

Hadi Shokati

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Summary

I am a **Postdoctoral Researcher** in the **Department of Computer Science at the University of Tübingen, Germany**, specializing in **machine learning for Earth system modelling**. My research focuses on **developing data-driven and physics-aware AI methods, including deep learning, foundation model fine-tuning, forecasting, spatiotemporal modelling, and hybrid AI approaches**. I have extensive experience in **computer vision, remote sensing, geospatial data analysis, and scientific machine learning**. Proficient in **Python, PyTorch, Google Earth Engine, and GIS workflows**.

Experience

- Soil Scientist, Department of Geosciences, University of Tübingen, Germany** 2023–2026
- Implement transfer-learning segmentation pipeline for flood and erosion detection, reducing labeled-data requirements by 80% and increasing event detection precision by up to 55%.
 - Develop hybrid models for soil erosion prediction, addressing validation data scarcity challenge in soil erosion studies.
 - Forecast future soil erosion susceptibility across space and time.
 - Reconstruct historical rainfall-erosivity maps, overcoming the lack of high-resolution precipitation records.
 - Automate large-scale data pipelines, reducing preparation time by 40%.
 - Collaborate with computer-science researchers to develop advanced deep-learning models.
 - Advise MSc students on research design, data analysis, and model development.
- Data Scientist, Department of Geosciences, University of Tübingen, Germany** 2023
- Implemented an ML pipeline with UAV hyperspectral data for soil moisture prediction, yielding 33% and 40% R^2 improvements over Landsat and Sentinel-2, respectively.
 - Performed geospatial analysis using GIS, remote, and proximal sensing techniques.
- Geospatial Data Analyst, Soil Conservation and Watershed Management Research Institute, Iran** 2022
- Collected and analyzed UAV data for precision agriculture and watershed management.
 - Integrated remote sensing and UAV data to identify freshwater springs in the Persian Gulf.
- Teaching Assistant, University of Tehran, Iran** 2020–2022
- Courses: Fluid Mechanics, designing surface irrigation systems, Designing drainage and irrigation networks, Surface irrigation hydraulics.

Technical Skills

Programming: Python (Professional), MATLAB (Intermediate), R (Beginner), JavaScript (Beginner)
GIS and Remote Sensing: ArcGIS Pro, QGIS, ENVI, SNAP, SAGA and Google Earth Engine (Professional)
Machine Learning: Regression, Classification, Data Analysis, Image Processing, Image Segmentation, Transfer Learning, Fine-Tuning, TensorFlow/Keras, PyTorch
Languages: English (B2), German (A2), Turkish (B1), Persian and Azerbaijani (C2)
Other: UAV Piloting (Flight Operations, Photogrammetry, Spatial Data Analysis)

Education

- PhD, Soil Science and Geomorphology, University of Tübingen, Germany** 2023–2026
- MSc, Water Engineering and Sciences, Tarbiat Modares University, Iran** 2019
- BSc, Water Engineering and Sciences, University of Mohaghegh Ardabili, Iran** 2017

Certifications & Training

- Deep Learning certificate, ELLIS Summer School: AI for Earth and Climate Sciences, Germany 2025
- Deep Learning certificate, DeepLearn 2025: 12th International School on Deep Learning, Portugal 2025
- 13th EARSel Workshop on Imaging Spectroscopy, Spain 2024
- German Japanese exchange workshop, Germany 2023