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Ebrahim Hamidi

Department of Civil, Construction, and Environmental Engineering
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Green card holder

Education

2021-2025 **Ph.D. in Civil and Environmental Engineering**
Dep. of Civil, Construction and Environment Eng., The University of Alabama, Tuscaloosa, AL
✓ *Research Focus: "Compound Flood Assessment Leveraging Remote Sensing Data and Hydrodynamic Simulation in Low-Gradient Coastal Areas". Advisor: Dr. Hamed Moftakhari*

2023-2024 **M.Sc. in Civil and Environmental Engineering**
Dep. of Civil, Construction and Environment Eng., The University of Alabama, Tuscaloosa, AL
✓ *Research Focus: "Integration of Remote Sensing Data and Numerical Simulation for Flood Monitoring Assessment"*

2007-2010 **M.Sc. in Civil and Environmental Engineering** (Hydraulic Structures Major)
Dep. of Civil and Environment Eng., Shiraz University, Shiraz, Iran
✓ *Thesis: "Numerical Solution of Water Wave Propagation and Transformation". Advisor: Dr. Reza Hashemi*

2001-2007 **B.Sc. in Civil and Structural Engineering**
Dep. of Civil Environment Eng., Persian Gulf University, Bushehr, Iran

Research and Teaching Experiences

May 2025 – Current ***Postdoctoral Fellow**, North Carolina State University, USA*
- Working on a project funded by NASA and NSF.
- Flood inundation mapping using commercial satellite data such as Capella and Planet.
- Coupling ADCIRC and SFINCS for coastal coupling simulations.
- Integration of high-resolution satellite data with advanced numerical model for flood mapping.

Jan. 2022 – Apr. 2025 ***Research Assistant**, University of Alabama, USA*
- Research Assistant: Working on a project funded by NOAA, NSF and USACE.

Feb. 2023 - Aug. 2023 ***Course Coordinator**, National Water Center Program Summer Institute, Tuscaloosa, USA*
- Working with theme leaders, CUAHSI, NWC, and UA staff to plan, prepare, and organize the SI and assist the research fellows.

Summer 2022 ***Research Fellow,** National Water Center Program Summer Institute, Tuscaloosa, USA*
- Developing a coastal-inland coupled BMI for Next Gen NWM.

Spring and Fall 2021 ***Teacher Assistant**, University of Alabama, USA*
- Water Resources Engineering (CE 378)
- Hands-on 2D HEC-RAS

Aug. 2010 – May 2012 ***Teaching** (Part-time), Kavar Scientific Applied School, Iran*
- Natural hazards on buildings and mitigation measures, Masonry building

Summer 2009 ***Teaching** (Part-time), Pars Institute of Higher Education, Mohr, Fars, Iran*
- Steel structural design, Concrete technology, English for civil engineers

Summer 2005 ***Grader**, Persian Gulf University, Bushehr, Iran*
- Steel structural design

Work Experiences

Sep. 2010 - Oct. 2020 ***Pars Padab Sanaat Consulting Engineers Company**, Shiraz, Iran*
- Lead engineer and engineering project management
- Designer of industrial structures and municipal buildings
- Designer of hydraulic structures
- Mathematical and numerical simulations of physical phenomena
- Preparing calculation books and engineering design specifications
- Site inspection engineer

Research Interests

- Coastal and Ocean Science
- Hydrodynamic and Hydraulic Modeling
- Machine Learning
- Natural Hazard Assessment
- Remote Sensing Data Analysis
- Geospatial Data Analysis
- Advanced Programming
- Parallel and Cloud Computing

Journal Publications (In Prees)

- **Hamidi**, Peter, Moftakhari, Moradkhani **(2025)**. *"A multi-source remote sensing-based geocommunication tool for global flood monitoring and management",* International Journal of Applied Earth Observation and Geoinformation. https://doi.org/10.1016/j.jag.2025.104701
- **Hamidi**, Nazari, Peter, Moftakhari, Moradkhani **(2025***). "Enhancing Compound Flood Simulation Accuracy and Efficiency in Urbanized Coastal Areas Using Hybrid Meshes and Modified Digital Elevation Model",* Sustainable Cities and Society, https://doi.org/10.1016/j.scs.2025.106184
- **Hamidi**, Henrichsen, Sandquist, Zhang, Moftakhari, Ames, Bao, Ferreira, Mandli (**2025**). *"Coupling Coastal and Hydrologic Models Through Next Generation National Water Model Framework",* Journal of Hydrologic Engineering, https://doi.org/10.1061/JHYEFF.HEENG-6343
- **Hamidi**, Peter, Muñoz, Moftakhari, Moradkhani **(2023)**. *"Fast Flood Extent Monitoring with SAR Change Detection Using Google Earth Engine".* IEEE TGRS, https://doi.org/10.1109/TGRS.2023.3240097
- **Hamidi**, Hashemi, Talebbeydokhti, Neill **(2012)**. ***"****Numerical Modelling of the Mild Slope Equation using Localised Differential Quadrature Method.,* Ocean Engineering", 47, 88–103, https://doi.org/10.1016/j.oceaneng.2012.03.004

Under Review Journal Publications

- **Hamidi**, Peter, Nazari, Moftakhari, Anarde, Moradkhani **(2026)**. *"Integrating Multi-Source Remote Sensing and Numerical Simulation Approaches for Enhanced Flood Assessment",* https://dx.doi.org/10.2139/ssrn.5335438
- Peter, Unger; **Hamidi**, Morris, Cohen, Huang **(2026).** *"Flood hazards and socioeconomic vulnerability across Arkansas: A geospatial cyberinfrastructure"***.**

Conference Presentations

- **High Tide Flood Detection Using Multi-satellite Remote Sensing data and In Situ Flood Sensors,** *2025, Hamidi et al., Accepted at AGU fall meeting, New Orleans, LA, USA.*
- **H GEE-FMF: A Google Earth Engine-Based Machine Learning Framework for Efficient Regional Flood Mapping,** *2025, Zand, Moftakhari, Hamidi, Moradkhani, Accepted at AGU fall meeting, New Orleans, LA, USA.*
- **Using Satellites to Map Flooding Down East, NC,** *2025, Hamidi et al., Down East Resilience Network - Fall Meeting, Harkers Island, North Carolina, USA.*
- **Enhanced Flood Assessment Through Numerical Simulations and Multi-Source Remote Sensing Data,** *2024, Hamidi et al., Accepted at AGU fall meeting, Washington, D.C., USA.*
- **Advanced Flood Mapping using Multi-Source Remote Sensing Data and Hydrodynamic Simulations,** *2024, Hamidi et al., AWRA 2024 Spring Conference, Tuscaloosa, AL, USA.*
- **Enhancing Compound Coastal Flood Simulation Accuracy and Efficiency with Hybrid Meshes and Corrected Digital Elevation Models,** *2023, Hamidi et al., AGU fall meeting, Chicago, IL, USA,* https://ui.adsabs.harvard.edu/abs/2023AGUFMNH23D0739H/abstract
- **A Google Earth Engine App for Urgent Flood Mapping,** *2023, Hamidi et al., AGU fall meeting, Chicago, IL, USA, https://ui.adsabs.harvard.edu/abs/2023AGUFM.H31Y1839H/abstract*
- **Coupling Coastal and Hydrologic Models Through the First Coastal Basic Model Interface in the Next Generation National Water Model Framework in Low Gradient Coastal Regions of Galveston Bay, Texas, USA,** *2022, Henrichsen, Hamidi, et al., AGU fall meeting,* http://www.hydroshare.org/resource/379b4c8c663c460d87c246641dc5cea2.
- **Fast Flood Mapping with Synthetic Aperture Radar Data Using Google Earth Engine,** *2022, Hamidi et al., AGU fall meeting, https://ui.adsabs.harvard.edu/abs/2022AGUFM.H55M0739H/abstract*
- **Rapid Coastal Flood Mapping with SAR data Using Random Forest Technique.** *2021, Hamidi et al., AGU fall meeting, New Orleans, LA, USA, https://ui.adsabs.harvard.edu/abs/2021AGUFM.H35I1138H%2F/abstract*
- **Numerical Modelling of Pennes Bioheat Transfer Equation using Differential Quadrature Method.** *2015, M. E. Hamidi, Feyli, F., Accepted to 2nd International Conference on Fluid Flow, Heat and Mass Transfer, Ottawa, Ontario, Canada.*

Data and Code Publications

- **Fast Flood Monitoring Tool – FFMT, A Google Earth Engine App for Fast Flood Monitoring,** *2024, Hamidi et al., Hydroshare, https://doi.org/10.4211/hs.bf66a6cc204d4691abda18833bf68760*
- **National Water Center Innovators Program - Summer Institute 2023, CUAHSI Technical Report,** *2023, Wang and Hamidi, Hydroshare, http://www.hydroshare.org/resource/709de9e2bc5640b281c7f022cecc593d.*
- **SAR-Based Coastal Flood Extent Estimation Post-Hurricane using Google Earth Engine**. *2022, Hamidi et al., Dataset published on Harvard Dataverse,* https://doi.org/10.7910/DVN/WOTC7E
- **ArcGIS Script Tool for Flood Extraction from Optical Satellite Data,** *2021, E. Hamidi,* https://github.com/ebrahimhamidi/ArcGIS-Script-Tool-for-Flood-Extraction-from-Optical-Satellite-Data.git

Awards

- The University of Alabama Outstanding Dissertation Award, February 2026
- **Editor's Choice Article for the Apr. 2025** Issue of Journal of Hydrologic Engineering published by ASCE.
- CUAHSI's Hydroinformatics Innovation Fellowship Award, 2023 for **Fast Flood Monitoring Tool – FFMT**
- The National Water Center Innovators Program Award, 2022

Honors

- Vice President of Postdoctoral Association at North Carolina State University, Fall 2025
- Appointed as ***Course Coordinator*** at the National Water Center Innovators Summer Program, 2023

Selected Workshops

- Monitoring Global Terrestrial Surface Water Height using Remote Sensing, NASA's Applied Remote Sensing Training (ARSET), 2025
- Spatial Data Science: The New Frontier in Analytics, 2024, ESRI
- Disaster Assessment Using Synthetic Aperture Radar, NASA's Applied Remote Sensing Training (ARSET), 2022
- Geospatial Storytelling, 2021 BRIGHTE online workshop, NCAR
- Hydrodynamic modeling using SCHISM, 2021 NOAA SCHISM online boot camp

Software, Programming & Cloud Platform Skills

- **Programming:** Python, R, MATLAB, C, C++, JavaScript on Google Earth Engine
- **Parallel:** Multithreaded Program **(**OpenMP), Message-Passing Program (MPI)
- **Software:** **GIS:** QGIS, ArcGIS pro, ERDAS IMAGINE, SNAP, ArcGIS Drones2Map, …
  Hydrodynamics: Delf3D-FM**,** 2D HEC-RAS, ADCIRC+SWAN, SFINCS, OpenFoam, National Water Model, GeoClaw, …
  Structural: AutoCad, Sap, Safe, Etabs, …
  General: Microsoft Office, …

Scientific Reviewing

- The International Geoscience and Remote Sensing Symposium (IGARSS), 2026
- Elsevier Proposal Review, 2026
- Environmental Modeling & Software, 2026
- Water Resources Research, 2025, 2026
- Ocean Modeling, 2025
- Journal of Hydrology, 2025
- International Journal of Digital Earth, 2025
- Remote Sensing Applications Society and Environment, 2025
- Geomatics, Natural Hazards and Risk, 2025
- CLEAN - Soil, Air, Water, 2025

- Environmental Modelling and Software, 2025
- Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2025, 2024 and 2023
- International Journal of Disaster Risk Science, 2024
- Journal of Hydrologic Engineering, 2024
- Scientific Reports, 2024
- Remote Sensing of Environment, 2023
- Proceedings of the Institution of Mechanical Engineers, Part M: Journal of Engineering for the Maritime Environment, 2014

Online Activities

- Google Scholar [https://scholar.google.com/citations?user=SQgEMXAAAAAJ&hl=en]
- LinkedIn [https://www.linkedin.com/in/ebrahim-hamidi-30960b69]
- GitHub [https://github.com/ebrahimhamidi]
- Personal Webpage [https://ebrahimhamidi.com/]

Extracurricular Activities

- Mountain and Rock Climbing, Swimming, Basketball, Skiing, Piano, and Books

References

- **Dr. Hamed Moftakhari**, *Department of Civil, Construction and Environmental Engineering, University of Alabama, Contact: +1 (205) 348-0239, hmoftakhari@eng.ua.edu*
- **Dr. Tamlin M. Pavelsky**, *Department of Earth, Marine and Environmental Sciences, University of North Carolina at Chapel Hill*, email: *pavelsky@unc.edu*
- **Dr. Katherine Anarde**, *Department of Civil, Construction and Environmental Engineering, North Carolina State University*, email: *kanarde@ncsu.edu*
- **Dr. Hamid Moradkhani,** *Department of Civil, Construction and Environmental Engineering, University of Alabama, Contact: +1 (205) 348-9125, hmoradkhani@ua.edu*
- **Dr. Brad Peter**, *Department of Geosciences, The University of Arkansas, Contact: +1 (479) 575-5964, bradp@uark.edu*
- **Dr. Sagy Cohen,** *Department of Geography, University of Alabama, Contact: +1 (205) 348-5860, sagy.cohen@ua.edu*
- **Dr. Jordan Read,** *Chief Executive Officer at Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI),* email: *jread@cuahsi.org*
- **Dr. Reza Hashemi,** *Department of Ocean Engineering, University of Rhode Island, Contact: +1 (401) 874-6217, reza_hashemi@uri.edu*