

Mohammadsepehr Karimiziarani

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WORK EXPERIENCE

- **Alabama Water Institute**, Research Software Engineer - Data Scientist, May 2023 - Present
 - Administered Google Cloud Platform (GCP) and Amazon Web Services (AWS) environments, preparing IT infrastructure, managing user access, and monitoring resource utilization across both platforms to ensure efficient and secure operations.
 - Managed GitHub repositories, implemented CI/CD pipelines, and maintained comprehensive documentation to streamline development workflows and enhance team collaboration.
 - Led a team of developers in creating a Python library to facilitate access to NOAA's National Water Model output, enhancing data retrieval and analysis capabilities for hydrological research.
 - Developed a custom AI chatbot utilizing Large Language Models (LLMs), leveraging the organization's product codes and documentation to assist users and customers with product utilization and inquiries.
 - Instructed a summer course on data science for Research Experience for Undergraduates (REU) students.
 - Assisted with DevOps processes, on-premises and cloud infrastructure for the NextGen framework community release for the National Water Model, and provided user support.
- **The University of Alabama**, Graduate Research Assistant, August 2019 - May 2023
 - Curated a preprocessed dataset of over 100 million disaster-related tweets, and developed a deep learning LSTM classifier to categorize tweets into 6 humanitarian categories and 12 emotion classes, enhancing disaster management efforts through advanced NLP techniques.
 - Optimized and parallelized computationally intensive AI/ML tasks for efficient execution on High-Performance Computing (HPC) servers.
 - Collaborated with a team of researchers and published the results of Twitter data analysis in 6 high-impact academic journals.
 - Designed web-based visualization dashboards using Tableau, JavaScript, HTML, and CSS.
- **Remote Sensing Center, The University of Alabama**, Software Engineering Intern, May 2019 - August 2019
- **Agrin Systems**, Software Engineer, January 2013 - August 2018
 - Developed full-stack web applications and AR systems, integrating machine learning and computer vision algorithms for real-time obstacle detection and enhanced user safety

EDUCATION

- **The University of Alabama**, Tuscaloosa, Alabama, USA, August 2019 - May 2023.
Ph.D. Civil, Construction and Environmental Engineering
- **The University of Alabama**, Tuscaloosa, Alabama, USA, August 2019 - May 2021.
M.Sc. Computer Science
- **Sharif University of Technology**, Tehran, Iran, August 2012 - May 2017.
B.Sc. Information Technology Engineering

SKILLS

- **Technical Skills:** Large Language Models (LLMs), Generative AI, Machine Learning, Deep Learning, NLP, Python (NumPy, Pandas, Scikit-learn, Keras), High Performance Computing, Social Media Analytics, Tableau, Git, DevOps, CI/CD, FLASK, Django, HTML, CSS, JavaScript, React, UI/UX, Responsive Web Design, Test-Driven Development, Front-End Web Development, Backend Development

CERTIFICATES AND SPECIALIZATIONS

- **Associate AI Engineer for Developers**, DataCamp
- **Generative AI-Powered Applications with Python**, IBM
- **Generative AI with Large Language Models Certificate**, AWS, Deeplearning.ai
- **Social Media Data Analytics Certificate**, Coursera
- **DevOps on AWS Specialization** (4 course certificates), Amazon Web Services, Coursera
- **Front-End Developer Professional Specialization** (9 course certificates), Meta

PUBLICATIONS

- **Mohammadsepehr Karimiziarani**, and Hamid Moradkhani. Social response and Disaster management: Insights from twitter data Assimilation on Hurricane Ian. International Journal of Disaster Risk Reduction. (2023)
- **Mohammadsepehr Karimiziarani**, Wanyun Shao, Majid Mirzaei, and Hamid Moradkhani. Toward Reduction of Detrimental Effects of Hurricanes using a Social Media Data Analytic Approach: How Climate Change is perceived?. Climate Risk Management. (2023)
- Mostafa Dadashi Firouzjaei, **Mohammadsepehr Karimiziarani**, Hamid Moradkhani, Mark Elliott, and Babak Anasori. MXenes: The two-dimensional influencers. Mater. Today Adv. 13, (2022)
- **Mohammadsepehr Karimiziarani**, Keighobad Jafarzadegan, Peyman Abbaszadeh, Wanyun Shao, and Hamid Moradkhani. Hazard risk awareness and disaster management: Extracting the information content of twitter data. Sustain. Cities Soc. 77, May 2021 (2022), 103577.
- Peyman Abbaszadeh, Hamid Moradkhani, Keyhan Gavahi, Sujay Kumar, Christopher Hain, Xiwu Zhan, Qingyun Duan, Christa Peters-Lidard, and **Sepehr Karimiziarani**. High-resolution SMAP satellite soil moisture product: Exploring the opportunities. Bull. Am. Meteorol. Soc. 102, 4 (2021)
- Seyed Moslem Shokrolahi and **Mohammadsepehr Karimiziarani**. A deep network solution for intelligent fault detection in analog circuit. Analog Integr. Circuits Signal Process. 107, 3 (2021)