

Mostafa Saghafi

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Birth date: 06/22/1995, Iran, Mashhad

Education

2018 – 2021

Master of Science in Water and Hydraulic Structure Engineering

Shahrood University of Technology, Iran

M.Sc.

Thesis: “*Surface Water Body Detection and Flood Monitoring Using Fusion of Multiple Remote Sensing Data*”

Supervisors: Dr. Ahmad Ahmadi, Dr. Behnaz Bigdeli

GPA: 3.18 / 4, Thesis GPA: 4 / 4

2014 - 2018

Bachelor of Science in Civil Engineering

University of Gonabad, Iran

B.Sc.

BS.C Thesis: “*Investigation of Water Pipelines in Gonabad and Modeling with WaterGEMS*”

GPA: 3.45 / 4

International Publications

Goodarzi,M. Sabaghzadeh,M. Barzkar,A. Niazkar,M. **Saghafi,M.** (2024). "A comparison of Machine Learning Methods for Estimation of Snow Density Using Satellite Images". *Water and Environment Journal*. (<https://doi.org/10.1111/wej.12939>)

Saghafi, M., Ahmadi, A., & Bigdeli, B. (2021). "Sentinel-1 and Sentinel-2 data fusion system for surface water extraction". *Journal of Applied Remote Sensing*, 15(1), 14521. (<https://doi.org/10.1117/1.JRS.15.014521>)

Saghafi, M., Pourali, M., Sedigheh, M., & Keivan, K. (2025) " Resilience at Risk: Climate Change and Deltaic Dynamics, Comparative Insights from the Deltas in Iran". Book Chapter (Submitted)

Research and Work Experience

• Projects

- 1- Advanced Geospatial Evapotranspiration Monitoring and Analysis: Implementation of an Interactive Earth Engine Dashboard with Enhanced Visualization and Validation Capabilities. (*April – June 2025*)
- 2- Use time-series analysis of satellite-derived land surface temperature, soil moisture and precipitation to detect and predict drought onset with the SVS model. (*Jan – March 2025*)
- 3- The Role of SMAP and SMOS in Revolutionizing Soil Moisture Monitoring with Brightness Temperature in Forests using machine learning approaches. (*Nov - Dec 2024*)
- 4- The impact of drought indices on flood detection and estimation using SDI, SPEI, and SPI. (*July - Sep 2024*)
- 5- Improvement on the effective snow cover extraction using fusion satellite images approach. (*April - May 2024*)
- 6- An improved Wildfire detection method based on the NBR index and BFAST Algorithm. (*Oct - Dec 2023*)
- 7- Onset Prediction of HABs Using Threshold Indices and Application of Remote Sensing in Band Ratio Algorithms to Estimate Phycocyanin and Phosphorus Concentration (Case Study: Sherbrook Lake, Canada). (*Feb - June 2023*)
- 8- Investigation of Water Level of Urmia Lake Using Fusion of Multiple Remote Sensing Data Time Series. (*July – Oct 2022*)
- 9- Earthquake Hazard Zoning Using Machine Learning and Decision Fusion (Study area: Tehran). (*Feb – May 2022*)

• Teaching experience(s):

"Application of Remote Sensing" - Shahrood University of Technology (2020 – 2021)

"Lecturer of professional article writing and journal refereeing course" (2021 – 2024).

Honors and Certificates

Certificates

- **Active peer reviewer** of Journal of Applied Remote Sensing (SPEI) (2021-Now)
- Attend and participate in “**Applications/ Limitations of AI and Machine Learning Water Research Foundation**” webinar
- **Presenting the article** orally in 12 National Civil Congress.
- **Supervised Learning with Python** Certificate (Data Camp Course)
- Attend and participate in “**Innovative concepts and methods for geoscience, remote sensing and beyond webinar**”
- Attend and participate in “**Satellite Remote Sensing for the Improved Study of Climate Change Impacts on the Water Cycle**”
- Attend and participate in “**Introduction to Cloud Processing of Sentinel Data**” organized by MATE, Copernicus Data Space Ecosystem and CropOM

Honors

- **Ranked 3rd** among 15 M.Sc. Student of Water and Hydraulic Structure at Shahrood University of Technology (2021).
- **Candidate** for Best Young Researcher at Shahrood University of Technology (2021).
- **Owner** of a [YouTube channel](#) and [Website](#) about the application of remote sensing.
- **Organizer** of the [workshop](#) on the [application of machine learning in remote sensing](#).
- The **organizer of the Journal Club** course to review and clarify recent articles related to the [Environment, Remote sensing, and Machine Learning](#). [Link](#)
- Organizer of three successful workshops on “**Professional Article Writing**” and “**Journal Peer Review**”.

Skills and Interests

Languages

- **English:** Professional working proficiency - “**Toefl CEFR Level= B2**”
- **Farsi:** Native

Computer Skills

- **Python** (Machine learning, and Deep Learning) – Upper intermediate user
- **R** Programming language – Upper Intermediate user
- Google Earth Engine (**GEE**) – Upper Intermediate user
- **QGIS** – Intermediate user
- High-Performance Computing (**HPC**) – Intermediate user

Areas of Expertise and Interests

- Evapotranspiration modeling, Soil Moisture, Vegetation Dynamic
- Physics-informed ML
- Machine Learning and AI
- Land Use and Land Cover Changes (LULC)
- Application of Machine Learning in Climate Change variables
- Time Series Analysis of Surface Water, Flooded Areas, Wildfire Detection
- Landsat 5 - 9, Sentinel-2, Sentinel-1, MODIS, SMOS, and SMAP products
- Remote Sensing Data Fusion and Decision making

References

- **Dr. Ahmad Ahmadi**, Associate Professor, Thesis Supervisor, Department of Civil Engineering, Shahrood University of Technology, Iran (Email: a.ahmadi@shahroodut.ac.ir)
- **Dr. Behnaz Bigdeli**, Assistant Professor, Thesis Supervisor, Department of Photogrammetry and Remote Sensing, Shahrood University of Technology, Iran (Email: bigdeli@shahroodut.ac.ir)
- **Dr. Nasrin Fathollahzadeh Attar**, Postdoc. of Water Resources Engineering, University of Texas at Arlington, USA, Texas (Email: nasrin.attar@uta.edu)

July/29/2025

