Web Platforms

- 2019-present *Real-time Flood Mapping System using HAND*  
A web-platform to generate flood inundation maps on the client-side using HAND (Height Above Nearest Drainage)
- 2019-present *Iowa Well Forecasting System (IWfoS)*  
A web-platform to access information on well geology and water quality information in Iowa
- 2016-present *South Dakota Flood Information System (SDFIS)*  
Design, development, implementation and maintenance of a web-based information system on flood related data, information and visualizations for South Dakota
- 2016-present *Iowa Watershed Approach Information System (IWAIS)*  
A web-based cyberinfrastructure for Iowa Watershed Approach project for resilience with novel data integration, visualizations and analysis capabilities
- 2015-present *Iowa Water Information System (IWIS)*  
A generalized cyberinfrastructure for developing custom web-based information systems with novel data integration, visualizations and analysis capabilities
- 2015-2018 *Social Media Analytics Platform*  
A web-based cyberinfrastructure system for acquisition, processing and analyzing social media data streams using natural language processing, ontology and soft computing

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- 2015-2017 *NASA SMAP Information System*  
Planning, design and implementation of a web-based information system on data, information and visualizations of NASA SMAP satellite mission experiment
- 2014-present *Iowa Water Quality Information System (IWQIS)*  
A web-based information system for real-time access to state wide water quality sensors with novel visualizations and analysis capabilities
- 2013-2015 *National Flood Information System*  
A web-based information system for real-time access to nationwide stream sensors for flood warnings and water levels on Google Cloud and App Engine
- 2013-2016 *Hydrological Educational Simulation System with Virtual and Augmented Reality*  
A web-based virtual and augmented reality application for simulation of hydrological system using desktop markers and camera via WebRTC and WebGL technologies
- 2013-2014 *Turkey Flood Information System (TABIS)*  
Planning, design and implementation of a web-based information system on flood related data, information and visualizations
- 2013-2015 *NASA IFLOODS Information System*  
Planning, design and implementation of a web-based information system on data, information and visualizations of NASA GPM satellite mission experiment
- 2012-2013 *UCF CHAMPS Hydrologic Information System*  
Planning, design and implementation of a web-based information system on coastal inundation and modeling data, information and visualizations
- 2012-2013 *Field Campaign Management System - NASA IFLOODS Project*  
A web-based interface for positioning radars and rainfall instruments with adjustable range and location, watersheds, and rich spatial layers on a map interface
- 2012-2013 *Fund-A-Sensor Initiative*  
A crowd-funding initiative for getting support to develop and deploy new stream sensors for improving flood monitoring in Iowa
- 2011-2016 *IFIS Knowledge Engine & Smart Assistant*  
Intelligent knowledge generation system supported with ontology, relational database queries, real-time data, hydrological models, and scientific visualizations
- 2010-present *Iowa Flood Information System – IFIS*  
Design, development, implementation and maintenance of a web-based information system on flood related data, information and visualizations for Iowa
- 2009-2012 *Global Water Platform – GWP*  
Planning, design and implementation of a web-based platform on water
- 2007-2010 *Georgia Watershed Information System – GWIS*  
A prototype of an information system for Georgia watersheds
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- 2006-2011 *Toxuus: Scientific Collaboration and Research Platform*  
Academic Research Group & Project Management System
- 2000 *B2B (Business to Business) Portal*  
Real time product exchange, stock, and product supply/demand management
- 1999 *Domain name and extension system in foreign languages*  
Access web sites with international character set and new domain name extensions

### Engineering Projects and Software

- 2004 *Noise Pollution Modeling Toolbox*, Pendik Municipality, Istanbul, TURKEY  
Standalone application for modeling and visualization of noise distribution and maps  
*Company*: TAGEM Technology, Istanbul, TURKEY
- 2003 *Izmit Bay Technological Forecast Project*, Environmental Group, Kocaeli Industry, Istanbul, TURKEY, Mathematical and Computational Modeling Responsibility  
*Sponsor*: Kocaeli Industry Association, Kocaeli, TURKEY
- 2002-2004 *Environmental Impact Assessment Projects*  
Procter & Gamble and 7 other companies from various industries, TURKEY
- 2002 *Wastewater Treatment Plant Design*, Aydin, TURKEY  
Gebze Institute of Technology, Kocaeli, TURKEY

### Web-based Tools and Mobile Applications

- 2016 *Live Water Effect*: A real-time water movement visualizer for flood inundation maps, streamflow forecasts, rainfall and water quality data using IFIS infrastructure
- 2015 *Tweetbot*: An automated Twitter application for posting tweets on flood warnings in Iowa using IFIS infrastructure
- 2015 *Watershed Delineator*: A web-based watershed delineator using GPU and server-side Python for high resolution DEM data sets
- 2015 *Map-based Image Parser*: A Python application to collect and parse web-based map service imagery for offline use
- 2015 *Davenport Pilot Project*: A web-based system for Davenport watershed studies based on IFIS infrastructure
- 2015 *MRMS and IFIS Rainfall Comparison Tool*: A web-based interface for comparing rainfall products from various sources
- 2015 *Iowa Flood Risk Management System*: A web-based interface for sharing and visualizing flood risk maps for Iowa, supported by Iowa DNR
- 2015 *Iowa Draft Flood Hazard Mapping System*: A web-based interface for sharing and visualizing draft flood hazard maps for Iowa, supported by Iowa DNR
- 2015 *Iowa Rating Curve Pilot Project*: A web-based interface for sharing and visualizing cross section

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and rating curve data for selected sites in Iowa, supported by U.S. Army Corps of Engineers

- 2015 *NPOL Radar Data Visualization Interface*: A custom web-based interface for visualizing NPOL radar data in real-time – NASA IFLOODS Project
- 2015 *Make It Rain!*: A web-based map application developed for ESRI Data Viz App Challenge to simulate water drainage with thousands of particles in a smooth animation for Iowa.
- 2015 *Turkey River Information System*: A web-based information system with streamflow forecast and model results for Turkey River in Iowa.
- 2015 *NASA SMAP Planning Tool*: A web-based field experiment planning system for NASA SMAP mission validation in Arizona.
- 2015 *Smart Image Overlay Tool*: A Google Maps API based image overlay tool with distortion and scaling capabilities
- 2015 *Rainfall Drainage Tool*: A WebGL based drainage visualization system for real-time rainfall products in Iowa Flood Information System
- 2015 *Sensor Explorer*: A data analysis tool for stream sensor smart filtering and selection.
- 2014 *Indian Creek IS*: A web-based flood preparedness for Indian Creek watershed in Iowa.
- 2014 *3D City Visualizer*: A web-based interface for generating 3D visualization of buildings in any location in Iowa coupled with streams, roads, and data layers.
- 2014 *Video Stream Interface*: A web-based interface for recording and sharing flood related videos with IFIS utilizing WebRTC.
- 2014 *Iowa Flood Visualizer*: A web-based interface for generating interactive and realistic simulation of flooding at any location in Iowa.
- 2014 *Ramsey [5,5] Solver Game*: An online interactive Ramsey number solver game to improve bounds of  $R(5,5)$ .
- 2014 *Rainfall Drainage Simulator*: A web-based interface for simulating [up to 100K grids cells] rainfall drainage in Iowa for a selected region.
- 2014 *Real-time Idaho Rainfall Interface*: A web-based interface for 6-hour animation of real-time rainfall intensity maps for Idaho.
- 2014 *Real-time Terrain Viewer*: A web-based interface for generating 3D terrain using lidar and hillshade imagery for any location in Iowa
- 2014 *Real-time Watershed Delineator*: A web-based interface for generating watershed for any location in Iowa
- 2014 *XPOL Radar Data Visualization Interface*: A custom web-based interface for visualizing XPOL radar data in real-time – NASA IFLOODS Project
- 2013 *IFIS app on Firefox OS and Windows 8*: IFIS is ported to work with new Firefox mobile OS and Windows 8 devices.

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- 2013 *Real-time South Carolina Rainfall Interface*: A web-based interface for 6-hour animation of real-time rainfall intensity maps for South Carolina.
  - 2013 *Flood Warning Widget*: A web-based widget for reporting flood warnings in Iowa on blogs and third party websites using IFIS.
  - 2013 *Disdrometer Visualization Interface*: A web-based interface for visualizing drop size and velocity of rain drops using disdrometer data in real-time – NASA IFLOODS Project
  - 2013 *Rain-Gauge / Soil Moisture Visualization Interface*: A web-based interface for visualizing rain and soil moisture gauge data in real-time – NASA IFLOODS Project
  - 2012 *Rainfall Data Visualizer*: A web-based interface for browsing historical rainfall data with zoom, and advanced visualization capabilities – NASA IFLOODS Project
  - 2012 *Radar Data Browser*: A web-based interface for browsing historical radar data with zoom, vertical and horizontal visualization capabilities – NASA IFLOODS Project
  - 2012 *Augmented Reality Application for iOS*: Web services to overlay real-time stream sensor data and Iowa CAFOs locations in Layar iPhone and iPad applications
  - 2012 *Real-time Florida/Colorado Rainfall Interface*: A web-based interface for 6-hour animation of real-time rainfall intensity maps for Florida and Colorado.
  - 2012 *Streamflow Visualization Interface*: A web-based interface for visualization of stream flow data on Google Maps using HTML 5 and canvas.
  - 2012 *3D Interactive Book for IFIS*: A web-based 3D interactive children’s book is designed about IFIS and hydrological concepts for educational purposes
  - 2012 *IFIS Mobile*: BlackBerry PlayBook Tablet native application for Iowa Flood Information System (IFIS)
  - 2012 *NASA Rain Gauge Network*: A web-based interface to access and visualize data on NASA rain gauge network
  - 2011 *Flood Map Simulator Game*: A web-based flood simulator game to teach flood related concepts interactively
  - 2011 *Flood Map 3D Simulation*: A web-based flood simulation for flying and navigating over the flood inundation map of Cedar Rapids, Iowa
  - 2011 *The Pokki App Development Challenge entry*: Pokki web application for Iowa Flood Information System (IFIS)
  - 2011 *EPA Apps for the Environment Challenge entry*: Google Chrome web application for Iowa Flood Information System (IFIS)
  - 2011 *Health 2.0 Developer Challenge entry*: iPhone App Using Public Data for Cancer Prevention and Control, Database development, data integration
  - 2011 *Flood Inundation Map Flight Simulator*: A real-time web-based flight simulator for navigating over a flood inundation map and remote control using iOS devices

- 2011 *Rainfall and Flood Forecast Simulation*: A real-time web-based simulation using HTML and canvas for rainfall and flood forecast data
- 2011 *Real-time Flood Inundation Map Simulation*: A real-time web-based simulation using HTML 5 and Canvas for Cedar Rapids, Iowa
- 2011 *Real-time Rainfall Drainage Tracker*: A real-time visualization interface in IFIS for rainfall drainage tracking
- 2011 *Apps for Science Challenge Entry: Get Inspired – A communication interface between academic platforms (Science Direct and Toxusus) to share data through web services*
- 2008 *Interactive Scientific Visualization of Water Quality Variables on Google Maps*: Data integration, map services, dynamic river structure generation, data visualization
- 2008 *Interactive Spatial Information Interface for USGS Monitoring Sites*: Real-time marker clustering, web services integration, web-based data visualization and analysis
- 2005 *Internet Explorer Toolbar for Daily Newspapers*  
Internet Explorer Toolbar (like Google IE Toolbar) for specific features
- 2004 *TURKSA Coordinate v1.0*, Map Coordinating Software [Visual Basic]  
Finding the spatial coordinates on a map image and exporting to MS Excel Worksheet
- 2004 *TAGEM Noise v1.0*, Noise Distribution Visualization Software [Visual Basic]  
Spatial visualization of noise pollution observations  
Company: TAGEM Technology, Kocaeli, TURKEY
- 2003 *Interactive Data Color Mapping in MS Excel*  
Data visualization in 2 dimensions for given ranges up to 15 different color
- 2000 *IE Plug-in v1.0*, Using new domain extensions and Turkish character set in web sites
- 1998 *Satellite TV Configuration Program*, [ASP, VBScript, MS Access]  
Configuration of satellite dish, Inb, multi-switch and receiver for home TV system

### Visual Design and Web Development

- 2013-2016 Annual workshop website on ‘Grand Challenges in Engineering and Applied Sciences’  
Bosporus Environmental Inc., Environmental Research, Development and Consulting
- 2010 Southeast Water Resources Collaboratory (SEWRC)
- 2008-2009 Annual workshop website on ‘Annual Workshop for Young Scholars’  
The Institute of Academic Advancement, a non-profit institution for higher education
- 2003 Environmental Pollution Priorities Symposium IV, Gebze Institute of Technology
- 2002-2004 Gebze Institute of Technology, Environmental Engineering Department
- 1999-present Designed more than hundreds of professional, academic and personal websites for companies and organization from various academic and industrial institutions



## AWARDS & RECOGNITION

- 2023 **iEMSs Fellow**, International Environmental Modelling and Software Society
- 2023 **Robert & Virginia Wheeler Faculty Fellow in Engineering**, College of Engineering at the University of Iowa, University of Iowa
- 2022 **Innovations in Teaching with Technology Awards**, Academic Technologies Advisory Council, University of Iowa
- 2022 **Distinguished Achievement in Publicly Engaged Research Award**, Office of the Vice President for Research, University of Iowa
- 2022 **Early Career Faculty Excellence Award**, College of Engineering, University of Iowa
- 2021 **Innovations in Teaching with Technology Awards**, Academic Technologies Advisory Council, University of Iowa
- 2020 **Finalist**, NIST CHARIoT Challenge - Advancing First Responder Communications  
Project: *A Holographic Smart Assistant for Flood Preparedness and Response (project supervisor)*
- 2020 **Honor Award**, American Council of Engineering Companies (ACEC) 2020 Engineering Excellence Awards (EEA) - "Academy Awards of the Engineering Industry"  
Project: *Big Sioux River Flood Information System (project supervisor)*
- 2020 **People's Choice Award**, Capture Your Research – Image Competition  
Project: *Realistic River Image Generation with Deep Learning (project supervisor)*
- 2020 **Recognition**, United Nations World Water Development Report 2020: Water and Climate Change, Paris, UNESCO (highlighted projects from our lab)
- 2019 **Hydrologic Innovation Award**, National Hydrologic Warning Council  
Project: *Iowa Flood Information System, IFC*
- 2019 **Preparedness, Technology and Innovation Award**, South Dakota Emergency Management Association (SDEMA)  
Project: *Big Sioux River Flood Information System (project supervisor)*
- 2019 **Acknowledging Excellence**, Association of State Floodplain Managers  
Project: *Draft Flood Hazard Outreach Program (DNR – contributor – cyber system development)*
- 2019 **Tom Lee State Award in Excellence in Floodplain Management**, Association of State Floodplain Managers  
Project: *Iowa Bridge Sensor Project (IFC – contributor – cyber system development)*
- 2018 **Outstanding Engineering Achievement Award**, South Dakota Engineering Society (SDES)  
Project: *Big Sioux River Flood Information System (project supervisor)*
- 2018 **Recognition**, U.S. Department of Homeland Security, Science & Technology Directorate, Report on Alerting Tactics (highlighted projects from our lab)

- 2018 **Early Career Research Excellence Award**, International Environmental Modeling and Software Society
- 2018 **Product of the Year**, 'Multi-Hazard Tournament', IWR, USACE (to the project team)
- 2018 **Outreach Award**, Association of State Floodplain Managers  
Project: *Flood Expert – Artificial Intelligence System for Flooding (project supervisor)*
- 2018 **Innovation Award**, Scientific Visualization Challenge, US Bureau of Reclamation
- 2017 **Runner-up, Top 10**, AGU Data Visualization Storytelling Competition
- 2017 **2<sup>nd</sup> Place**, The Weather Channel SDC Innovation Challenge, Samsung & IBM
- 2015 **Nomination**, UIOWA Dean's Program, The American Society for Eng. Education (ASEE)
- 2015 **Outstanding Reviewer**, Environmental Modeling & Software, Elsevier
- 2015 **Runner-up**, ESRI Data Viz App Challenge, 'Make It Rain!'
- 2015 **Excellence Award for Research**, College of Engineering, University of Iowa
- 2014 **Invitation to White House**, Innovation for Disaster Response & Recovery Demo Day
- 2014 **Top 50**, Interactive Websites, 'Iowa Flood Information System', Information is Beautiful Awards 2014, Kantar
- 2013 **Innovations in Teaching with Technology Awards**, Academic Technologies Advisory Council, University of Iowa
- 2012 **Award**, NSF & Mozilla Foundation Ignite Challenge: Apps for Next-Generation Networks, Winner, Developer Round 1
- 2011 **Finalist**, NSF International Science and Engineering Visualization Challenge, Interactive Video Games Category
- 2010 **Award**, Best Oral Presentation, Second Annual Scientific Research Day, Graduate Students and Post-docs in Science, University of Georgia
- 2008 **Nomination**, for participation in the AAAS/Science Program for Excellence in Science
- 2008 **Research Grant**, Symposium Presentation Winner, Second Place  
11<sup>th</sup> Annual Graduate Student Symposium, 28-29 February, UGA, Athens, GA
- 2005 **Elected**, Member for Sigma Xi - The Scientific Research Society
- 1997-2003 **Intelligence Olympics**, Semi-finalist [1997, 1998, 2002, 2003]  
Turkey Intelligence Foundation (TZV)
- 1995 **TUBITAK (Turkish NSF) National Science Olympics**, Computer Science Division, TURKEY  
Ranked second in the Mediterranean Region
- 2009-2017 15+ Early career travel support (as student, postdoc and faculty)

### Media Coverage and Interviews

- [1] **Multiple Interviews**: Project: 'NOAA CIROH – Center for Hydrologic Development'

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*Daily Iowan, KCRG, WQAD, CBS2Iowa, Corridor Business, Iowa Public Radio, 2022-2023*

- [2] **Interview:** Project: 'Flood Mitigation Ethical Decision Support Framework'  
*Natasha Keicher, Daily Iowan, December 7, 2021*
- [3] **Interview:** Project: 'Database highlights contaminants in private wells'  
*Julia Shanahan, Daily Iowan, July 16, 2019*
- [4] **Interview:** Project: 'New Homeland Security report on new technologies for alerting public'  
*Erin Jordan, The Gazette, December 18, 2018*
- [5] **Interview:** Project: 'University of Iowa Hackathon Competition'  
*Julia F. DiGiacomo, The Gazette, October 5, 2018*
- [6] **Interview:** Project: 'An Integrated Big Data Framework for Water Quality Issues in the Upper Mississippi River Basin'  
*Erin Jordan, The Gazette, July 18, 2018*
- [7] **Interview:** 'Iowa Flood Information System – flood damage estimate feature'  
*Kayla James, CBS2/FOX28 News, May 1, 2018*
- [8] **Interview:** 'Iowa Flood Information System'  
*Kate Hayden, Business Record, innovationIOWA Magazine, April 16, 2018*
- [9] **Interview:** Project: 'Flood AI: Artificial Intelligence System for Flooding'  
*Todd T. De Voe, EM Weekly, March 2, 2018*
- [10] **Interview:** Project: 'Flood AI: Artificial Intelligence System for Flooding'  
*Skip Descant, GovTech Magazine, January 10, 2018*
- [11] **Highlight:** Project: 'Flood AI: Artificial Intelligence System for Flooding'  
*Daily Iowan, KCRG-TV9, Business Record, GovTech Magazine, IFC, IIHR News, COE News, Iowa Now, and more...*
- [12] **Interview:** 'New app uses artificial intelligence to give people real live flood data'  
*Ethan Fickau, KCRG-TV9, Dec 19, 2017*
- [13] **Interview:** 'UI professor develops a Siri for flood information'  
*Sarah Watson, Daily Iowan, Nov 29, 2017*
- [14] **NSF Highlight:** 'EarthCube 2015 Highlights: Faces of EarthCube – Ibrahim Demir, Informatics'  
*NSF EarthCube, All Hands Meeting, May 27, 2015*
- [15] **Interview:** 'Iowa Flood Information System displayed at capitol today'  
*O. Kay Henderson, Radio Iowa, March 10, 2015*
- [16] **Interview:** 'A Model for Turkey: Early Warning System for Flooding' – (6-page)  
*Turkish National Science Foundation – Science and Technology Magazine, September 2014*
- [17] **Interview:** 'University of Iowa: Turning a flood of data into flood safety'  
*BlackBerry Academic Spotlight, May 2013*
- [18] **Highlight:** Project: 'Iowa Flood Information System (IFIS)'

*Network World, Environmental Monitor, IowaNow, The Gazette, KCRG-TV9 News, CBS 2 Iowa, Google Maps Mania, UIOWA News Release, Iowa Env. Focus, NOAA & NWS News Release, Globe Gazette, Press Citizen, Muscatine Journal, Agri News, WQOV18 ABC Channel, and more...*

- [19] **Highlight:** Project: 'Iowa Water Quality Information System (IWQIS)'  
*College of Engineering News, IIHR News, H<sub>2</sub>O Line, CBS2Iowa, FOX28, Iowa Environmental Focus, Iowa Water Center, Research Buzz*
- [20] **Highlight:** Project: 'National Flood Information System (FloodCube)'  
*NSF Press Release, Cisco Network News, NYC Media Lab Report*
- [21] **Highlight:** Project: 'NASA Iowa Flood Studies (IFloodS)'  
*Press Citizen, NASA Press Release, Phys.org, Iowa Environmental Focus, SpaceRef, Pub Memo, UIOWA Engineering News, Iowa Science Interface*
- [22] **Highlight:** Project: 'Fund-a-Sensor Initiative'  
*ND Stem Network, UI Foundation Press Release, Press Citizen, IowaNow, IIHR News*
- [23] **Highlight:** Other Projects: 'Innovation in Teaching', 'Next Generation Network Applications', 'Application Development', 'Social Media Analytics for Flood Prediction', 'Internet of Things for Disaster Response' and other group projects  
*COE Features, Press Citizen, IIHR Currents, The Gazette, Google Open Source Blog, IowaNow, ITS News, College of Engineering News, Gigabit KC, and many newspapers and TV stations*

## PROFESSIONAL ACTIVITIES

### University Service

2024-present	Member, International Student Graduation Award Committee, International Programs
2024-present	Member, DEI Student Metrics Working Group, Civil and Environmental Engineering
2024	Admitted Student Day, College of Engineering
2023-present	Member, UI Academic AI Committee, Office of the Vice President for Research
2023-present	Member, Conducting Research in Eng. Education Community of Practice, College of Eng
2022-2023	Chair, Faculty Search Committee, Civil and Environmental Engineering Department
2022-2023	Member, Faculty Perception of Administrators (FPOA), College of Engineering
2021-present	Member, Graduate Studies Committee, Interdisciplinary Grad. Program in Informatics
2020-2022	Chair, Engineering Technology Council (ETC)
2020-2022	Member, DEI Action Committee, Civil and Environmental Engineering
2020	Explore Engineering@Iowa, University of Iowa
2018-2022	Member, AI/ML CoE Curriculum Working Group, College of Eng., University of Iowa
2019	Member, Reappointment Review Committee, IFC Director, University of Iowa

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2018-2020	Member, Engineering Technology Council (ETC), University of Iowa
2017	Explore Engineering@Iowa, University of Iowa, April 8, 2017, Iowa City, IA, USA
2013-2016	Member, Information Technology Advisory Committee, University of Iowa
2012-2016	Member, Professional & Scientific Search Committee, Iowa Flood Center, IIHR

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### Organization Boards & Committees

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2024-present	Chair (elect), Leadership Board, International Joint Committee on Hydroinformatics (IAHR/IWA/IAHS)
2022-present	University Representative, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI)
2021-present	Member, Technical Advisory Team, Texas Integrated Flood Framework Initiative
2020-2022	Member, Board of Directors, Int. Environmental Modelling & Software Society
2020-present	Member, Water Scholars, Iowa Water Center
2019-2021	Member, Technical Committee, IEEE Earth Science Informatics
2018-2021	Co-Lead, Benchmark Working Group, NSF IS-GEO Intelligent Systems for Geosciences
2016-present	Member, Leadership Team, NSF Midwest Big Data Hub, Digital Agriculture Spoke
2016-2018	Member, Board of Directors, Int. Environmental Modelling & Software Society
2016-2019	Member, Steering Committee, Global Guidebook on Best Practices in Workforce Sustainability, International Water Association (IWA)
2015-2024	Vice-Chair, Leadership Board, International Joint Committee on Hydroinformatics (IAHR/IWA/IAHS)
2015-2023	Member, Steering Committee, NSF Geoscience Papers of the Future Initiative
2015-2018	Co-Chair, NSF EarthCube Standards and Standards Bodies Working Group
2014-2019	Member, Technology and Architecture Standing Committee, NSF EarthCube
2014-2018	Board Member, NSF EarthCube OntoSoft Advisory Board
2014-2018	Users Committee, Unidata Program Center, University Corporation for Atmospheric Research (UCAR)
2013-2015	Project Lead, The Global Environment for Network Innovations (GENI)
2012-2014	Member, Workflow Steering Committee, NSF EarthCube
2011-present	Informatics Standing Committee, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI)

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### Conference Organization & Services

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2024	Scientific Committee, ' <i>International Conference on the Smart Environment and Green Energy (ICSEGE)</i> ', March 14-15, 2024, Baku, Azerbaijan.
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- 2024 Scientific Committee, *'15th International Conference on Hydroinformatics'*, May 27-31, 2024, Beijing, China.
- 2023 Scientific Committee, *'4th IAHR Young Professionals Congress'*, Nov 22-24, 2023, Online.
- 2023 Scientific Committee, *'International Conferences on Water Problems in Mediterranean Countries'*, September 22-24, 2023, Nicosia, Northern Cyprus.
- 2023 Scientific Committee, *'IAHR World Congress 2023'*, August 21-25, 2023, Vienna, Austria.
- 2023 Program Committee, *'EnvirVis 2023 - Visualization in Environmental Sciences, EuroVis 2023'*, June 12, 2023, Leipzig, Germany.
- 2022 Scientific Committee, *'14th International Conference on Hydroinformatics'*, July 4-8, 2022, Bucharest, Romania.
- 2022 Stream Leader, *2022 iEMSs Biennial Meeting*, July 4-8, 2022, Brussels, Belgium.
- 2022 International Scientific Committee, *14th International Conference on Hydroinformatics HIC 2022 – Water INFLUENCE*, July 4-8, 2022, Bucharest, Romania.
- 2021 Session Organizer, *Frontiers in Hydrology Meeting by AGU and CUAHSI*, June 19-24, 2022, San Juan, Puerto Rico
- 2022 Session Organizer, *IAHR World Congress 2022 - From Snow to Sea*, June 19-24, 2022, Granada, SPAIN.
- 2022 Scientific Committee, *IAHR World Congress 2022 - From Snow to Sea*, June 19-24, 2022, Granada, SPAIN.
- 2021 Scientific Committee, *ICWRER 2022 - 9TH International Conference on Water Resources and Environment Research*, April 25-27, 2022, Orlando, FL, USA
- 2021 Session Organizer, *ICWRER 2022 - 9TH International Conference on Water Resources and Environment Research*, April 25-27, 2022, Orlando, FL, USA
- 2021 Scientific Committee, *'2nd IAHR Young Professionals Congress'*, Nov 3 – Dec 2, 2021, Online.
- 2021 Session Organizer, *AGU Fall Meeting*, December 13-17, 2021, New Orleans, LA, USA
- 2021 Session Organizer, *ModSim 2021 - Workshop on Modeling & Simulation of Systems and Applications*, October 6-8, 2021, Seattle, WA, USA
- 2021 Session Chair, *1st IAHR Online Forum: Hydro-Environmental Challenges, Solutions and Trends for Water Security*, July 5-7, 2021.
- 2021 Program Committee, *'EnvirVis 2021 - Visualization in Environmental Sciences, EuroVis 2021'*, June 14-18, 2021, Zurich, Switzerland.
- 2020 Session Organizer, *'Recent Advances and Future Directions in Hydroinformatics: From Data to Decision Making'*, AGU Fall Meeting, December 7-11, 2020, San Francisco, CA, USA
- 2020 Scientific Chair, Session: Hydroinformatics, *'1st IAHR YPN Congress: 1st IAHR Young Professionals Congress'* November 17-18, 2020, Online.

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- 2020 Scientific Committee, *'1st IAHR YPN Congress: 1st IAHR Young Professionals Congress'* November 17-18, 2020.
- 2020 Program Committee, *'EnvirVis 2020 - Visualization in Environmental Sciences, EuroVis 2020'*, May 25-29, 2020, Norrköping, Sweden.
- 2019 Chair, *'UIOWA Hackathon'*, October 12-13, 2019, Iowa City, Iowa, USA.
- 2019 Program Committee, *'Advanced Knowledge Technologies for Science in a FAIR World (AKTS) - IEEE eScience Conference'*, September 24, 2019, San Diego, CA, USA.
- 2019 Session Organizer, *'An Open Knowledge Network for Geosciences'*, AGU Fall Meeting, December 9-13, 2019, San Francisco, CA, USA
- 2019 Scientific Committee, *'2nd Conference of the AJGS'*, November 25-28, 2019, Tunisia.
- 2019 Scientific Committee, *'IAHR World Congress 2019 Water – Connecting the World'*, September 1-6, 2019, Panama.
- 2019 Program Committee, *'EnvirVis 2019 - Visualization in Environmental Sciences, EuroVis 2019'*, June 3-7, 2019, Porto, Portugal.
- 2018 Scientific Committee, *'1<sup>st</sup> Conference of the AJGS'*, November 12-15, 2018, Tunisia.
- 2018 Chair, *'UIOWA Midwest Big Data Hackathon, UIOWA'*, October 6-7, 2018, Iowa City, Iowa, USA.
- 2018 Steering Committee, *'13th International Conference on Hydroinformatics'*, July 7-13, 2018, Palermo, Italy.
- 2017 Chair, *'UIOWA Midwest Big Data Hackathon, UIOWA'*, September 16-17, 2017, Iowa City, Iowa, USA.
- 2017 Program Committee, *'UIOWA Informatics Symposium'*, February 17-18, 2017, Iowa City, Iowa, USA.
- 2017 Session Chair, "Disaster Management, Recovery, Floods & Climate" Session, *'UIOWA Informatics Symposium'*, February 17-18, 2017, Iowa City, Iowa, USA.
- 2016 Chair, *'UIOWA Midwest Big Data Hackathon, UIOWA'*, October 8-9, 2016, Iowa City, Iowa, USA.
- 2016 Steering Committee, *'12th International Conference on Hydroinformatics'*, August 21-25, 2016, Incheon, South Korea.
- 2016 Program Committee, *'EnvirVis 2016 - Visualization in Environmental Sciences, EuroVis 2016'*, June 6-10, 2016, Groningen, Netherlands.
- 2016 Organizing Committee, Session Chair, *'Midwest Big Data Hub - Digital Agriculture Spoke All-Hands Meeting'*, May 16-17, 2016, Iowa State University, Ames, IA, USA.
- 2016 Session Organizer, *'Emerging Concepts of Hydroinformatics in Information Communication, Visualization and Sharing'*, 12<sup>th</sup> International Conference on Hydroinformatics – Smart Water for the Future, August 21-26, 2016, Incheon, Korea.
- 2016 Scientific Committee, *'NatHaz 16 – International Symposium on Natural Hazards and Hazard Management'*, March 2-4, 2016, Karabuk, Turkey.
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- 2015 Organizer & Trainer, *'Geoscience Paper of the Future Training Sessions: Learning Best Practices for Scholarly Publication'*, American Geophysical Union (AGU) Fall Meeting, December 14-18, 2015, San Francisco, CA, USA
- 2015 Program Committee, *'EnvirVis 2015 - Visualization in Environmental Sciences, EuroVis 2015'*, May 25-26, 2015, Cagliari, Italy.
- 2015 Organizing Committee, *'2015 Unidata Users Workshop Data-driven Geoscience: Applications, Opportunities, Trends, and Challenges'*, June 22-25, 2015, Boulder, CO, USA
- 2014 Session Chair, *'HIC 2014 – 11th International Conference on Hydroinformatics'*, August 17-21, 2014, New York, NY, USA
- 2014 Program Committee, *'8th International Congress on Environmental Modelling and Software (iEMSs)'*, June 15-19, 2014, San Diego, CA, USA
- 2013 Session Organizer, *'Future of Hydroinformatics in Access, Visualization, and Analysis of Large-Scale Hydrological Data'*, AGU Fall Meeting, December 9-13, 2013, San Francisco, CA, USA
- 2013 Session Organizer, *'Hydroinformatics in Modeling, Scientific Visualization and Information Communication'*, European Geosciences Union General Assembly 2013, December 7-12, 2013, Vienna, Austria
- 2012 Session Organizer, *'Informatics in Hydrological Modeling and Information Communication'*, AGU Fall Meeting, December 3-7, 2012, San Francisco, CA, USA
- 2012 Session Organizer, *'Designing a Roadmap for Workflow Cyberinfrastructure in the Geosciences: From Big Data to the Long Tail'*, AGU Fall Meeting, December 3-7, 2012, San Francisco, CA, USA
- 2012 Co-Chair, *'EarthCube Community Workshop: Designing A Roadmap for Workflows in Geosciences'*, June 5, 2012, Boulder, CO, USA.
- 2011 Scientific Committee, *'International Symposium on Environmental Protection and Planning: Geographic Information Systems (GIS) and Remote Sensing (RS) Applications (ISEPP)'*, June 28-29, 2011, Gediz University, Izmir, TURKEY
- 2011 Scientific Committee, *'2nd International Conference on Informatics (ICI-2011)'*, April 27-29, 2011, Çanakkale Onsekiz Mart University, Çanakkale, TURKEY
- 2010 Session Moderator, *'Warnell Graduate Student Research Symposium'*, March 4-5, 2010, University of Georgia, Athens, GA, USA
- 2009 Technical Volunteer, *'Southern Forestry & Natural Resource Management GIS Conference'*, December 7-9, 2009, University of Georgia, Athens, GA, USA

### Grant/Award Review Panels

- Proposal Review, United Kingdom Research and Innovation (UKRI), 2024
- Proposal Review, NOAA CIROH Research Grants, 2023
- Proposal Review, Helmholtz Association of German Research Centres, 2023
- Proposal Review, National Natural Science Foundation of China (NSFC) and the Israel Science



Foundation (ISF), 2023

- Proposal Review, German Research Foundation, 2023
- Proposal Review Panel, NSF LEAP HI Program, 2022
- Proposal Review, Israel Ministry of Innovation, Science and Technology, 2022
- Proposal Review, Gulf of Mexico Alliance, 2022
- Proposal Review, Hatch Project, USDA-NIFA, 2022
- Proposal Review, NSF Geoinformatics Program, 2021
- Proposal Review, Austrian Federal Ministry of Education, Science and Research, 2021
- Book Proposal Review, Geological Society of America, 2021
- Book Proposal Review, Taylor and Francis, 2019
- Internal Review Panel, NSF Science and Technology Center, 2019
- Proposal Review Panel, Iowa Academy of Science, 2019
- Proposal Review Panel, CUAHSI Hydroinformatics Innovation Fellowship, 2018-2023
- Proposal Review Panel, CGRER Seed Grant, 2018, 2020
- Proposal Review Panel, Natural Environment Research Council, UK, 2020
- Proposal Review Panel, Oak Ridge Associated Universities (ORAU), 2017
- Proposal Review Panel, Graduate Research Fellowship Program (GRFP), NSF, 2017
- Proposal Review Panel, Graduate Fellowship Program, NASA - Iowa Space Grant Consortium, 2016
- Review Panel, Staff Excellence Awards, College of Engineering, University of Iowa, 2016
- Review Panel, Summer Institute Awards, NFIE, National Water Center, 2016
- Proposal Review Panel, Unidata Community Equipment Awards, UCAR, 2015

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### Editorial Board for Journals

- Editor-in-Chief, Digital Water: Knowledge Application & Hydroinformatics, Taylor & Francis, 2023-**present**
- Editor, Water, Cambridge Prisms: Water, Cambridge University Press, 2023-**present**
- Associate Editor, Water and Artificial Intelligence, Frontiers in Water, 2022-**present**
- Associate Editor, Journal of Environmental Informatics, ISEIS, 2020-**present**
- Associate Editor, Journal of Hydroinformatics, IWA, 2017-**present**
- Associate Editor, Environmental Modeling and Software, Elsevier, 2015-**present**
- Associate Editor, Smart Water, Springer, 2018-2022
- Associate Editor, A. Journal of Geosciences, Springer, 2017-2019

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### Guest Editorial for Journals

- Guest Editor, Special Issue: "Next Generation Hydroinformatics Applications in Water Resources: From AI to Digital Twins", Journal of Hydroinformatics, 2022-2023
  - Guest Editor, Special Issue: "Flood Inundation Mapping in Hydrological Systems", Hydrology, 2022-2023
  - Guest Editor, Special Issue: "Frontiers in Urban Water Infrastructure", Water, 2021-2023
  - Guest Editor, Special Issue: "Next Generation Visualization and Communication Systems for Earth Science Using Immersive Reality and Serious Gaming", Frontiers in Earth Science, 2021-2023
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- Guest Editor, Special Issue: "Application of Machine Learning and Artificial Intelligence in Surface Flow Simulation", Applied Sciences, 2020-2021

### Reviewer for Journals

- Advances in Water Resources, Elsevier
- Applied Water Science, Springer
- Bulletin of American Meteorological Soc., AMS
- CLEAN – Soil, Air, Water, Wiley
- Computer-Aided Civil and Infra. Eng., Wiley
- Computers, MDPI
- Computers & Geosciences, Elsevier
- Computers & Graphics, Elsevier
- Computers & Industrial Engineering, Elsevier
- Ecological Economics, Elsevier
- Ecological Informatics, Elsevier
- Earth and Space Science, AGU
- Earth Science Informatics, Springer
- Eng. Apps. of Artificial Intelligence, Elsevier
- Environmental Challenges, Elsevier
- Env. Eng. and Management Journal, IASI
- Env. Modeling and Software, Elsevier
- Env. Monitoring and Assessment, Springer
- Environment, Systems and Decisions, Springer
- Frontiers of Env. Sci. & Eng. in China, Springer
- Geomatics, Natural Hazards and Risk, Taylor & Francis
- Geophysical Research Letters, Wiley
- Geosciences, MDPI
- Hydrological Sciences Journal, Taylor & Francis
- Hydrology and Earth System Sciences, EGU
- Hydrological Processes, Wiley
- Informatics, MDPI
- Information, MDPI
- Int. Journal of Comp. and App., Taylor & Francis
- Int. Journal of Disaster Risk Reduction, Elsevier
- Int. Journal of Disaster Risk Science, Springer
- Int. Journal of River Basin Man., Taylor & Francis
- Journal of American Water Res. Assoc., Wiley
- J. of Applied Water Eng. & Res., Taylor & Francis
- Journal of Atmospheric and Oceanic Tech., AMS
- Journal of Computing in Civil Engineering, ASCE
- Journal of Environmental Management, Elsevier
- Journal of Flood Risk Management, Wiley
- Journal of Hydroinformatics, IWA
- Journal of Hydrologic Engineering, ASCE
- Journal of Hydrology, Elsevier
- Journal of Hydrology – Regional Studies, Elsevier
- Journal of Hydrometeorology, AMS
- J. of Inf. & Telecommunication, Taylor & Francis
- Journal of Membrane Science, Elsevier
- J. of Struc. Integrity and Main., Taylor & Francis
- Journal of Visualized Experiments, JoVE
- Journal of Selected Topics in Applied Earth Observations and Remote Sensing, IEEE
- Nature, Springer
- Nature Communications, Springer
- Natural Hazards, Springer
- Natural Hazards and Earth System Sci., EGU
- Ocean & Coastal Management, Elsevier
- Pedosphere, Elsevier
- PLOS One, PLOS
- Soft Computing, Springer
- Sustainable Cities and Society, Elsevier
- Smart Water, Springer
- Symmetry, MDPI
- Technology, Knowledge and Learning, Springer
- Water, MDPI
- Water Resources Research, AGU
- Water Science and Engineering, Elsevier

### Reviewer for Conferences

- AGU Fall Meeting, 2011-2014, San Francisco, CA, USA
- AMIA 2021 Annual Symposium, 2021, San Diego, CA, USA

- Annual James F. Jakobsen Graduate Conference, 2012, Iowa City, IA, USA
- EnvirVis - Visualization in Environmental Sciences, EuroVis 2015, 2016, 2019-2024.
- Georgia Junior Science & Humanities Symposium, 2010, 2011, Athens, GA, USA
- GIS Day at Kansas University, 2019, Lawrence, KS, USA.
- IAHR World Congress, 2019, 2022, 2023.
- IAHR YPN Congress, 2020, 2021, 2022, 2023.
- Idea Storm Competition, JPEC, University of Iowa, 2021
- International Conference on Flood Management - ICFM, 2021, Iowa City, IA, USA
- International Congress on Environmental Modelling and Software (iEMSs), 2014, 2018, 2024
- Research Open House, College of Engineering, University of Iowa, 2012, Iowa City, IA, USA
- Sigma XI Student Research Showcase, 2013, USA
- SIGGRAPH, Conference & Exhibition in Computer Graphics & Interactive Techniques, 2021, 2023
- Singapore International Water Week 2020 - Water Convention, 2020
- IWA World Water Congress & Exhibition, IWA, 2010, 2011, 2012, 2014, 2020

### Professional Society Memberships

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|--|---|
| ▪ AAAS – American Association for the Advancement of Science | ▪ EWRI – Environmental & Water Resources Institute                                |
| ▪ AGU – American Geophysical Union                           | ▪ GSA – Geological Society of America   |
| ▪ AMS – American Meteorological Society                      | ▪ IAHR – International Association for Hydro-Environment Engineering and Research |
| ▪ ASEE – American Society for Engineering Education          | ▪ IAHS – Int. Association of Hydrological Sciences                                |
| ▪ ASCE – American Society of Civil Engineers                 | ▪ IAS – Iowa Academy of Science   |
| ▪ ASFPM – Association of State Floodplain Managers           | ▪ iEMSs – International Environmental Modelling & Software Society                |
| ▪ EGU – European Geosciences Union                           | ▪ IWA – International Water Association   |
|  | ▪ Sigma Xi – Scientific Research Society  |