

Ebrahim Hamidi

Department of Civil, Construction, and Environmental Engineering
 North Carolina State University, 915 Partners Way, Raleigh, NC, 27695-7908
 (925) 255-6820 | shamidi@ncsu.edu
 Green card holder

Education

2021-2025	Ph.D. in Civil and Environmental Engineering <i>Dep. of Civil, Construction and Environment Eng., The University of Alabama, Tuscaloosa, AL</i>
	✓ 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 <i>Dep. of Civil, Construction and Environment Eng., The University of Alabama, Tuscaloosa, AL</i>
	✓ 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) <i>Dep. of Civil and Environment Eng., Shiraz University, Shiraz, Iran</i>
	✓ Thesis: "Numerical Solution of Water Wave Propagation and Transformation". Advisor: Dr. Reza Hashemi
2001-2007	B.Sc. in Civil and Structural Engineering <i>Dep. of Civil Environment Eng., Persian Gulf University, Bushehr, Iran</i>

Research and Teaching Experiences

May 2025 – Current	Postdoctoral Fellow , <i>North Carolina State University, USA</i> <ul style="list-style-type: none"> - 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 , <i>University of Alabama, USA</i> <ul style="list-style-type: none"> - Research Assistant: Working on a project funded by NOAA, NSF and USACE.
Feb. 2023 - Aug. 2023	Course Coordinator , <i>National Water Center Program Summer Institute, Tuscaloosa, USA</i> <ul style="list-style-type: none"> - 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 , <i>National Water Center Program Summer Institute, Tuscaloosa, USA</i> <ul style="list-style-type: none"> - Developing a coastal-inland coupled BMI for Next Gen NWM.
Spring and Fall 2021	Teacher Assistant , <i>University of Alabama, USA</i> <ul style="list-style-type: none"> - Water Resources Engineering (CE 378) - Hands-on 2D HEC-RAS
Aug. 2010 – May 2012	Teaching (Part-time), <i>Kavar Scientific Applied School, Iran</i> <ul style="list-style-type: none"> - Natural hazards on buildings and mitigation measures, Masonry building
Summer 2009	Teaching (Part-time), <i>Pars Institute of Higher Education, Mohr, Fars, Iran</i> <ul style="list-style-type: none"> - Steel structural design, Concrete technology, English for civil engineers
Summer 2005	Grader , <i>Persian Gulf University, Bushehr, Iran</i> <ul style="list-style-type: none"> - Steel structural design

Work Experiences

Sep. 2010 - Oct. 2020	Pars Padab Sanaat Consulting Engineers Company , <i>Shiraz, Iran</i> <ul style="list-style-type: none"> - 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

- A multi-source remote sensing-based geocommunication tool for global flood monitoring and management, 2025, Hamidi, Peter, Moftakhari, Moradkhani, International Journal of Applied Earth Observation and Geoinformation. <https://doi.org/10.1016/j.jag.2025.104701>
- Integrating Multi-Source Remote Sensing and Numerical Simulation Approaches for Enhanced Flood Assessment, 2025, Hamidi, Peter, Nazari, Moftakhari, Anarde, Moradkhani, Under review at Journal of Hydrology. <https://dx.doi.org/10.2139/ssrn.5335438>
- Enhancing Compound Flood Simulation Accuracy and Efficiency in Urbanized Coastal Areas Using Hybrid Meshes and Modified Digital Elevation Model, 2025, Hamidi, Nazari, Peter, Moftakhari, Moradkhani, Sustainable Cities and Society, <https://doi.org/10.1016/j.scs.2025.106184>
- Coupling Coastal and Hydrologic Models Through Next Generation National Water Model Framework, 2025, Hamidi et al., Journal of Hydrologic Engineering, <https://doi.org/10.1061/JHYEFF.HEENG-6343>
- Fast Flood Extent Monitoring with SAR Change Detection Using Google Earth Engine. 2023, Hamidi, Peter, Muñoz, Moftakhari, Moradkhani, IEEE TGRS, <https://doi.org/10.1109/TGRS.2023.3240097>
- Numerical Modelling of the Mild Slope Equation using Localised Differential Quadrature Method. 2012, Hamidi, Hashemi, Talebbeydokhti, Neill, Ocean Engineering, 47, 88–103, <https://doi.org/10.1016/j.oceaneng.2012.03.004>.

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/1379b4c8c663c460d87c246641dc5cea2>.
- 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., <https://doi.org/10.4211/hs.bf66a6cc204d4691abda18833bf68760>
- **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>

Scientific Reviewing

- Water Resources Research, 2025
- 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

Honors and Award

- Vice President of Postdoctoral Association at North Carolina State University, Fall 2025
- [**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**](#)
- Appointed as [**Course Coordinator**](#) at the National Water Center Innovators Summer Program, 2023
- The National Water Center Innovators Program Award, 2022

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, ...

Online Activities

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

Extracurricular Activities

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

References

- **Dr. Katherine Anarde**, Department of Civil, Construction and Environmental Engineering, North Carolina State University, k_anarde@ncsu.edu
- **Dr. Hamed Moftakhari**, Department of Civil, Construction and Environmental Engineering, University of Alabama, Contact: +1 (205) 348-0239, hmoftakhari@eng.ua.edu
- **Dr. Brad Peter**, Department of Geosciences, The University of Arkansas, Contact: +1 (479) 575-5964, bradp@uark.edu
- **Dr. Hamid Moradkhani**, Department of Civil, Construction and Environmental Engineering, University of Alabama, Contact: +1 (205) 348-9125, hmoradkhani@ua.edu
- **Dr. Sagy Cohen**, Department of Geography, University of Alabama, Contact: +1 (205) 348-5860, sagy.cohen@ua.edu
- **Dr. Reza Hashemi**, Department of Ocean Engineering, University of Rhode Island, Contact: +1 (401) 874-6217, reza_hashemi@uri.edu