



HYDROINFORMATICS LAB



# IBRAHIM DEMIR

**PRESIDENTIAL CHAIR** MICHAEL A. FITTS PRESIDENTIAL CHAIR IN ENVIRONMENTAL INFORMATICS AND ARTIFICIAL INTELLIGENCE

**DIRECTOR** HYDROINFORMATICS LAB

**PROFESSOR** RIVER-COASTAL SCIENCE AND ENGINEERING, TULANE UNIVERSITY

## CONTACT INFORMATION

**Office:** 201 Lindy Claiborne Boggs Center  
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New Orleans, LA 70118-5698, USA

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[idemir@tulane.edu](mailto:idemir@tulane.edu)  
<https://hydroinformatics.uiowa.edu>

## SCHOLARLY ACTIVITY SUMMARY

**Research Team:** 36 members (current)

Current: 6 Postdoc/Researcher – 8 PhD – 15 MS – 3 BS – 4 High School

Alumni: 102 (students [PhD, MS, BS, HS] / postdocs / researchers)

**Teaching:** 7 Courses – 1500+ Students – 3 New Courses – 5 Teaching & Technology Awards

**Grants:** 107 (total / funded) – Completed: 80 funded projects – Total Budget: \$37M+ (PI/Co-PI)

Active: 27 grants/projects (8 NSF, 10 NOAA, 1 DOT, 1 USGS, 1 USACE, 4 UI, 2 Others)

Pending: 13 proposals (6 NSF, 2 NOAA, 1 NIH, 1 CDC, 3 Others)

Submission: 10 proposals (2025) – 30+ proposal per year (2017-2024)

**Journal Articles:** Total: 156 (published/in review) – 8497 citations – 57 H-Index – 114 I10-Index

2025 (up to now): 15 (published) – 40 (in review) – 4 (ready to submit) – 31 (in preparation)

**Conference:** 43 papers – 270+ presentations – 110+ invited talks

**Scholarly Work:** 16 book/book chapters – 16 technical reports – 1 patent – 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, data integration and management systems
- › Information and intelligent systems, internet, blockchain, web and mobile technologies
- › Scientific visualization, information communication and visual data analytics applications
- › High-performance computing, quantum computing, GPGPU and scientific software development
- › Big-data science, data mining, cloud computing, web and social media analytics and visualization
- › Artificial intelligence, deep neural networks, fuzzy logic, and genetic algorithms applications
- › Cyberlearning systems, large language models, conversational AI systems, automated AI agents
- › Game-based learning, virtual, augmented and mixed reality applications, metaverse technologies

## 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

- 2025-present **Michael A. Fitts Presidential Chair in Environmental Informatics and Artificial Intelligence**, Tulane University
- 2025-present **Professor**, River-Coastal Science and Engineering, Tulane University
- 2025-present **Faculty Affiliate**, ByWater Institute, Tulane University
- 2023-2024 **Robert and Virginia Wheeler Faculty Fellow in Engineering**  
Named Faculty Position, University of Iowa
- 2023-2024 **Director of Technology**  
Center for Hydrologic Development, University of Iowa
- 2023-2024 **Associate Professor -- secondary appointment – tenure track**  
School of Planning and Public Affairs, University of Iowa
- 2021-2024 **Associate Professor -- main appointment – tenure track**  
Department of Civil and Environmental Engineering, University of Iowa
- 2021-2024 **Associate Professor -- secondary appointment – tenure track**  
Department of Electrical and Computer Engineering, University of Iowa
- 2021-2024 **Faculty Affiliate**, Interdisciplinary Graduate Program in  
Applied Mathematical and Computational Sciences (AMCS), University of Iowa

|           |                                                                                                                                                           |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2016-2021 | <b>Assistant Professor -- main appointment – tenure track</b><br>Department of Civil and Environmental Engineering, University of Iowa                    |
| 2016-2021 | <b>Assistant Professor -- secondary appointment – tenure track</b><br>Department of Electrical and Computer Engineering, University of Iowa               |
| 2016-2024 | <b>Associate Research Professor (Faculty Engineer) – research faculty track</b><br>IIHR-Hydrosience & Engineering, Iowa Flood Center, University of Iowa  |
| 2018-2024 | <b>Faculty Affiliate</b><br>Mid-America Transportation Center, US DOT                                                                                     |
| 2016-2021 | <b>Informatics Cluster Faculty – cluster joint hire</b><br>The Iowa Informatics Initiative, University of Iowa                                            |
| 2016-2021 | <b>Faculty Affiliate</b><br>Early Career Faculty Academy, Center for Teaching, ITS, University of Iowa                                                    |
| 2015-2016 | <b>Adjunct Assistant Professor</b><br>Department of Electrical and Computer Engineering, University of Iowa                                               |
| 2015-2024 | <b>Faculty Affiliate</b><br>Interdisciplinary Graduate Program in Informatics (IGPI)<br>Geoinformatics and Information Science Tracks, University of Iowa |
| 2014-2016 | <b>Faculty Affiliate</b><br>Game-Based Learning Faculty Institute, Center for Teaching, ITS, University of Iowa                                           |
| 2013-2024 | <b>Faculty Affiliate</b><br>Center for Global & Regional Environmental Research (CGRER), University of Iowa                                               |
| 2012-2016 | <b>Adjunct Assistant Professor</b><br>Department of Civil and Environmental Engineering, University of Iowa                                               |
| 2011-2024 | <b>Faculty Affiliate</b><br>Iowa Flood Center (IFC), University of Iowa                                                                                   |
| 2011-2016 | <b>Assistant Research Professor (Faculty Engineer) – research track</b><br>IIHR-Hydrosience & Engineering, University of Iowa                             |
| 2010-2011 | <b>Postdoctoral Research Scholar</b><br>Iowa Flood Center, IIHR-Hydrosience & Engineering, University of Iowa                                             |
| 2010      | <b>Postdoctoral Research Associate</b><br>Environmental Informatics and Control Program, University of Georgia                                            |
| 2005-2010 | <b>Graduate Assistant</b><br>Environmental Informatics and Control Program, University of Georgia                                                         |
| 2002-2004 | <b>Research Assistant</b><br>Department of Environmental Engineering, Gebze Institute of Technology, TURKEY                                               |
| 1999-2000 | <b>Research Project</b> , Computational Chemistry                                                                                                         |

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 Bogazici (Bosporus) University, Istanbul, TURKEY
 

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## TEACHING EXPERIENCE

|             |                                                                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 2024 Fall   | Civil Engineering Tools, CEE:2015:B                                                                                                                |
| 2024 Fall   | Civil Engineering Tools, CEE:2015:A                                                                                                                |
| 2024 Spring | Informatics for Sustainable Systems, CEE:5310 (IGPI:5311/URB:5310)                                                                                 |
| 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<br>Scientific Visualization and Data Integration for Hydrological Datasets |
| 2013 Summer | Mentoring & Project Advisor, Google Summer of Code Program<br>Mentoring students for design and development of open-source programming projects    |

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|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2013 Fall | Information Systems for Resource Management (with Dr. Muste)<br>Cross-listed as GEOG:5129, ME:5129, IE:5129, CEE:5129, ECE:5129.                                                                                                                                                                                  |
| 2013 Fall | Project Advisor – Class Term Project<br>Mentoring and collaborating with UIOWA MBA students to develop market analysis and business plan for a nation-wide flood information platform                                                                                                                             |
| 2010 Fall | WASR 8500, Cities as Forces for Good in the Environment<br>University of Georgia, Athens, GA, USA (with Drs. Walker and Beck)                                                                                                                                                                                     |
| 2002-2004 | <b>Teaching Assistant</b> , Gebze Institute of Technology, Kocaeli, TURKEY<br>CMB553 - Optimization Techniques in Environmental Sciences<br>CMB650 - Mathematical Modeling in Environmental Sciences<br>CMB554 - Water Quality Management<br>CMB406 - Introduction to Environmental Engineering I (Water Quality) |

## TRAINING ACTIVITIES AND OUTREACH SERVICES

### Educational Services and Training

|      |                                                                                                                                                                                              |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2025 | Training Workshop, HydroSuite: Open-Source Community-Oriented Software Suite for Hydrological Research and Education, CIROH Developers Conference, May 28 - 30, 2025, Burlington, VT.        |
| 2024 | Training Workshop, HydroSuite: Open-Source Community-Oriented Software Suite for Hydrological Research and Education, CIROH Developers Conference, May 29 - Jun 1, 2024, Salt Lake City, UT. |
| 2023 | Training Workshop, HydroCompute: A Web-Based Parallel Computation Framework for Hydrological Analysis, CIROH Annual Training and Developers Conference, May 16-18, 2023, Salt Lake City, UT. |
| 2023 | Training Workshop, HydroLang: A Web-Based Framework for Hydrological Research, CIROH Annual Training and Developers Conference, May 16-18, 2023, Salt Lake City, UT.                         |

### Outreach Services and Lab Visits

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|------|-----------------------------------------------------------------------------------------------|
| 2024 | Career Discovery Tour by Kirkwood Community College Visit, high school students, Oct 15, 2024 |
| 2024 | Blank Summer Institute Visit, junior high students, June 27, 2024                             |
| 2024 | IFC/IIHR Organized Student Visit, middle school, early high school students, January 9, 2024  |
| 2023 | ISA:1040 Course Visit, undergrad students, two faculty, December 5, 2023                      |
| 2023 | IIHR Reunion Celebration Visit, UI alumni, students, staff, and faculty, July 14, 2023        |
| 2023 | Summer Camp Group Visit, middle school students, June 29, 2023                                |
| 2023 | Mount Vernon Middle School Visit, middle school students, May 25, 2023                        |

|      |                                                                                                                 |
|------|-----------------------------------------------------------------------------------------------------------------|
| 2023 | Faith Academy Student Tour, 6th grade students, Mar 8, 2023                                                     |
| 2022 | Monmouth College Visit, undergraduate students, July 20, 2022                                                   |
| 2022 | Iowa National Summer Transportation Institute Visit, 16 junior high students and 4 staff members, June 27, 2022 |
| 2022 | Mount Vernon Middle School Visit, 7th grade, May 23, 2022                                                       |
| 2020 | Texas Delegation Visit: Open House, Texas Delegation of State Officials, January 8, 2020                        |
| 2019 | UIOWA SSTP Program Visit, high school students, June 24, 2019                                                   |
| 2019 | Belin-Blank JSI Student Tour, 7th, 8th, 9th grade students, June 20, 2019                                       |
| 2019 | IFC Anniversary Program, IFC community partners, faculty, students, June 13, 2019                               |

## STUDENT AND RESEARCHER ADVISING AND MENTORING

### Current Students and Researchers

|                                                 |                                                                        |
|-------------------------------------------------|------------------------------------------------------------------------|
| <b>Postdoctoral Researchers &amp; Engineers</b> | M. Yusuf Sermet, 2020- <b>present</b> , Assistant Research Engineer    |
|                                                 | Omer Mermer, 2023- <b>present</b> , Associate Research Scientist       |
|                                                 | Jerry Mount, 2019- <b>present</b> , Assistant Research Scientist       |
|                                                 | 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 |

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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 |
|                                                               | 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                              |
|                                                               | Vinay Pursnani, 2024- <b>present</b> , PhD, Informatics                           |
|                                                               | Ugur Satilmis, 2024- <b>present</b> , PhD (Visiting), Environmental Engineering   |

### MS Students

Samrat Shrestha, 2023-**present**, MS, Computer Science  
 Uditha Karunarathne, 2023-**present**, MS, Computer Science  
 Eveline Gonzalez, 2023-**present**, MS, Informatics  
 Gabriel Vald, 2023-**present**, MS, Informatics  
 Deepika Mitta, 2024-**present**, MS, Data Science  
 Ege Duran, 2024-**present**, MS, Civil and Environmental Engineering (thesis)  
 Dilara Kizilkaya, 2024-**present**, MS, Computer Science  
 Likith Kadiyala, 2024-**present**, MS, CS

Moaiz Abrar, 2024-**present**, MS, Data Science  
 Moiiyyad Sufi, 2024-**present**, MS, Data Science  
 Harshal Lele, 2024-**present**, MS, Computer Science  
 Elnaz Saadatmand, 2025-**present**, MS, CEE

**Part-time** Quazi Ruku, 2024-**present**, MS, Geoinformatics  
**Students /** Sanzida R. Setu, 2024-**present**, MS, URP  
**Researchers** Delicious R. Kaba, 2024-**present**, MS, CEE  
 Ella M. Thompson, 2024-**present**, BS, CBE  
 Z. Betul Sit, 2024-**present**, BS, CS  
 Ishan Dhanani, 2023-**present**, BS, Data Science  
 Mike Zeng, 2025-**present**, High School (intern)  
 Kento Sugiyama, 2025-**present**, High School (intern)  
 Eddie Zhang, 2024-**present**, High School (intern)  
 Kevin Song, 2023-**present**, High School (intern)

**Research** Yazeed Alabbad, 2024-**present**, Researcher  
**Collaborators** Zhouyayan Li, 2024-**present**, Researcher

**Thesis &** Haoyi Xiong, 2021-**present**, PhD, Geographical and Sustainability Science, UIOWA  
**Dissertation** Emma House, 2023-**present**, PhD, CEE, Tulane University  
**Committees** Jason Hua, 2023-**present**, PhD, CEE, University of Iowa

### Alumni & Past Students and Researchers

**Graduate** Zhouyayan Li, 2020-2024, PhD, CEE (now AI Scientist)  
**Students with** Yazeed Alabbad, 2019-2023, PhD, CEE (now Assistant Prof.)  
**Thesis /** M. Ali Sit, 2019-2023, PhD, Informatics (now AI Scientist)  
**Dissertation** Enes Yildirim, 2017-2022, PhD, CEE (now Assistant Prof.)  
 Zhongrun Xiang, 2017-2022, PhD, CEE (now Principal Data Scientist)  
 Yusuf Sermet, 2015-2020, PhD, ECE (now Research Faculty)  
 Haowen Xu, 2015-2019, PhD, CEE (now Postdoc)  
 Carlos Erazo, 2018-2020, MS, CEE (now PhD student)  
 Enes Yildirim, 2015-2017, MS, CEE

**Graduate** Likith Kadiyala, 2023-2024, MS, CS  
**Students –** Vinay Pursnani, 2023-2024, MS, CS  
**non-thesis** Beyza Cikmaz, 2022-2024, MS, URP  
 Anchit Dave, 2022-2024, MS, CS  
 Talat Satilmisoglu, 2022-2024, PhD, CEE  
 Maeve Biscupski, 2022-2023, MS, SD  
 Stewart Sankey, 2023, MS, CS  
 Samiul Islam, 2022-2023, MS, URP  
 Amitha George, 2022-2023, MS, CS

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|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             | <p>Nikhil Singh, 2021-2022, MS, CS</p> <p>Ashani Vaidya, 2021-2022, MS, CS</p> <p>Vahid E. Akhlaghi, 2020-2022, PhD, BA</p> <p>Zeeshan Ahmed, 2021, MS, CS</p> <p>Bekir Z. Demiray, 2019-2021, MS, CS</p> <p>Muneeb Shahid, 2019-2021, MS, CS</p> <p>Isha Panvalkar, 2020, MS, CS, UIOWA</p> <p>M. Ali Sit, 2017-2019, MS, CS</p> <p>Shobhit Narain, 2018-2019, MS, CS</p> <p>Peng Chen, 2017-2019, MS, CS</p> <p>Zhongyang Guan, 2017-2018, MS, CS</p> <p>Dichha Rai, 2017-2018, MS, CS</p> <p>Mudathir Yahia, 2016-2017, MS, CS</p> <p>Suleyman Uslu, 2016-2017, MS, CS</p> <p>Haider Hameed, 2015-2017, MS, CS</p> <p>Osman Sonmez, 2012-2013, PhD, IIHR</p> |
| <b>Thesis &amp; Dissertation Committees</b> | <p>Stephen Siemonsma, 2023-2025, PhD, ECE, University of Iowa</p> <p>Chung-Yuan Liang, 2021-2025, PhD, CEE, Purdue University</p> <p>Pin-Ching Li, 2021-2023, PhD, CEE, Purdue University</p> <p>Navid Jadidoleslam, 2016-2021, PhD, CEE</p> <p>Mohsen Vahidzadeh, 2019-2020, PhD, CEE</p> <p>Ali Cikmaz, 2015-2020, PhD, Education</p> <p>Andre D. L. Zanchetta, 2015-2017, MS, CEE</p> <p>Vahid E. Akhlaghi, 2020-2022, PhD, Business Analytics, UIOWA</p>                                                                                                                                                                                                    |
| <b>Researchers &amp; Engineers</b>          | <p>Ozlem B. Yesilkoy, 2021-2024, Postdoctoral Researcher</p> <p>Danish Jackson Samuel, 2023-2024, Postdoctoral Researcher</p> <p>Chris M. Murphy, 2023, Application Developer</p> <p>Serhan Yesilkoy, 2021-2023, Postdoctoral Researcher</p> <p>Dixon Vimalajeewa, 2021, Postdoc, CS</p> <p>Samuel Debionne, 2015-2017, Software Developer</p> <p>Andre D. L. Zanchetta, 2017-2018, Software Developer</p>                                                                                                                                                                                                                                                      |
| <b>Part-time Students / Researchers</b>     | <p>Reuben Sonnenschein, 2024, BS, CS</p> <p>Muhammed Cikmaz, 2022-2024, High School (intern)</p> <p>Colin Hu, 2024, High School (intern)</p> <p>Rundransh Pathak, 2024, High School (intern)</p> <p>Shirley Xiong, 2024, High School (intern)</p> <p>Ege Duran, 2022-2024, BS, CEE</p> <p>Eslim Rana Emiroğlu, 2023-2024, BS, CS</p> <p>Cori Ann G. Grant, 2022- 2024, BS, DS</p> <p>Anish Jain, 2023, High School (intern)</p>                                                                                                                                                                                                                                 |



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Satvik Sandru, 2023, High School (intern)  
Riya Patil, 2023, High School (intern)  
Jacob P. Nemec, 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  
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, IIHR (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)

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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

## GRANTS, RESEARCH FUNDING & ACADEMIC SUPPORT

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

|         |                                  |                                                                                                                                        |
|---------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| [1]     | Role: PI                         | 'AI-Driven Hydrologic Analysis and Communication Hub for Enhanced Water Resource Management in Iowa'                                   |
| 2025-27 | Source: <b>USGS</b> , IWC        | Support: \$243K                                                                                                                        |
| [2]     | Role: PI                         | 'POSE: Phase I: An Open-Source Ecosystem of Next-Gen Web Technologies for Hydrological Education, Research, and Operations (OSE-HERO)' |
| 2024-26 | Source: <b>NSF</b> , POSE        | Support: \$300K                                                                                                                        |
| [3]     | Role: collab                     | 'Phase II: Utilization of AI to Expand Timely, Personalized Feedback Across Courses' – PI: Jane Russell                                |
| 2025-26 | Source: <b>UIOWA</b> , ATAC      | Support: \$45K                                                                                                                         |
| [4]     | Role: PI                         | 'Academic AI Hub – AI-Assisted Academic Framework and Services'                                                                        |
| 2024-25 | Source: <b>NSF</b> , i-Corps     | Support: \$50K                                                                                                                         |
| [5]     | Role: PI                         | 'Enhancing Agricultural Safety: Predictive Analysis of Injury and Fatality Factors'                                                    |
| 2024-25 | Source: <b>IPRC</b> , UIOWA      | Support: \$25K                                                                                                                         |
| [6]     | Role: co-PI                      | 'Growing Iowa into a Leader in Airborne and Ground-based Earth Science Measurement Capability'                                         |
| 2024-27 | Source: <b>UIOWA</b> , P3        | Support: \$1.3M                                                                                                                        |
| [7]     | Role: co-PI                      | 'CIROH: Adapting the Iowa Flood Center's Hillslope Link Model for Compatibility with the NextGen Framework'                            |
| 2024-25 | Source: <b>NOAA</b> , CIROH      | Support: \$250K                                                                                                                        |
| [8]     | Role: PI                         | 'Development of Foundational Large and Multimodal Language Models for Hydrology Research and Education'                                |
| 2024-25 | Source: <b>NSF</b> , NAIRR       | Support: \$25K (GPU Access)                                                                                                            |
| [9]     | Role: PI                         | 'Enhancing Educational Accessibility and Engagement through AI-Augmented Open Educational Resources'                                   |
| 2024-25 | Source: <b>UIOWA</b> , OpenHawks | Support: \$9K                                                                                                                          |

|         |                                                         |                                                                                                                                                               |
|---------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [10]    | Role: PI                                                | ‘Maintenance: Information and Decision System for Poultry Infectious Diseases’                                                                                |
| 2024-26 | Source: <b>North Central (Iowa) Poultry Association</b> | Support: \$12K                                                                                                                                                |
| [11]    | Role: PI                                                | ‘Improving Data Anomaly Detection and Forecasting in the US Army Corps of Engineers Reservoir Sedimentation Information (RSI) Database’                       |
| 2023-25 | Source: <b>USACE</b>                                    | Support: \$34K                                                                                                                                                |
| [12]    | Role: PI                                                | ‘CyberTraining: Implementation: Small: Inclusive Cyberinfrastructure and Machine Learning Training to Advance Water Science Research’                         |
| 2023-26 | Source: <b>NSF</b> , CyberTraining Program              | Support: \$125K                                                                                                                                               |
| [13]    | Role: PI                                                | ‘CIROH: AI-Augmented Immersive Digital Twin and Visual Analytics Framework for Hydrology’                                                                     |
| 2023-25 | Source: <b>NOAA</b> , CIROH                             | Support: \$250K                                                                                                                                               |
| [14]    | Role: PI                                                | ‘CIROH: Novel Geospatial Architecture of Channel and Floodplain Morphological Attributes within the OWP Hydrofabrics’                                         |
| 2023-25 | Source: <b>NOAA</b> , CIROH                             | Support: \$185K                                                                                                                                               |
| [15]    | Role: PI                                                | ‘CIROH: Comparative Assessment of the NWM Channel Routing Models for Enhanced Streamflow Data Assimilation’                                                   |
| 2023-25 | Source: <b>NOAA</b> , CIROH                             | Support: \$395K                                                                                                                                               |
| [16]    | Role: PI                                                | ‘CIROH: A Collaborative Approach to Develop Comprehensive FIM Data, Models, and Methods with Emphasis on Transportation Infrastructure’                       |
| 2023-25 | Source: <b>NOAA</b> , CIROH                             | Support: \$140K                                                                                                                                               |
| [17]    | Role: co-PI                                             | ‘CIROH: Novel Physically-based Streamflow Monitoring Methodology’                                                                                             |
| 2023-25 | Source: <b>NOAA</b> , CIROH                             | Support: \$390K                                                                                                                                               |
| [18]    | Role: PI                                                | ‘Collaborative Research: A Physics-Informed Flood Early Warning System for Agricultural Watersheds with Explainable Deep Learning and Process-Based Modeling’ |
| 2023-26 | Source: <b>NSF</b> , Hydrology                          | Support: \$200K                                                                                                                                               |
| [19]    | Role: PI                                                | ‘An Intelligent Human-Centric Communication System for Adverse Weather and Road Conditions’                                                                   |
| 2023-25 | Source: <b>DOT</b> , US, Aurora Pool Fund               | Support: \$190K                                                                                                                                               |
| [20]    | Role: co-PI                                             | ‘Co-LEARN: A Midwestern Community of Learning for Empowerment, Climate Adaptation and Resilience for the Next Generation’                                     |
| 2023-28 | Source: <b>NOAA</b> , RISA                              | Support: \$6M                                                                                                                                                 |
| [21]    | Role: co-PI                                             | ‘Convergence Accelerator Track E: Linking the Green Economy to the Blue Economy at the Coast (Phase 2)’                                                       |
| 2022-25 | Source: <b>NSF</b> , Convergence Accelerator            | Support: \$1.5M                                                                                                                                               |
| [22]    | Role: co-PI                                             | ‘E-Tailored Pain Management Support for Dementia Family Caregivers’                                                                                           |
| 2022-25 | Source: <b>Alzheimer's Association</b>                  | Support: \$150K                                                                                                                                               |
| [23]    | Role: co-PI                                             | ‘CIROH: Intelligent Data Analytics and Communication Cyberinfrastructure for Research to Operations in Hydrology’                                             |
| 2022-27 | Source: <b>NOAA</b> , CIROH                             | Support: \$2.25M                                                                                                                                              |

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| [24]    | Role: 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’ |
| 2021-25 | Source: <b>NSF</b> , Hydrology | Support: \$403K                                                                                                                                                                                                      |

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

|         |                                                        |                                                                                                          |
|---------|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| [25]    | Role: PI                                               | ‘Maintenance and Support for South Dakota (Big Sioux) Flood Information System’                          |
| 2020-24 | Source: <b>SD DNR / RESPEC</b>                         | Support: \$110K                                                                                          |
| [26]    | Role: co-PI                                            | ‘Intelligent Transportation Network Decision Support with Real-time Routing and Data Analytics’          |
| 2023-24 | Source: <b>DOT</b> , US, MATC                          | Support: \$450K                                                                                          |
| [27]    | Role: collab                                           | ‘GP-GO: Iowa Environmental Internship Pathways Program’                                                  |
| 2022-24 | Source: <b>NSF</b> , IUUSE:GEOPaths                    | Support: \$425K                                                                                          |
| [28]    | Role: PI                                               | ‘UIOWA Hackathon’                                                                                        |
| 2016-24 | Source: <b>NSF</b> , MBDH, UI & Industry Partners      | Support: \$250K+                                                                                         |
| [29]    | Role: PI                                               | ‘A Digital Twin Framework for Civic and Environmental Analysis of Railways’                              |
| 2023-24 | Source: <b>UIOWA</b> , OVPR Community Scholars         | Support: \$50K                                                                                           |
| [30]    | Role: PI                                               | ‘FloodRSS: Flood Resilience Support System for Participatory Community Action’                           |
| 2023-24 | Source: <b>USGS</b> , IWC, Seed Grant Program          | Support: \$20K                                                                                           |
| [31]    | Role: PI                                               | ‘Open-Source Community Development for Next-Gen Web Technologies in Hydrological Research and Education’ |
| 2023-24 | Source: <b>NSF</b> , MBDH                              | Support: \$35K                                                                                           |
| [32]    | Role: PI                                               | ‘Phase 3: AI-Enabled Intelligent Assistant (AIIA) for Personalized and Adaptive Learning and Advising’   |
| 2023-24 | Source: <b>UIOWA</b> , ATAC                            | Support: \$54K                                                                                           |
| [33]    | Role: collab                                           | ‘Iowa’s AI Journey: First Steps in AI Support for Research, Scholarly and Creative Activities’           |
| 2024-26 | Source: <b>UIOWA</b> , P3                              | Support: \$615K                                                                                          |
| [34]    | Role: collab                                           | ‘A Proposal for Iowa’s AI Journey: First Steps in General AI Support’                                    |
| 2024-26 | Source: <b>UIOWA</b> , P3                              | Support: \$784K                                                                                          |
| [35]    | Role: co-PI                                            | ‘Climate-Driven Health Vulnerabilities of Rural Well Users’                                              |
| 2023-24 | Source: <b>UIOWA</b> , OVPR Interdisciplinary Scholars | Support: \$100K                                                                                          |
| [36]    | Role: PI                                               | ‘Actionable Flood Warnings Based on Ground-truth Data to Support Iowa DOT BridgeWatch Platform’          |
| 2022-24 | Source: <b>DOT</b> , IA                                | Support: \$60K                                                                                           |
| [37]    | Role: co-PI                                            | ‘Assessing the Flood Reduction Benefits of On-road Structures’                                           |
| 2021-24 | Source: <b>DOT</b> , IA                                | Support: \$450K                                                                                          |
| [38]    | Role: co-PI                                            | ‘Design Guidelines and Mitigation Strategies for Reducing Sedimentation of Multi-Barrel Culverts’        |
| 2020-24 | Source: <b>DOT</b> , US                                | Support: \$270K                                                                                          |

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| [39] | Role: PI     | ‘River Morphology Data and Analysis Tools (RiverMorph) – A web platform for enabling river morphology research’                       |                 |
|      | 2020-24      | Source: <b>NSF</b> , Geoinformatics                                                                                                   | Support: \$504K |
| [40] | Role: PI     | ‘Watershed-Level Multi-Criteria Quantification of Agricultural Sustainability for Iowa’                                               |                 |
|      | 2022-23      | Source: <b>UIOWA</b> , ISSFP                                                                                                          | Support: \$40K  |
| [41] | Role: PI     | ‘Phase 2 - AI-Enabled Intelligent Assistant (AIIA) for Personalized and Adaptive Learning and Advising’                               |                 |
|      | 2022-23      | Source: <b>UIOWA</b> , ATAC                                                                                                           | Support: \$30K  |
| [42] | Role: PI     | ‘Information and Decision System for Poultry Infectious Diseases’                                                                     |                 |
|      | 2022-23      | Source: <b>North Central Poultry Association</b>                                                                                      | Support: \$25K  |
| [43] | Role: PI     | ‘Identification of Dominant Factors and Modeling Harmful Algal Bloom Dynamics for Major Lakes in Iowa’                                |                 |
|      | 2022-23      | Source: <b>UIOWA</b> , Iowa Healthy Lakes Initiative                                                                                  | Support: \$22K  |
| [44] | Role: PI     | ‘Extension for Big Sioux Flood Information System’                                                                                    |                 |
|      | 2022-23      | Source: <b>South Dakota DNR / RESPEC</b>                                                                                              | Support: \$16K  |
| [45] | Role: co-PI  | ‘Disaster Route Planning for Floods’                                                                                                  |                 |
|      | 2017-23      | Source: <b>MATC</b> , US DOT                                                                                                          | Support: \$450K |
| [46] | Role: co-PI  | ‘HydroLang: An Open-Source Web-Based Programming Framework for Hydrological Community’                                                |                 |
|      | 2022-23      | Source: <b>CUAHSI HIF</b>                                                                                                             | Support: \$5K   |
| [47] | Role: co-PI  | ‘NSF Convergence Accelerator Track E: Linking the Green Economy to the Blue Economy at the Coast’                                     |                 |
|      | 2021-22      | Source: <b>NSF</b> Convergence                                                                                                        | Support: \$750K |
| [48] | Role: PI     | ‘AI-Enabled Intelligent Assistant (AIIA) for Personalized and Adaptive Learning and Advising’                                         |                 |
|      | 2021-22      | Source: <b>UIOWA</b> , ATAC                                                                                                           | Support: \$26K  |
| [49] | Role: co-PI  | ‘Coupling Physical and Societal Objectives for Decision Making in Water Resources Management’                                         |                 |
|      | 2021-22      | Source: <b>IWC</b>                                                                                                                    | Support: \$5K   |
| [50] | Role: co-PI  | ‘A Serious Game on Flood Mitigation for K-12 and Public Education’                                                                    |                 |
|      | 2021-22      | Source: <b>IWC</b>                                                                                                                    | Support: \$5K   |
| [51] | Role: co-PI  | ‘Data Anomaly Detection and Sediment Yield Estimation in the USACE’s Reservoir Sedimentation Information (RSI) Database’              |                 |
|      | 2020-22      | Source: <b>USACE</b>                                                                                                                  | Support: \$50K  |
| [52] | Role: co-PI  | ‘Evaluation of HAND Flood Inundation Maps in Iowa’                                                                                    |                 |
|      | 2020-21      | Source: <b>UCAR</b> Comet Program                                                                                                     | Support: \$15K  |
| [53] | Role: collab | ‘Multimorbidity in Patients with Alzheimer’s Disease and Association with Pain and Health Care Utilization using Big Data Approaches’ |                 |
|      | 2020-21      | Source: <b>NIH</b>                                                                                                                    | Support: \$375K |
| [54] | Role: co-PI  | ‘Missouri River Flood Inundation Model and Information System’                                                                        |                 |

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|      | 2020-21      | Source: <b>Iowa Economic Development Authority</b>                                                                                                                   | Support: \$800K                |
| [55] | Role: co-PI  | 'Enhancing Ethical Context in the Engineering Curriculum: Ethical Dilemmas in Building New Buildings Card Game'                                                      |                                |
|      | 2020-21      | Source: <b>COE Ethics</b>                                                                                                                                            | Support: \$5K                  |
| [56] | Role: co-PI  | 'Next-Generation Stage Measurement at Ungauged Locations using IoT'                                                                                                  |                                |
|      | 2020-21      | Source: <b>IWC</b>                                                                                                                                                   | Support: \$5K                  |
| [57] | Role: PI     | 'NVIDIA Deep Learning Institute Access – 200 Teaching Kits'                                                                                                          |                                |
|      | 2019-20      | Source: <b>NVIDIA</b>                                                                                                                                                | Support: \$18K (teaching kits) |
| [58] | Role: co-PI  | 'Semi-Volatile PCBs: Sources, Exposures, Toxicities'                                                                                                                 |                                |
|      | 2019-21      | Source: <b>US NIH</b>                                                                                                                                                | Support: \$1.1M                |
| [59] | Role: PI     | 'Spatial and Temporal Data Augmentation for Radar-Rainfall Products Using Deep Neural Networks'                                                                      |                                |
|      | 2019         | Source: <b>NVIDIA</b> , Academic Partnership Program                                                                                                                 | Support: \$7K (NVIDIA GPU)     |
| [60] | Role: co-PI  | 'Critical Zone Observatory for Intensively Managed Landscapes (IML-CZO)'                                                                                             |                                |
|      | 2019-20      | Source: <b>NSF CZO</b>                                                                                                                                               | Support: \$25K                 |
| [61] | Role: PI     | 'Inundation Damage Assessment Maps for Non-leveed Iowa Communities Mississippi River Front'                                                                          |                                |
|      | 2019         | Source: <b>USACE</b>                                                                                                                                                 | Support: \$30K                 |
| [62] | Role: PI     | 'Ethical and Moral Challenges for Engineers and AI: A Web-Based Serious Game for Engineering Decision Making'                                                        |                                |
|      | 2019-20      | Source: <b>CoE</b> , UIOWA                                                                                                                                           | Support: \$20K                 |
| [63] | Role: PI     | 'Quantum Computing Applications in Environmental Science'                                                                                                            |                                |
|      | 2019         | Source: <b>Rigetti</b> , Quantum Cloud Services                                                                                                                      | Support: \$5K (cloud credit)   |
| [64] | Role: co-PI  | 'Connecting Rural and Peri-urban Farmers to Demonstrate and Disseminate Innovative Nutrient and Sediment Reduction Practices'                                        |                                |
|      | 2019-22      | Source: <b>EPA</b>                                                                                                                                                   | Support: \$1M                  |
| [65] | Role: PI     | 'Framework: Software: Collaborative Research: CyberWater—An open and sustainable framework for diverse data and model integration with provenance and access to HPC' |                                |
|      | 2019-22      | Source: <b>NSF CSSI</b>                                                                                                                                              | Support: \$125K                |
| [66] | Role: collab | 'Development of Caregivers' Barriers to Pain Management Screening Questions and Revision of the Educational Material in the Caregiver Pain Management Manual'        |                                |
|      | 2018-21      | Source: <b>Woodrow W. Morris Gerontology</b>                                                                                                                         | Support: \$10K                 |
| [67] | Role: PI     | 'Water Quality Data Visualization'                                                                                                                                   |                                |
|      | 2018-19      | Source: <b>UIOWA CHEEC</b>                                                                                                                                           | Support: \$38K                 |
| [68] | Role: PI     | 'Improving Data Integration and Exchange for EPA Current Discovery Tool'                                                                                             |                                |
|      | 2018-20      | Source: <b>EPA</b>                                                                                                                                                   | Support: \$192K                |
| [69] | Role: PI     | 'Integrated Data Framework for Agricultural Flood Damage and Loss Analysis'                                                                                          |                                |
|      | 2018-19      | Source: <b>NSF Big Data Hub – DigitalAg Spoke</b>                                                                                                                    | Support: \$5K                  |
| [70] | Role: PI     | 'An Integrated Big Data Framework for Water Quality Issues in the Upper Mississippi                                                                                  |                                |

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|      |             | River Basin'                                                                                                                               |                               |
|      | 2018-21     | Source: <b>NSF</b> Big Data Hub Program                                                                                                    | Support: \$1M                 |
| [71] | Role: PI    | 'Interactive Projector System for Collaborative Research, Communication and Outreach Activities'                                           |                               |
|      | 2018-19     | Source: <b>UIOWA</b> CEE                                                                                                                   | Support: \$7K                 |
| [72] | Role: co-PI | 'Transfer of the Iowa DOT Culverts Web-Tool Prototype to Iowa DOT Mainframe'                                                               |                               |
|      | 2018-19     | Source: <b>Iowa DOT</b>                                                                                                                    | Support: \$75K                |
| [73] | Role: PI    | 'Data Visualization Project for Homeland Security'                                                                                         |                               |
|      | 2017-18     | Source: <b>Iowa Homeland Security</b>                                                                                                      | Support: \$61K                |
| [74] | Role: PI    | 'Data Visualization of IWA Data and Project Sites'                                                                                         |                               |
|      | 2017-21     | Source: <b>Iowa Homeland Security</b>                                                                                                      | Support: \$68K                |
| [75] | Role: co-PI | 'EAGER: PPER: Validation and Utilization of a New Tool for Citizen-Led Water Quality Monitoring in Agricultural Watersheds'                |                               |
|      | 2017-18     | Source: <b>NSF</b> Eager                                                                                                                   | Support: \$88K                |
| [76] | Role: PI    | 'Knowledge Discovery, Integration and Communication for Extreme Weather and Flood Resilience Using Artificial Intelligence'                |                               |
|      | 2017-20     | Source: <b>Microsoft &amp; ESRI</b> , AI for Earth                                                                                         | Support: \$20K (cloud credit) |
| [77] | Role: co-PI | 'Decision Support Tool for the Texas Multi-Hazard Tournament'                                                                              |                               |
|      | 2017        | Source: <b>USACE</b>                                                                                                                       | Support: \$41K                |
| [78] | Role: PI    | 'GPGPU Techniques for Environmental Modeling Applications'                                                                                 |                               |
|      | 2016        | Source: <b>NVIDIA</b> , Academic Partnership Program                                                                                       | Support: \$3K (NVIDIA GPU)    |
| [79] | Role: co-PI | 'Develop a Hydrologic and Hydraulic Model of the Big Sioux River Basin'                                                                    |                               |
|      | 2016-20     | Source: <b>South Dakota DNR</b>                                                                                                            | Support: \$190K               |
| [80] | Role: PI    | 'Interactive Web-based Digital Exhibit for Rainfall and Flood Data and Tools'                                                              |                               |
|      | 2016        | Source: <b>UIOWA</b>                                                                                                                       | Support: \$3K                 |
| [81] | Role: co-PI | 'Smart Ag-Practice Forecasting for Interconnected Communities: Supplemental request for BCS #1114978'                                      |                               |
|      | 2016-19     | Source: <b>NSF</b>                                                                                                                         | Support: \$1.2M               |
| [82] | Role: co-PI | 'A Pilot Project for Cloud-based NEXRAD Data Processing, Analysis, and Visualization for Flood Forecasting and Water Resources Management' |                               |
|      | 2016-17     | Source: <b>Unidata</b>                                                                                                                     | Support: \$16K                |
| [83] | Role: co-PI | 'Initial All-Hands Meeting in Digital Agriculture'                                                                                         |                               |
|      | 2016        | Source: <b>NSF</b> , Midwest Big Data Hub                                                                                                  | Support: \$20K                |
| [84] | Role: co-PI | 'Iowa Watershed Approach for Urban and Rural Resilience'                                                                                   |                               |
|      | 2016-21     | Source: <b>Iowa EDA</b> , U.S. Dept. of HUD                                                                                                | Support: \$6.5M               |
| [85] | Role: PI    | 'AWS Educate Program for Institutions'                                                                                                     |                               |
|      | 2015        | Source: <b>Amazon</b> , Cloud Resources for Education                                                                                      | Support: \$20K (cloud credit) |
| [86] | Role: co-PI | 'Iowa Water Quality Information System'                                                                                                    |                               |
|      | 2015-18     | Source: <b>Carver Foundation</b>                                                                                                           | Support: \$453K               |

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| [87]  | Role: co-PI    | Prototype Multi-Jurisdictional Decision-Making Web Platform for Integrated Water Resources Management: From Interagency Collaboration to Implementation in Iowa-Cedar Watershed (Iowa)' |                                |
|       | 2014-16        | Source: <b>US DoD</b> , Army Corps of Engineers                                                                                                                                         | Support: \$180K                |
| [88]  | Role: PI       | 'Web-based Augmented and Virtual Reality Flood Simulation Platform for Game-based Learning of Hydrological Concepts'                                                                    |                                |
|       | 2014-15        | Source: <b>UIOWA</b> , Game-based Learning Institute                                                                                                                                    | Support: \$1K                  |
| [89]  | Role: PI       | 'Improving Visualization and Access to Radar Data using Unidata Tools for Flood Prediction and Management'                                                                              |                                |
|       | 2014-15        | Source: <b>Unidata</b> , Equipment Awards Program                                                                                                                                       | Support: \$11K                 |
| [90]  | Role: co-PI    | 'Exploring Cloud Computing Capabilities for Iowa Flood Information System'                                                                                                              |                                |
|       | 2013-14        | Source: <b>Amazon</b> Web Services in Education Grant                                                                                                                                   | Support: \$30K (cloud credit)  |
| [91]  | Role: PI       | 'Collaboration with Scientific Visualization Studio (SVS) at Goddard Space Flight Center'                                                                                               |                                |
|       | 2013           | Source: <b>NASA</b> EPSCoR Program                                                                                                                                                      | Support: \$3K                  |
| [92]  | Role: PI       | 'Web-based Augmented and Virtual Reality Flood Simulation Platform for Game-based Learning of Hydrological Concepts'                                                                    |                                |
|       | 2013-14        | Source: <b>UIOWA</b> , ATAC                                                                                                                                                             | Support: \$12K                 |
| [93]  | Role: PI       | 'Design and Development of GPU-based Information Visualization Interfaces for Hydrological and Meteorological Data'                                                                     |                                |
|       | 2013           | Source: <b>NVIDIA</b> , Academic Partnership Program                                                                                                                                    | Support: \$5K (NVIDIA GPU)     |
| [94]  | Role: PI       | 'Google Maps Engine Public Data Program'                                                                                                                                                |                                |
|       | 2013           | Source: <b>Google</b> , Map Engine                                                                                                                                                      | Support: \$5K (cloud credit)   |
| [95]  | Role: PI       | 'National Flood Information System'                                                                                                                                                     |                                |
|       | 2013           | Source: <b>Google</b> , Compute Engine                                                                                                                                                  | Support: \$4K (cloud credit)   |
| [96]  | Role: PI       | 'FloodCube: National Flood Information System'                                                                                                                                          |                                |
|       | 2013           | Source: <b>US Ignite</b> , Gigabit Explorer Challenge                                                                                                                                   | Support: \$5K (travel support) |
| [97]  | Role: PI       | 'Design and Development of Open Source Programming Projects for the Iowa Flood Center, University of Iowa'                                                                              |                                |
|       | 2013           | Source: <b>Google</b> Summer of Code                                                                                                                                                    | Support: \$18K                 |
| [98]  | Role: PI       | 'Design and Development of UCF CHAMPS Hydrologic Information System'                                                                                                                    |                                |
|       | 2013           | Source: <b>University of Central Florida</b>                                                                                                                                            | Support: \$16K                 |
| [99]  | Role: PI       | 'Design and Development of GPU-based Information Visualization Interfaces for Hydrological and Meteorological Data'                                                                     |                                |
|       | 2013           | Source: <b>NVIDIA</b> , Academic Partnership Program                                                                                                                                    | Support: \$10K (NVIDIA GPU)    |
| [100] | Role: PI       | 'Design and Development of BlackBerry Smartphone and Tablet Applications'                                                                                                               |                                |
|       | 2012           | Source: <b>BlackBerry</b> Academic Program                                                                                                                                              | Support: \$7K (BlackBerry)     |
| [101] | Role: co-chair | 'EarthCube Community Workshop: Designing A Roadmap for Workflows in Geosciences'                                                                                                        |                                |
|       | 2012           | Source: <b>NSF</b> – EarthCube                                                                                                                                                          | Support: \$100K                |



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|-------|--------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| [102] | Role: co-PI  | ‘Global Water Platform – Phase IA: Planning, Design and Development of A Web-Based Platform on Water and Sustainability Issues’ |                                 |
|       | 2009         | Source: <b>International Water Association</b>                                                                                  | Support: \$50K                  |
| [103] | Role: collab | ‘Iowa Flood Center’                                                                                                             |                                 |
|       | 2011-16      | Source: <b>State of Iowa</b>                                                                                                    | Support: \$188K (total: \$17+M) |
| [104] | Role: collab | ‘Iowa Floodplain Mapping Program’                                                                                               |                                 |
|       | 2011-16      | Source: <b>Iowa Department of Natural Resources</b>                                                                             | Support: \$185K (total: \$10M)  |

## PUBLICATIONS & PRESENTATIONS

### Thesis & Dissertation

- [1] PhD Dissertation, ‘Integrated Web-Based Data Management, Analysis and Visualization: Towards an Adaptive Watershed Information System’, 2010  
Advisor: 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  
Advisors: Guleda Onkal-Engin and Mehmet Karpuzcu, Gebze Institute of Technology, TURKEY

### Books & Book Chapters

- [3] **Book:** ‘Artificial Intelligence in Hydroinformatics’, Volume: ‘Advanced Machine Learning’ 2025, **Taylor & Francis**. Edited by Demir, I., Freni, G. (in review)
- [4] **Chapter:** Demir, et al., ‘Cyberinfrastructure Systems for Flood Preparedness and Response’  
Book: ‘Oxford Research Encyclopedia of Natural Hazard Science’, ISBN: 9780199389407 2025, **Oxford University Press**. Edited by Susan L. Cutter et al. (in contract/preparation)
- [5] **Chapter:** Demir I., Freni, G., ‘Introduction to Artificial Intelligence and Hydroinformatics’  
Book: ‘Artificial Intelligence in Hydroinformatics’, Volume: ‘Advanced Machine Learning’ 2025, **Taylor & Francis**. Edited by Demir, I., Freni, G. (in review)
- [6] **Chapter:** Demir et al., ‘Next Generation AI-Enabled Hydrological Data Analytics, Scientific Computing and Knowledge Communication’  
Book: ‘Artificial Intelligence in Hydroinformatics’, Volume: ‘Advanced Machine Learning’ 2025, **Taylor & Francis**. Edited by Demir, I., Freni, G. (in review)
- [7] **Chapter:** Demir et al., ‘Enhancing Environmental and Disaster Education with AI-Driven Tutoring and Immersive Gamification’  
Book: ‘Transforming Education with AI: Focus on Content, Analytics, and Inclusivity’ 2025, **Springer**. Edited by L. Daniela, et al. (in review)
- [8] **Chapter:** Demir et al., ‘Adaptive Learning and Personalized Assessments with Generative AI: Insights from Higher Education and Professional Training’  
Book: ‘Generative AI in Higher Education Assessment – Theory, Practice, and Ethical Implications’ 2025, **Springer**. Edited by M. Lahby et al. (in review)

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- [9] **Chapter:** Demiray, B.Z., Mermer, O., Baydaroglu, O., and Demir, I., 'Predicting Harmful Algal Blooms Using Explainable Deep Learning Models: A Comparative Study'  
Book: 'Aquatic Ecosystems: Biodiversity and Conservation'  
2025, **MDPI**. Edited by Nogueira, M.G., Kane, D.
- [10] **Chapter:** Sajja, R., Sermet, Y., Cikmaz, M., Cwiertny, D.M., and Demir, I., 'Artificial Intelligence-Enabled Intelligent Assistant for Personalized and Adaptive Learning in Higher Education'  
Book: 'Artificial Intelligence and Games Science in Education'  
2025, **MDPI**. Edited by Lameris, P., Arnab, S., Petridis, P.
- [11] **Chapter:** Satilmisoglu, T.K., Sermet, Y. and Demir, I., 'Blockchain Opportunities for Water Resources Management: A Comprehensive Review'  
Book: 'Disruptive Technologies for Smart Cities' Management'  
2023, **MDPI**. Edited by Secinaro, S., Dal Mas, F., José Sousa, M., Calandra, D.
- [12] **Chapter:** Granata, F., Di Nunno, F., Najafzadeh, M. and Demir, I., 'A Stacked Machine Learning Algorithm for Multi-Step Ahead Prediction of Soil Moisture'  
Book: 'Traditional Statistics vs. Modern Machine Learning Approaches in Hydrology'  
2023, **MDPI**. Edited by Rozos, E.
- [13] **Chapter:** Sit, M.A., Demir, I., 'Democratizing Deep Learning Applications in Earth and Climate Sciences on the Web: EarthAIHub'  
Book: 'Application of Artificial Intelligence for River Hydrodynamics Modeling'  
2022, **MDPI**. Edited by Samadi, V., Wilson, C., Demir, I.
- [14] **Chapter:** Sermet, Y. & Demir, I., 'A Semantic Web Framework for Automated Smart Assistants: A Case Study for Public Health'  
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- [15] **Chapter:** Hu, A. & Demir, I., 'Real-time Flood Mapping on Client-side Web Systems using HAND model'  
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- [16] **Chapter:** 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'  
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- [17] **Chapter:** Sermet, Y., Demir, I., 'Virtual and Augmented Reality Applications for Environmental Science Education and Training'  
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- [22] Mermer, O., and **Demir, I.**, 'Multivariate Regression Analysis for Identifying Key Drivers of Harmful Algal Bloom in Lake Erie', *Applied Sciences*. (in review)
- [23] Kaynak, S., Kaynak, B., Mermer, O., and **Demir, I.**, 'City-Scale Digital Twin Framework for Flood Impact Analysis: Integrating Urban Infrastructure and Real-time Data Analytics', *Urban Climate*. (in review)
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- [35] Mermer, O., Zhang, E., and **Demir, I.**, 'A Comparative Study of Ensemble Machine Learning and Explainable AI for Predicting Harmful Algal Blooms', *Big Data and Cognitive Computing*. (in review)
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- [240] House, E., Meselhe, E. A., Muste, M., & **Demir, I.**, 'Parameterization of Hysteretic Behavior in Streamflow through an Analysis of Driving Forces in the Momentum Budget', AGU Fall Meeting, December 9 – 13, 2024, Washington, D.C.
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- [242] Muste, M., Kim, K., & **Demir, I.**, 'Stage-discharge Ratings in Unsteady Flows: Corrections, Improvements, Replacements', AGU Fall Meeting, December 9 – 13, 2024, Washington, D.C.
- [243] Erazo, C., Sermet, Y., & **Demir, I.**, 'No-Code Voice-Enabled Smart Web Framework for Hydrology and Environmental Analysis', AGU Fall Meeting, December 9 – 13, 2024, Washington, D.C.
- [244] Oldham, S., Prince, L., Larco, K., Nelson, J., Hales, R., **Demir, I.**, & Ames, D. P. 'Multi-Model and Multi-Agency Approach to Expand the Flood Inundation Mapping Capacity of the US National Water Model', AGU Fall Meeting, December 9 – 13, 2024, Washington, D.C.
- [245] Quintero, F., Seo, B. C., Molina, R., Velasquez, N., & **Demir, I.**, 'Adapting the Iowa Flood Center Hillslope Link Model for compatibility with the CIROH Nextgen Framework', AGU Fall Meeting, December 9 – 13, 2024, Washington, D.C.
- [246] Kim, S., Seo, B. C., **Demir, I.**, & Kim, D. H., 'A Preliminary Evaluation of Channel Routing Methods in the National Water Model', AGU Fall Meeting, December 9 – 13, 2024, Washington, D.C.
- [247] Baydaroglu, Ö., & **Demir, I.**, 'Enhancing Rainfall Nowcasting Through Data Augmentation', AGU Fall Meeting, December 9 – 13, 2024, Washington, D.C.
- [248] Erazo, C., Sermet, Y., & **Demir, I.**, 'HydroSuite: A collection of web-based software libraries for hydrology research, education, and operations', AGU Fall Meeting, December 9 – 13, 2024, Washington, D.C.
- [249] **Demir, I.**, Muste, M., Minear, J. T., Kim, K., & Meselhe, E. A., 'Inferences about channel dynamics at gauging sites using free surface slope measurements derived from SWOT satellite measurements', AGU Fall Meeting, December 9 – 13, 2024, Washington, D.C.
- [250] **Demir, I.**, 'Large Language Model Applications in Enhancing Hydrological Research, Education, and Operational Activities', AGU Fall Meeting, December 9 – 13, 2024, Washington, D.C.
- [251] Ames, D.P., Swain, N., Romero, G., **Demir, I.**, 'The NWM Research Apps Portal - A One-Stop-Shop Catalog of R2O Web Applications', CIROH Science Meeting, Oct 14 – 17, 2024, Tuscaloosa, AL.
- [252] Seo, B.C., **Demir, I.**, 'Comparative Assessment of the NWM Channel Routing Models for Enhanced Streamflow Data Assimilation', CIROH Science Meeting, Oct 14 – 17, 2024, Tuscaloosa, AL.
- [253] **Demir, I.**, Sermet, Y., Krajewski, W., Weber, L., 'Intelligent Data Analytics & Communication Cyberinfrastructure for Research to Operations in Hydrology', CIROH Science Meeting, Oct 14 – 17, 2024, Tuscaloosa, AL.
- [254] **Demir, I.**, Sermet, Y., 'AI-Augmented Immersive Digital Twin and Visual Analytics Framework for Hydrology', CIROH Science Meeting, Oct 14 – 17, 2024, Tuscaloosa, AL.
- [255] Nelson, J., **Demir, I.**, Maidment, D., 'Expanding the Impact of the NWM FIM Capabilities', CIROH Science Meeting, Oct 14 – 17, 2024, Tuscaloosa, AL.
- [256] Sermet, Y., Gonzalez, E., **Demir, I.**, 'Urban Flood Impact Visualizer: A Real-Time Interactive Simulation Platform for City Infrastructure and Flood Management', 2024 AWRA, UCOWR, NIWR Joint Water Resources Conference, Sep 30 – Oct 2, 2024, St. Louis, MO.

- [257] Sermet, Y., Mitta, D., **Demir, I.**, ‘Enhancing Efficiency and Objectivity in Academic Peer Review in the Water Sector through Artificial Intelligence’, 2024 AWRA, UCOWR, NIWR Joint Water Resources Conference, Sep 30 – Oct 2, 2024, St. Louis, MO.
- [258] Cox, A., Merwade, V., Muste, M., **Demir, I.**, Minear, J.T., Dey, S., Liang, C., Sermet, Y., Chegini, T., ‘RIMORPHIS: An Information System to Advance River Morphology Research’, 2024 AWRA, UCOWR, NIWR Joint Water Resources Conference, Sep 30 – Oct 2, 2024, St. Louis, MO.
- [259] **Demir, I.**, Sermet, Y., ‘Conversational AI, Digital Twins, and Metaverse in Water Resources Research, Education, and Operations’, 2024 AWRA, UCOWR, NIWR Joint Water Resources Conference, Sep 30 – Oct 2, 2024, St. Louis, MO.
- [260] Islam, S.M.S., Cwiertny, D., **Demir, I.**, ‘Nitrate Levels in Iowa's Public Water Systems: Trends, Sources, and Population Impact’, Iowa Water Conference, Sep 10 – 11, 2024, Coralville, IA.
- [261] Baydaroglu, O., Yesilkoy, S., **Demir, I.**, ‘A Causality Perspective on the Impact of Hydroclimatic Extremes on Crop Yields’, EMS – European Meteorological Society Annual Meeting, Sep 2 – 6, 2024, Barcelona, Spain (Online).
- [262] Baydaroglu, O., Yesilkoy, S., Linderman, M., **Demir, I.**, ‘Modeling of Harmful Algal Bloom Dynamics and the Model-Based Interactive Framework for Inland Waters’, EMS – European Meteorological Society Annual Meeting, Sep 2 – 6, 2024, Barcelona, Spain (Online).
- [263] Gonzalez, E., Sermet, Y., **Demir, I.**, ‘Urban Flood Impact Visualizer: A Real-Time Interactive Simulation Platform for City Infrastructure and Flood Management’, SIGGRAPH 2024, Jul 28 – Aug 1, 2024, Denver, CO.
- [264] **Demir, I.**, Sermet, Y., ‘Conversational AI, Digital Twins, and Metaverse in Water Resources Research, Education and Operations’, CIROH Developers Conference, May 29 – Jun 1, 2024, Salt Lake City, UT.
- [265] Ramirez, C.E., Sermet, Y., **Demir, I.**, ‘HydroSuite: Open-Source Community-Oriented Software Suite for Hydrological Research and Education’, CIROH Developers Conference, May 29 – Jun 1, 2024, Salt Lake City, UT.
- [266] Sermet, T., Gonzalez, E., Rahmani, A., Emiroglu, E., Grant, C.A., **Demir, I.**, ‘Enhancing Hydroinformatics Research, Operation, and Education through Virtual Reality, Artificial Intelligence, and Gaming’, CIROH Developers Conference, May 29 – Jun 1, 2024, Salt Lake City, UT.
- [267] **Demir, I.**, ‘Artificial Intelligence and Cyberinfrastructure Systems for Environment and Water Resources’, 2024 Chishiki AI Research Summit, Apr 4-5, 2024, Austin, TX.
- [268] **Demir, I.**, ‘Decision Making in the Era of Artificial Intelligence, Digital Twin Systems and Metaverse’, Harnessing the Heartland Conference, Feb 26-28, 2024, Lincoln, NE.
- [269] **Demir, I.**, ‘Enhancing Hydrological Research, Education, and Operational Roles with Conversational AI Agents’, Google Flood Forecasting Meets Machine Learning Workshop, Jan 22-24, 2024, Virtual.

- [270] 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.
- [271] **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.
- [272] 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.
- [273] 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.
- [274] 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.
- [275] 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.
- [276] 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.
- [277] 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.
- [278] House, E., Muste, M., Meselhe, E.A., **Demir, I.**, Cikmaz, A.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.
- [279] 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.
- [280] 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.
- [281] **Demir, I.**, 'Intelligent Data Analytics and Communication', CIROH Science Meeting, October 2-4, 2023, Tuscaloosa, AL.
- [282] Cikmaz, A.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.

- [283] 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.
- [284] 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.
- [285] Prouty, C., Smith, W., Watkins, S., Moore, T., Cheek, L., Ellis, A., Davis, B., Zarger, R., Burke, M., Cwiertny, D.M., **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.
- [286] 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.
- [287] 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.
- [288] 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.
- [289] 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.
- [290] 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.
- [291] 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.
- [292] 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.
- [293] 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.

- [294] 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.
- [295] Erazo, C., **Demir, I.**, 'HydroCompute: Computational Library for Hydrology and Environmental Sciences', Iowa Research Open House, April 20, 2023, University of Iowa.
- [296] **Demir, I.**, 'Next Generation Digital Twin Systems for Disaster Analytics and Communication', Fifth NAAHDRI Research Incubator Event, February 10, 2023, Online (virtual).
- [297] **Demir, I.**, 'AI and Machine Learning Applications for Operational Flood Forecasting and Communication', Google Flood Forecasting Meets Machine Learning Workshop, January 11, 2023, Virtual.
- [298] 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.
- [299] **Demir, I.**, 'Next Generation Hydroinformatics Applications for Scientific Computing and Communication', AGU Fall Meeting, December 12-16, 2022, Chicago, IL.
- [300] 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.
- [301] Erazo, C., Sermet, Y., Molkenhuth, F. and **Demir, I.**, 'HydroLang: An open-source web-based programming framework for hydrological sciences', AGU Fall Meeting, December 12-16, 2022, Chicago, IL.
- [302] 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.
- [303] 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.
- [304] 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).
- [305] Erazo, C., Sermet, Y., Molkenhuth, F., **Demir, I.**, 'HydroLang: An Open-Source Web-Based Programming Framework for Hydrological Sciences', Iowa Water Conference, September 28-29, 2022, Dubuque, IA.
- [306] 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.
- [307] 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.



- [308] 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.
- [309] 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.
- [310] **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.
- [311] **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.
- [312] Cikmaz, A.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.
- [313] 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.
- [314] Ewing, G., **Demir, I.**, 'Device-Agnostic Environmental Modelling Framework for The Web', Frontiers in Hydrology Meeting, June 19-24, 2022, San Juan, Puerto Rico.
- [315] 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.
- [316] 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.
- [317] Sermet, S., **Demir, I.**, 'Camera-Based Intelligent Stream Stage Sensing', Frontiers in Hydrology Meeting, June 19-24, 2022, San Juan, Puerto Rico.
- [318] 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.
- [319] 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.
- [320] **Demir, I.**, 'Next Generation Web-based Digital Twin Systems for Flood Risk Management', AWRA 2022 Spring Conference, April 25-27, 2022, Tuscaloosa, AL.
- [321] Ewing, G., **Demir, I.**, 'WebHLM: A Client-Side Web Environment for Hydrologic Modelling and Education', Research Open House, April 15, 2022, Iowa City, IA.

- [322] Alabbad, Y., **Demir, I.**, 'Comprehensive Flood Vulnerability Analysis in Urban Communities: Iowa Case Study', Research Open House, April 15, 2022, Iowa City, IA.
- [323] **Demir, I.**, 'Next Generation Web-based Digital Twin Systems for Hydrological Research and Education', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [324] 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.
- [325] Yildirim, E., **Demir, I.**, 'Agricultural Flood Vulnerability Assessment and Risk Quantification in Iowa', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [326] 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.
- [327] 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.
- [328] Sermet, Y., **Demir, I.**, 'Camera-Based Intelligent Stream Stage Sensing for Citizen Science Applications', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [329] 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.
- [330] Merwade, V., et al., **Demir, I.**, 'RIMORPHIS: River Morphology Information System', AGU Fall Meeting, December 13-17, 2021, New Orleans, LA.
- [331] Xiang, Z., **Demir, I.**, 'A Regional Semi-Distributed Streamflow Model Using Deep Learning', 2021 Annual Water Resources Conference, November 8-11, 2021, Kissimmee, FL.
- [332] **Demir, I.**, 'Uncertainty in Visual Analytics Applications in Hydroinformatics', 2021 IEEE Visualization Conference, October 24-29, 2021, Virtual.
- [333] 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.
- [334] **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.
- [335] 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.
- [336] 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.
- [337] 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.

- [338] 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.
- [339] 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.
- [340] 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.
- [341] Li, Z., Mount, J., **Demir, I.**, 'An Interactive Real-Time Flood Mapping Framework on Web Systems', Iowa Water Conference, April 6-7, 2021, Virtual.
- [342] Sermet, Y., **Demir, I.**, 'GeospatialVR: A Web-based Virtual Reality Framework for Collaborative Disaster Simulations', Disaster PRIMR 2021, Jan 31 – Feb 4, 2021, Virtual.
- [343] **Demir, I.**, 'Next Generation Intelligent Information and Communication Systems for Flood Preparedness and Mitigation', Disaster PRIMR 2021, Jan 31 – Feb 4, 2021, Virtual.
- [344] **Demir, I.**, 'Next Generation Web Technologies for Hydrological Applications on Client-side Systems', AGU Fall Meeting, December 7-11, 2020, San Francisco, CA.
- [345] Yildirim, E., **Demir, I.**, 'Flood Mitigation and Data Analytics Framework: Middle Cedar Case Study', AGU Fall Meeting, December 7-11, 2020, San Francisco, CA.
- [346] 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.
- [347] 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.
- [348] 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.
- [349] Xiang, Z., **Demir, I.**, 'Generalized Streamflow Forecast Model using Deep Learning', AGU Fall Meeting, December 7-11, 2020, San Francisco, CA.
- [350] Chi, N.-C., Nakad, L., Fu, Y.-K., **Demir, I.**, Gilbertson-White, S., Herr, K., Demir, 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.
- [351] 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.
- [352] Xiang, Z., **Demir, I.**, 'An Application of Deep Learning-Based Streamflow Forecasting in the State of Iowa', AWRA Water Resources Conference, November 2020.

- [353] Chi, N.-C., Nakad, L., Fu, Y.-K., **Demir, I.**, Gilbertson-White, S., Herr, K., Demir, 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.
- [354] Sermet, Y., **Demir, I.**, 'Virtual and Augmented Reality Applications for Disaster Planning and Education', ESRI Water GIS Conference, September 23-25, 2020.
- [355] Sermet, Y., **Demir, I.**, 'Next-Generation Environmental Information Systems using Immersive Technologies and Artificial Intelligence', 2020 ACM Richard Tapia Conference, September 16-19, 2020.
- [356] 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.
- [357] **Demir, I.**, '21st Century Technologies to Prepare for Flooding', Soil and Water Conservation Society's 75th International Annual Conference, July 27-29, 2020.
- [358] **Demir, I.**, 'Flooding & Transportation Resilience: Future of Intelligent Risk Analytics & Communication', Nebraska DOT Future of Transportation Technology Forum, July 1, 2020.
- [359] **Demir, I.**, 'Interactive and Real-time Flood Inundation Mapping on Client-Side Web Systems', 2020 ASFP Annual National Conference, June 9-11, 2020, Fort Worth, TX.
- [360] 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.
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- [478] 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.
- [479] **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.
- [480] **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.
- [481] **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.
- [482] 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.
- [483] **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.
- [484] 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.
- [485] **Demir, I.**, Krajewski, W., 'Information Communication using Knowledge Engine on Flood Issues', *European Geosciences Union (EGU) General Assembly*, April 22-27, 2012, Vienna, Austria.
- [486] **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.
- [487] **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.
- [488] **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.

- [489] **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.
- [490] **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.
- [491] 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.
- [492] 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.
- [493] 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.
- [494] Beck, M. B., **Demir, I.**, 'Models, Informatics, & The Growth of Knowledge', *7th International Conference on Ecological Informatics (ISEI7)*, December 13-16, 2010, Ghent, Belgium.
- [495] **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.
- [496] **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.
- [497] **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.
- [498] **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.
- [499] **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.
- [500] **Demir, I.**, Beck, M. B., 'GWIS: Georgia Watershed Information System', *Interdisciplinary Scientific Research Day*, July 1, 2009, University of Georgia, Athens, GA, USA.
- [501] **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.
- [502] 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.
- [503] **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.
- [504] 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.
- [505] 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.
- [506] **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.

#### Invited Talks

- [507] **Demir, I.**, 'Panel: Priming the Pump: Understanding Big Data and AI', The 7th Gilbert F. White National Flood Policy Forum, Mar 5-6, 2025, Washington, D.C.
- [508] Sermet, Y., **Demir, I.**, 'ReviewerAI: An AI-powered Automated Peer-Review Service', STM Innovation Fair 2024, Dec 3-4, 2024, London, UK.
- [509] Kim, K., Muste, M., **Demir, I.**, 'Stage-discharge ratings in unsteady flows: corrections, improvements, replacements', Iowa Flood Center, Aug 28, 2024.
- [510] Sermet, Y., **Demir, I.**, 'River Morphology Information System Cyberinfrastructure Overview and Demo', RIMORPHIS 4th Annual Stakeholder Workshop, Purdue University, June 11-12, 2024.
- [511] Erazo, C., Sermet, Y., Shahid, M., **Demir, I.**, 'HydroRTC: A Web-Based Data Transfer and Communication Library for Collaborative Data Processing and Sharing in the Hydrological Domain', Iowa Flood Center, March 27, 2024.
- [512] Li, Z., **Demir, I.**, 'MA-SARNets: One-Shot SAR Backscatter Nowcast Frameworks with Physical Driving Forces and Out-of-Scope Information', Iowa Flood Center, January 3, 2024.
- [513] **Demir, I.**, 'Hydroinformatics: Harnessing Information Science and Intelligent Systems for Advanced Hydrological Insights', Introduction to Geographic Databases, Course Lecture, September 11, 2023.
- [514] Li, Z., **Demir, I.**, 'Flood Mapping with Multimodal Remote Sensing Imagery: Application and Adjustment', Iowa Flood Center, August 30, 2023.
- [515] **Demir, I.**, 'Scientific Analysis and Communication of Geospatial Data using Artificial Intelligence and Immersive Technologies', CZ Science Frontiers Seminar Series, July 12, 2023.

- [516] **Demir, I.**, 'AI Chatbots: Opportunities and Challenges in Engineering Research, Education and Practice', MDPI Topics Webinar, AI Chatbots: Threat or Opportunity?, June 27, 2023.
- [517] Sermet, Y., **Demir, I.**, 'River Morphology Information System Cyberinfrastructure Overview and Demo', RIMORPHIS 3rd Annual Stakeholder Workshop, University of Colorado, June 22-23, 2023.
- [518] Erazo, C., Sermet, Y., **Demir, I.**, 'HydroCompute: A Web-Based Parallel Computing Framework for Hydrological Analysis', Iowa Flood Center, May 31, 2023.
- [519] Alabbad, Y., Yildirim, E., **Demir, I.**, 'A Web-based Analytical Urban Flood Damage and Loss Estimation Framework', Iowa Flood Center, March 22, 2023.
- [520] Sermet, Y., **Demir, I.**, 'Next-Generation Web Technologies, AI and Intelligent Systems Applications in Geoscience', Iowa Flood Center, February 1, 2023.
- [521] **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.
- [522] **Demir, I.**, 'Next Generation Hydroinformatics Applications in Environmental Science and Water Resources', GIS Day at King's College, NY, November 16, 2022.
- [523] Alabbad, Y., **Demir, I.**, 'Be Ready for Flooding', Three Minute Thesis Competition, College of Engineering, University of Iowa, October 17, 2022.
- [524] Yildirim, E., **Demir, I.**, 'Agricultural Flood Vulnerability Assessment and Risk Quantification in Iowa', Upper Mississippi River Basin Association (UMRBA) Quarterly Meeting, August 9, 2022.
- [525] Yildirim, E., **Demir, I.**, 'Flood Mitigation and Data Analytics Framework: Middle Cedar Case Study', Iowa Flood Center, August 3, 2022.
- [526] Sermet, Y., **Demir, I.**, 'River Morphology Information System Cyberinfrastructure Overview and Demo', Iowa Flood Center, July 20, 2022.
- [527] **Demir, I.**, 'Hydroinformatics Applications in Disaster Management and Communication', DHS Academic Engagement Office of Partnership and Engagement Visit, July 19, 2022.
- [528] Sermet, Y., **Demir, I.**, 'River Morphology Information System Cyberinfrastructure Overview and Demo', RIMORPHIS 2nd Annual Stakeholder Workshop, May 19, 2022.
- [529] **Demir, I.**, 'Next Generation Hydroinformatics Applications in Environmental Science and Water Resources', ASCE Lehigh Valley Section, February 23, 2022.
- [530] 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.
- [531] Xiang, Z., **Demir, I.**, 'Fully distributed rainfall-runoff modeling using graph neural network', Iowa Flood Center, January 26, 2022.
- [532] 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.
- [533] Alabbad, Y., **Demir, I.**, 'Flood Mitigation Data Analytics and Decision Support Framework: Iowa



Middle Cedar Watershed Case Study', Iowa Flood Center, December 1, 2021.

- [534] **Demir I.**, 'Next Generation Hydroinformatics Applications for Disaster Analytics and Communication', *Australian Water School*, December 1, 2021, Online.
- [535] **Demir I.**, 'AI and Intelligent Systems Applications in Geoscience', *Department of Geographical and Sustainability Sciences*, November 19, 2021, University of Iowa.
- [536] Ewing, G., **Demir, I.**, 'WebHLM: A Client-Side Web Environment for Hydrologic Modeling and Education', Iowa Flood Center, August 18, 2021.
- [537] Xiang, Z., **Demir, I.**, 'Regional Streamflow Modeling Using Deep Learning', Iowa Flood Center, August 4, 2021.
- [538] Erazo, C., Sermet, Y., Molkenthin, F., **Demir, I.**, 'HydroLang: An Open-Source Web-Based Programming Framework for Hydrological Sciences', Iowa Flood Center, July 14, 2021.
- [539] Sermet, Y., **Demir, I.**, 'River Morphology Information System Cyberinfrastructure Overview and Demo', RIMORPHIS 1st Annual Stakeholder Workshop, May 12 & 19, 2021.
- [540] Jones, C., et al., **Demir, I.**, 'Upper Mississippi Information System', Water Data Forum, Cleveland Water Alliance, April 20, 2021, Virtual.
- [541] **Demir, I.**, 'Panel: AI in High-Stakes Situations: AI Systems for Flood Communication and Analytics', ISI AI Futures Symposium, January 12-13, 2021, Virtual.
- [542] Yildirim, E., **Demir, I.**, 'Flood Mitigation and Data Analytics Framework: Middle Cedar Case Study', Iowa Flood Center, December 16, 2020.
- [543] Sermet, Y., **Demir, I.**, 'GeospatialVR: A Web-based Virtual Reality Framework for Collaborative Environmental Simulations', Iowa Flood Center, December 16, 2020.
- [544] Alabbad, Y., **Demir, I.**, 'Wayfinding and accessibility analysis for critical amenities in Iowa during flood events', Iowa Flood Center, July 22, 2020.
- [545] Xiang, Z., **Demir, I.**, 'Long-term forecasting of streamflow with deep learning models', Iowa Flood Center, July 15, 2020.
- [546] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', Cloud2Street, July 10, 2020.
- [547] Ewing, G., **Demir, I.**, 'An Ethical Decision-Making Framework: Smart Water Case Study on Flooding', Iowa Flood Center, July 1, 2020.
- [548] Li, Z., **Demir, I.**, 'HAND Model Evaluation Study and Real-Time Flood Mapping System', Iowa Flood Center, June 24, 2020.
- [549] **Demir, I.**, 'Interactive and Real-time Flood Inundation Mapping on Client-side Web Systems', IS-GEO Meeting, April 7, 2020.
- [550] 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.

- [551] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', IBM Precision Agriculture Workshop, January 7, 2020, Iowa City, IA.
- [552] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', NSF Convergence Accelerator-Open Knowledge Network EarthCube Workshop, January 6, 2020, Bethesda, MD.
- [553] **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.
- [554] **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.
- [555] **Demir, I.**, 'Next Generation Data Analytics and Communication Systems for Flooding', 2019 MATC Flood Research Workshop, November 25, 2019, University of Nebraska, Lincoln, NE.
- [556] **Demir, I.**, Campbell, A., 'Transportation Planning for Floods', 2019 MATC Flood Research Workshop, November 25, 2019, University of Nebraska, Lincoln, NE.
- [557] **Demir, I.**, 'Iowa Flood Information System (IFIS) Vision and Demo', 2019 MATC Flood Research Workshop, November 25, 2019, University of Nebraska, Lincoln, NE.
- [558] **Demir, I.**, 'Intelligent Systems and Data Analytics for Disaster Risk Communication', November 22, 2019, Purdue University, Online.
- [559] **Demir, I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', GIS Day 2019, November 13, 2019, University of Kansas, Lawrence, KS.
- [560] **Demir, I.**, Bruner, R., 'Water Quality Information Systems and Data Exchange Network', R7/R8 EPA Exchange Network Workshop, October 1, 2019, Online.
- [561] **Demir, I.**, Langel, R., Sit, M.A., 'The Iowa Well Forecasting System (IWfOS)', Iowa Flood Center, August 21, 2019, Iowa City, IA.
- [562] **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
- [563] **Demir I.**, 'Intelligent Data Analytics and Communication Systems for Disasters', *Canada Centre for Mapping and Earth Observation, Natural Resources Canada*, June 20, 2019, Online.
- [564] **Demir I.**, 'Communication of Extreme Events using Intelligent Systems and Visualization', *Department of Geographical and Sustainability Sciences*, April 19, 2019, Iowa City, IA, USA.
- [565] **Demir I.**, 'Intelligent Data Analytics and Visualization Systems for Transportation', *Iowa DOT Meeting, UIOWA*, November 9, 2018, Iowa City, IA, USA.
- [566] **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.
- [567] **Demir, I.**, 'Flood Damage and Loss Estimation on Web-based Systems', Guest Lecture, HAZUS User Call, August 8, 2017, Webinar.

- [568] **Demir, I.**, 'Cyberinfrastructure Systems for Big Data Management, Analysis, and Visualization', Guest Lecture, Computer Science, UIOWA, April 28, 2017, Iowa City, IA, USA.
- [569] **Demir, I.**, Machine Learning: Farm-to-Table Workshop, April 18-19, 2017, University of Illinois in Urbana-Champaign, Urbana, IL, USA.
- [570] **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.
- [571] **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.
- [572] **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.
- [573] **Demir, I.**, 'Cyberinfrastructure Systems for Big Data Management, Analysis, and Visualization', Webinar, HDR Engineering, February 7, 2017, Iowa City, IA, USA.
- [574] **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.
- [575] **Demir, I.**, 'Iowa Flood Center Data Resources and Iowa Flood Information System', National Water Center Summer Institute, June 13, 2016, Tuscaloosa, AL, USA.
- [576] **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.
- [577] **Demir, I.**, 'NSF Career Workshop', Training, UIOWA, OVPR, March 24, 2016.
- [578] **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.
- [579] **Demir, I.**, 'Next Generation Hydroinformatics Systems for Big Data Management, Analysis, and Visualization', Invited Talk, XSEDE Science Gateway Community Webinar, February 26, 2016.
- [580] **Demir, I.**, 'Scientific Visualization and Information Communication in Hydrological Sciences', Guest Lecture, IIHR, University of Iowa, February 4, 2016, Iowa City, IA, USA.
- [581] **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
- [582] **Demir, I.**, 'Game-based and Interactive Learning Environments', Tenth Annual Sonia Kovalevsky High School Mathematics Day, April 11, 2015, Iowa City, IA, USA
- [583] **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

- [584] **Demir, I.**, 'Interactive Visualization of Scientific Data using Web Technologies', PDE Seminar, Mathematics Department, University of Iowa, December 3, 2014, Iowa City, IA, USA
- [585] **Demir, I.**, Invitation to the **White House** Innovation for Disaster Response and Recovery Demo Day, July 29, 2014, Washington, DC, USA
- [586] **Demir, I.**, Collaboration Visit at NASA Scientific Visualization Studio at NASA Goddard Space Flight Center, June 2-6, 2014, Greenbelt, MD, USA
- [587] **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
- [588] **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
- [589] **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
- [590] **Demir, I.**, 'FloodCube: National Flood Information System', US Ignite – Gigabit Explorer Challenge, November 1-3, 2013, Kansas City, MO, USA.
- [591] **Demir, I.**, Mentor Summit, Google Summer of Code 2013, October 19-20, 2013, Mountain View, CA, USA.
- [592] **Demir, I.**, 17th GENI (The Global Environment for Network Innovations) Engineering Conference (GEC17), July 21-23, 2013, Madison, WI, USA.
- [593] **Demir, I.**, 'Flood Cube – National Flood Information Platform', US Ignite – Next Generation Application Summit, June 24-26, 2013, Chicago, IL, USA.
- [594] **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.
- [595] **Demir, I.**, 'Information Systems for Resource Management', Course Lecture, Civil and Environmental Engineering, University of Iowa, May 29, 2013, Iowa City, IA, USA.
- [596] **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.
- [597] **Demir, I.**, 'Future of Scientific Visualization and Online Mapping', GIS Day 2013, University of Iowa, April 25, 2013, Iowa City, IA, USA.
- [598] **Demir, I.**, 'EarthCube Charette: Building the Cyberinfrastructure to Better Understand Our Complex and Changing Planet', June 12-14, 2012, Arlington, VA, USA.
- [599] **Demir, I.**, 'EarthCube Community Workshop: Designing A Roadmap for Workflows in Geosciences', One-day Workshops, March 13 / April 13 / May 16 / Jun 5, 2012.

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- [600] **Demir, I.**, 'Iowa Flood Information System', Hawkeye Caucus Day, Iowa State Capitol, March 27, 2012, Des Moines, IA, USA.
  - [601] **Demir, I.**, 'Iowa Flood Information System', Iowa Water Conference, Iowa State University, March 6-7, 2012, Ames, IA, USA.
  - [602] **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.
  - [603] **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.
  - [604] **Demir, I.**, 'Environmental Information Systems (GWIS and IFIS) and Scientific Visualization', Turkish American Academics of Midwest (TAAM), May 21, 2011, Chicago IL, USA.
  - [605] **Demir, I.**, 'Environmental Information Systems (GWIS, GWP and IFIS) and Scientific Visualization', Gebze Institute of Technology, April 28, 2011, Kocaeli, TURKEY.
  - [606] **Demir, I.**, 'Environmental Information Systems and Scientific Visualization', Iowa Flood Center, IIHR – Hydraulics Engineering, University of Iowa, December 14, 2010, Iowa City, IA, USA.
  - [607] **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.
  - [608] **Demir, I.**, 'Semantic Web and Environmental Information Systems', *Department of Geography*, University of Georgia, October 28, 2009, Athens, GA, USA.
  - [609] **Demir, I.**, 'Popular Scientific Publishing', *Second Annual Workshop for Young Scholars*, Southern Polytechnic State University, August 16, 2009, Atlanta, Georgia, USA.
  - [610] **Demir, I.**, 'GWIS: Georgia Watershed Information System', *Second Annual Workshop for Young Scholars*, Southern Polytechnic State University, August 16, 2009, Atlanta, GA, USA.
  - [611] **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.
  - [612] **Demir, I.**, 'GWIS: Georgia Watershed Information System', Center for Research in Water Resources', University of Texas at Austin, May 8, 2009, Austin, TX, USA.
  - [613] **Demir, I.**, 'GWIS: Georgia Watershed Information System', *Utah Water Research Laboratory*, Utah State University, May 6, 2009, Logan, Utah, USA.
  - [614] **Demir, I.**, 'GWIS: Georgia Watershed Information System', *River Basin Center 2nd Friday Symposium*, University of Georgia, April 10, 2009, Athens, GA, USA.
  - [615] **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.
  - [616] **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,
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Athens, GA, USA.

[617] **Demir, I.**, ‘Neural Network and Fuzzy Logic Applications in Environmental Science’, 2004, *Gebze Institute of Technology*, Kocaeli, TURKEY.

## CREATIVE ENVIRONMENTAL AND INFORMATION SCIENCE WORKS

### Information Systems and Web Platforms

- 2023-present *Iowa On-Road Structures Information Platform*  
The project evaluates the flood reduction benefits of existing on-road structures and conducts estimation of the flood storage available through new ORS in Iowa
- 2022-present *Academic AI Hub*  
Educational tools and services based on conversational AI systems and Large Language Models to support academic needs and operations
- 2021-present *Blue Green Action Platform (BlueGAP)*  
A community centric cyberinfrastructure for enhanced water quality monitoring using web and conversational AI systems
- 2020-present *River Morphology Information System (RIMORPHIS)*  
A web-based cyberinfrastructure for advancing river morphology research, analysis and communication in the big data era
- 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
- 2018-present *Upper Mississippi Information System (UMIS)*  
An integrated big data framework for water quality issues in the Upper Mississippi River Basin
- 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

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|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2015-2018    | <i>Social Media Analytics Platform</i><br>A web-based cyberinfrastructure system for acquisition, processing and analyzing social media data streams using natural language processing, ontology and soft computing                                    |
| 2015-2017    | <i>NASA SMAP Information System</i><br>Planning, design and implementation of a web-based information system on data, information and visualizations of NASA SMAP satellite mission experiment                                                         |
| 2014-present | <i>Iowa Water Quality Information System (IWQIS)</i><br>A web-based information system for real-time access to state wide water quality sensors with novel visualizations and analysis capabilities                                                    |
| 2013-2015    | <i>National Flood Information System</i><br>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    | <i>Hydrological Educational Simulation System with Virtual and Augmented Reality</i><br>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    | <i>Turkey Flood Information System (TABIS)</i><br>Planning, design and implementation of a web-based information system on flood related data, information and visualizations                                                                          |
| 2013-2015    | <i>NASA IFLOODS Information System</i><br>Planning, design and implementation of a web-based information system on data, information and visualizations of NASA GPM satellite mission experiment                                                       |
| 2012-2013    | <i>UCF CHAMPS Hydrologic Information System</i><br>Planning, design and implementation of a web-based information system on coastal inundation and modeling data, information and visualizations                                                       |
| 2012-2013    | <i>Field Campaign Management System - NASA IFLOODS Project</i><br>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    | <i>Fund-A-Sensor Initiative</i><br>A crowd-funding initiative for getting support to develop and deploy new stream sensors for improving flood monitoring in Iowa                                                                                      |
| 2011-2016    | <i>IFIS Knowledge Engine &amp; Smart Assistant</i><br>Intelligent knowledge generation system supported with ontology, relational database queries, real-time data, hydrological models, and scientific visualizations                                 |
| 2010-present | <i>Iowa Flood Information System – IFIS</i><br>Design, development, implementation and maintenance of a web-based information system on flood related data, information and visualizations for Iowa                                                    |
| 2009-2012    | <i>Global Water Platform – GWP</i><br>Planning, design and implementation of a web-based platform on water                                                                                                                                             |

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|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 2007-2010 | <i>Georgia Watershed Information System – GWIS</i><br>A prototype of an information system for Georgia watersheds                                |
| 2006-2011 | <i>Scientific Collaboration and Research Platform</i><br>Academic Research Group & Project Management System                                     |
| 2000      | <i>B2B (Business to Business) Web Portal</i><br>Real time product exchange, stock, and product supply/demand management                          |
| 1999      | <i>Domain name and extension system in foreign languages</i><br>Access web sites with international character set and new domain name extensions |

### Engineering Projects and Software

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

### Web-based Tools and Mobile Applications

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

1999-present Designed 200+ professional, academic and personal websites for companies and organization from various academic and industrial institutions

### AWARDS & RECOGNITION

- 2025 **Michael A. Fitts Presidential Chair in Environmental Informatics and Artificial Intelligence**, Tulane University
- 2024 **Elected Chair**, Leadership Board, International Joint Committee on Hydroinformatics (IAHR/IWA)

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- 2023 **iEMSs Fellow**, International Environmental Modelling and Software Society
  - 2023 **Innovations in Teaching with Technology Awards**, Academic Technologies Advisory Council, University of Iowa
  - 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 (SDS)  
Project: *Big Sioux River Flood Information System (project supervisor)*
  - 2018 **Recognition**, U.S. Department of Homeland Security, Science & Technology Directorate,
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- 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] **Interview:** Project: 'ChatGPT Shows Promise as Teaching Tool'  
*Eydie Cubarrubia, ASME Magazine, April 24, 2024*
- [2] **Interview:** Project: 'VirtualTA Initiative of An Indian Student in The US Set to Transform Educational Landscape'  
*Sandeep Raghavan, Times of India, March 10, 2024*  
*The Times of India is the largest circulated English daily newspaper in the world (over 3m daily)*
- [3] **Multiple Interviews:** Project: 'NOAA CIROH – Center for Hydrologic Development'  
*Daily Iowan, KCRG, WQAD, CBS2Iowa, Corridor Business, Iowa Public Radio, Iowa Engineering Magazine, 2022-2024*
- [4] **Interview:** Project: 'Flood Risk Assessment for Agricultural Cropland in Iowa'  
*Richard C. Lewis, IowaNow, April 5, 2022*
- [5] **Interview:** Project: 'Flood Mitigation Ethical Decision Support Framework'  
*Natasha Keicher, Daily Iowan, December 7, 2021*
- [6] **Interview:** Project: 'Database highlights contaminants in private wells'  
*Julia Shanahan, Daily Iowan, July 16, 2019*
- [7] **Interview:** Project: 'New Homeland Security report on new technologies for alerting public'  
*Erin Jordan, The Gazette, December 18, 2018*
- [8] **Interview:** Project: 'University of Iowa Hackathon Competition'  
*Julia F. DiGiacomo, The Gazette, October 5, 2018*
- [9] **Interview:** Project: 'An Integrated Big Data Framework for Water Quality Issues in the Upper Mississippi River Basin'  
*Erin Jordan, The Gazette, July 18, 2018*
- [10] **Interview:** 'Iowa Flood Information System – flood damage estimate feature'  
*Kayla James, CBS2/FOX28 News, May 1, 2018*
- [11] **Interview:** 'Iowa Flood Information System'  
*Kate Hayden, Business Record, innovationIOWA Magazine, April 16, 2018*
- [12] **Interview:** Project: 'Flood AI: Artificial Intelligence System for Flooding'  
*Todd T. De Voe, EM Weekly, March 2, 2018*
- [13] **Interview:** Project: 'Flood AI: Artificial Intelligence System for Flooding'  
*Skip Descant, GovTech Magazine, January 10, 2018*
- [14] **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...*
- [15] **Interview:** 'New app uses artificial intelligence to give people real live flood data'  
*Ethan Fickau, KCRG-TV9, Dec 19, 2017*
- [16] **Interview:** 'UI professor develops a Siri for flood information'  
*Sarah Watson, Daily Iowan, Nov 29, 2017*

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- [17] **NSF Highlight:** ‘EarthCube 2015 Highlights: Faces of EarthCube – Ibrahim Demir, Informatics’  
*NSF EarthCube, All Hands Meeting, May 27, 2015*
  - [18] **Interview:** ‘Iowa Flood Information System displayed at capitol today’  
*O. Kay Henderson, Radio Iowa, March 10, 2015*
  - [19] **Interview:** ‘A Model for Turkey: Early Warning System for Flooding’ – (6-page)  
*Turkish National Science Foundation – Science and Technology Magazine, September 2014*
  - [20] **Interview:** ‘University of Iowa: Turning a flood of data into flood safety’  
*BlackBerry Academic Spotlight, May 2013*
  - [21] **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...*
  - [22] **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*
  - [23] **Highlight:** Project: ‘National Flood Information System (FloodCube)’  
*NSF Press Release, Cisco Network News, NYC Media Lab Report*
  - [24] **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*
  - [25] **Highlight:** Project: ‘Fund-a-Sensor Initiative’  
*ND Stem Network, UI Foundation Press Release, Press Citizen, IowaNow, IIHR News*
  - [26] **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*
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## PROFESSIONAL ACTIVITIES

### University Service

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|--------------|----------------------------------------------------------------------------------|
| 2025-present | Member, AI Task Force, School of Science and Engineering, Tulane University      |
| 2024-2025    | Member, International Student Graduation Award Committee, International Programs |
| 2024-2025    | Member, DEI Student Metrics Working Group, Civil and Environmental Engineering   |
| 2024         | Admitted Student Day, College of Engineering                                     |
| 2023-2025    | Member, Faculty Review Committee, School of Planning and Public Affairs          |

|           |                                                                                     |
|-----------|-------------------------------------------------------------------------------------|
| 2023-2025 | Member, UI Academic AI Committee, Office of the Vice President for Research         |
| 2023-2025 | 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         |
| 2021-2025 | 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            |
| 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         |

#### National and International Organization Boards & Committees

|              |                                                                                                                                   |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 2024-present | Member, IAHR Council, International Association for Hydro-Environment Engineering and Research                                    |
| 2024-present | Chair, Leadership Board, International Joint Committee on Hydroinformatics (IAHR/IWA)                                             |
| 2022-2025    | 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                                                  |
| 2016-2024    | 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                                                        |



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|--------------|---------------------------------------------------------------------------------------------------------------------|
| 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) |

### Conference Organization & Services

|      |                                                                                                                                                                                                                     |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2024 | Scientific Committee, <i>'24th International Association for Hydro-Environment Engineering and Research Asia and Pacific Division Congress: Water for a Changing Future'</i> , October 14 - 17, 2024, Wuhan, China. |
| 2024 | Session Organizer, <i>AGU Fall Meeting</i> , December 9-13, 2024, Washington, DC, USA                                                                                                                               |
| 2024 | Scientific Committee, <i>'5th IAHR Young Professionals Congress'</i> , Nov 27-29, 2024, Online.                                                                                                                     |
| 2024 | Session Organizer, <i>12th International Congress on Environmental Modelling and Software (iEMSs)</i> , June 23–27, 2024, East Lansing, MI, USA.                                                                    |
| 2024 | Scientific Committee, <i>'International Conference on the Smart Environment and Green Energy (ICSEGE)'</i> , March 14-15, 2024, Baku, Azerbaijan.                                                                   |
| 2024 | Scientific Committee, <i>'15th International Conference on Hydroinformatics'</i> , May 27-31, 2024, Beijing, China.                                                                                                 |
| 2023 | Scientific Committee, <i>'4th IAHR Young Professionals Congress'</i> , Nov 22-24, 2023, Online.                                                                                                                     |
| 2023 | Scientific Committee, <i>'International Conferences on Water Problems in Mediterranean Countries'</i> , September 22-24, 2023, Nicosia, Northern Cyprus.                                                            |
| 2023 | Scientific Committee, <i>'IAHR World Congress 2023'</i> , August 21-25, 2023, Vienna, Austria.                                                                                                                      |
| 2023 | Program Committee, <i>'EnvirVis 2023 - Visualization in Environmental Sciences, EuroVis 2023'</i> , June 12, 2023, Leipzig, Germany.                                                                                |
| 2022 | Scientific Committee, <i>'14th International Conference on Hydroinformatics'</i> , July 4-8, 2022, Bucharest, Romania.                                                                                              |
| 2022 | Stream Leader, <i>2022 iEMSs Biennial Meeting</i> , July 4-8, 2022, Brussels, Belgium.                                                                                                                              |
| 2022 | International Scientific Committee, <i>14th International Conference on Hydroinformatics HIC 2022 – Water INFLUENCE</i> , July 4-8, 2022, Bucharest, Romania.                                                       |
| 2022 | Session Organizer, <i>IAHR World Congress 2022 - From Snow to Sea</i> , June 19-24, 2022, Granada, SPAIN.                                                                                                           |

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- 2022 Scientific Committee, *IAHR World Congress 2022 - From Snow to Sea*, June 19-24, 2022, Granada, SPAIN.
  - 2021 Session Organizer, *Frontiers in Hydrology Meeting by AGU and CUAHSI*, June 19-24, 2022, San Juan, Puerto Rico
  - 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.
  - 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.
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- 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.
  - 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
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- 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, NSF STTR Program, US, 2025
- Proposal Review, United Kingdom Research and Innovation (UKRI), 2024
- Proposal Review, NOAA CIROH Research Grants, US, 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, US, 2022
- Proposal Review, Israel Ministry of Innovation, Science and Technology, 2022
- Proposal Review, Gulf of Mexico Alliance, US, 2022
- Proposal Review, Hatch Project, USDA-NIFA, US, 2022
- Proposal Review, NSF Geoinformatics Program, US, 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, US, 2019
- Proposal Review Panel, Iowa Academy of Science, Iowa, US, 2019
- Proposal Review Panel, CUAHSI Hydroinformatics Innovation Fellowship, US, 2018-2023
- Proposal Review Panel, CGRER Seed Grant, UIOWA, US, 2018, 2020

- Proposal Review Panel, Natural Environment Research Council, UK, 2020
- Proposal Review Panel, Oak Ridge Associated Universities (ORAU), US, 2017
- Proposal Review Panel, Graduate Research Fellowship Program (GRFP), NSF, US, 2017
- Proposal Review Panel, Graduate Fellowship Program, NASA - IA Space Grant Consortium, US, 2016
- Review Panel, Staff Excellence Awards, College of Engineering, University of Iowa, US, 2016
- Review Panel, Summer Institute Awards, NFIE, National Water Center, US, 2016
- Proposal Review Panel, Unidata Community Equipment Awards, UCAR, US, 2015

### 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

### 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
- Guest Editor, Special Issue: "Application of Machine Learning and Artificial Intelligence in Surface Flow Simulation", Applied Sciences, 2020-2021

### Reviewer for Journals

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|-------------------------------------------------|-----------------------------------------------------|
| ▪ Advances in Water Resources, Elsevier         | ▪ Journal of American Water Res. Assoc., Wiley      |
| ▪ Applied Water Science, Springer               | ▪ J. of Applied Water Eng. & Res., Taylor & Francis |
| ▪ Bulletin of American Meteorological Soc., AMS | ▪ Journal of Atmospheric and Oceanic Tech., AMS     |
| ▪ CLEAN – Soil, Air, Water, Wiley               | ▪ Journal of Computing in Civil Engineering, ASCE   |
| ▪ Computer-Aided Civil and Infra. Eng., Wiley   | ▪ Journal of Environmental Management, Elsevier     |
| ▪ Computers, MDPI                               | ▪ Journal of Flood Risk Management, Wiley           |
| ▪ Computers & Geosciences, Elsevier             | ▪ Journal of Hydroinformatics, IWA                  |
| ▪ Computers & Graphics, Elsevier                | ▪ Journal of Hydrologic Engineering, ASCE           |
| ▪ Computers & Industrial Engineering, Elsevier  | ▪ Journal of Hydrology, Elsevier                    |
| ▪ Ecological Economics, Elsevier                | ▪ Journal of Hydrology – Regional Studies, 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 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, 2019-2025.
- 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, 2024.
- 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

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**Professional Society Memberships**

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