ZHOOBIN RAHIMI

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SUMMERY

Water Resource Engineer with over 10 years of experience in utilizing GIS and remote sensing data for various civil and environmental applications. Experienced in data collection and sensor implementation for environmental monitoring and land surface modeling. Skilled in geospatial data integration and developing automated data processing pipelines using Python, JavaScript, MATLAB, and batch scripting to support large-scale geospatial and environmental modeling. Proficient in geotechnical investigations, subsurface modeling using GeoStudio, and InSAR-based monitoring for tailings dam safety assessment. Strong background in hydrologic and hydraulic modeling with ArcGIS-based, HEC-HMS, and HEC-RAS tools.

PROFESSIONAL EXPERIENCE

Summer 2024 **Geotechnical Engineering Intern, Freeport-McMoRan,** *Morenci, AZ*

- Collaborated in the Tailing, Crushed Leach, and Water (TCLW) group to account for water balance in the Hydromet in Morenci mine.
- Collected and analyzed data on water inflows, outflows, and usage across operational units to support efficient water resource management.
- Applied InSAR-based monitoring for tailings dam safety assessment.

2015 – 2018 **Water Resource Engineer,** *MHB Engineering, Kuala Lumpur, Malaysia*

- Collected water samples and conducted open channel water quality assessments using advanced equipment, including portable and benchtop instruments such as pH meters, conductivity meters, turbidimeters, photometers, fluorometers, and spectrophotometers, as well as chemical test kits and water treatment controllers, ensuring precise and reliable analysis.
- Collaborated with hydrology and GIS teams to develop water balance models using HEC-HMS and integrated spatial data sources.
- Integrated HEC-HMS and HEC-RAS to improve the accuracy of reservoir water budget by 10%.

2010-2012 **Land surveying engineer,** *ACOP Engineering, Tehran, Iran*

- Head of the survey team in a heavy civil engineering project.
- Contributed to road construction and tunnel excavation projects using the drill and blast technique.
- Collaborated with the Project Manager to effectively coordinate staff and contractors.

RESEARCH EXPERIENCE

2021 - 2023 **Research Assistant**, *Stevens Institute of Technology, Hoboken, NJ*

- Developed an automated image processing pipeline on Google Cloud, utilizing VIIRS satellite data to monitor river ice conditions across Alaska and the Northeastern U.S.
- Designed and deployed a web-based application for real-time visualization and daily monitoring of river ice dynamics, enhancing accessibility for researchers and stakeholders.
- Utilized HEC-RAS Controller for steady flow simulations under various ice conditions to model open channel hydraulics with variable ice thickness and surface friction in Alaska.
- Conducted hydraulic simulations in HEC-RAS under varying ice conditions, using critical thinking to assess ice-induced friction scenarios and refine model assumptions.
- Integrated 2D simulations from HEC-HMS to 2D flow modeling in HEC-RAS for integrated hydrologic and hydraulic Analysis for flood forecasting in the Hackensack River, NJ.

TEACHING EXPERIENCE

2023 – 2025 **Teaching Assistant**, *Stevens Institute of Technology, Hoboken, NJ*

- Assisted in teaching the Geotechnical Engineering course, focusing on soil mechanics and slope stability analysis.
- Collaborated with professors to prepare hands-on instruction in foundation engineering courses such as the Engineering Measurements Lab and statistical and probability analysis.
- Provided guidance and support to students during lab sessions.
- Performing geotechnical analyses such as slope stability, bearing capacity, settlement, shallow and deep foundation design, and seismic assessment.
- Conducted geotechnical subsurface exploration to develop an understanding of site soil conditions.

EDUCATION

2021- 2025 **Ph.D. in Civil Engineering**

Stevens Institute of Technology, Hoboken, NJ

- Dissertation: Application of InSAR in Monitoring Land Subsidence in Urban Coastal Areas

2018-2020 **M.Sc. in Water Resource and Environmental Management**

University *of Twente, Enschede, The Netherlands*

- Research: Coupling optic and SAR remote sensing data with ground measurements to retrieve soil moisture in agricultural areas and monitoring the seasonal cycle.

2012-2014 **M.Sc. in Remote Sensing and GIS**

University Putra Malaysia, Kuala Lumpur, Malaysia

- Research: Developed a GNSS-based weather forecasting system using a Nonlinear Auto-Regressive Approach with Exogenous Input (NARX).

2006-2010 **B.Sc. in Civil/Land Surveying Engineering**

Tehran South Azad University, Tehran, Iran

- Final Project: Improving vertical accuracy of handheld GPS receivers using the national Geoid network.

TECHNICAL SKILLS

- **3 years of Geotechnical experience in** Subsurface Investigations, Subsidence Analysis, and Tailing Dam Safety.
- **3 years of experience in Hydrological Modeling using** HEC-HMS, HEC-RAS, MODFLOW, and Water Balance Analysis.
- **3 years of experience in Land Surveying, including:** Surveying Operation, Road Construction, and Tunnel excavation.
- **9 years of professional experience in Remote Sensing & GIS tools, including:** ArcGIS, QGIS, InSAR, GPS, and Image Processing.
- **9 years of experience in simulation Tools & data processing, including:** AutoCAD, CIVIL 3D, Python, MATLAB.

PUBLICATIONS

- **Rahimi, Z., Korfiatis, G., Prigiobbe, V., Sousa, R.** (2025). Assessing the impact of subsurface conditions and aging infrastructure on urban land subsidence. Remote Sensing Applications: Society and Environment, Volume 39,101665, 2352-9385.
- **Rahimi, Z., Othman, F., & Shariff, A. R. M.** (2021). *Improving geometric construction of high-resolution SAR images using Kriging-based surrogate modeling in the mountainous terrain of Malaysia*. International Journal of Remote Sensing, 42(22), 8624–8639.
- **Rahimi, Z., Shafri, H. Z., & Norman, M**. (2018). *A GNSS-based weather forecasting approach using NARX.* Journal of Atmospheric and Solar-Terrestrial Physics.
- **Rahimi, Z., Shafri, H. Z., & Norman, M**. (2017). *Effect of tropospheric models on GPS-derived precipitable water vapor over Southeast Asia*. Journal of Atmospheric and Solar-Terrestrial Physics.

CERTIFICATIONS

- Regulatory Compliance**:** MSHA Regulations, ASCE Standards, Environmental Impact Assessments (EIA).

AWARDS & HONORS

- Runner-up, Michael H. Freilich Data Visualization Competition, AGU, Chicago (2022)
- Graduate Assistant Scholarship, Stevens Institute of Technology (2021)
- ITC Excellence Scholarship Award, University of Twente (2018)
- Malaysian International Scholarship Award, Serdang, Malaysia (2012)

PROFESSIONAL MEMBERSHIPS

- American Water Resources Association (AWRA) (2023)
- Geoscience and Remote Sensing Society (GRSS) (2023)
- American Society of Civil Engineers (ASCE), New Jersey Section (2022)
- American Geophysical Union (AGU) (2021)

VOLUNTEER EXPERIENCE

- **Testing Volunteer,** Math Olympiad – Stevens Institute of Technology, Hoboken, NJ (2025)
- **Session Manager,** International Geoscience and Remote Sensing Symposium (IGARSS), Pasadena, CA (2023)
- **Volunteer Water Resource Consultant,** Hoboken Environmental Commission, NJ (2022)