Mahdi Farmahini Farahani (Arad)

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Undergraduate Student

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EDUCATION

Kharazmi University, Faculty of Earth Sciences — Tehran, Iran
Bachelor of Science, Geology — *2021 – 2025*
- Chairperson, Geological Society of Kharazmi University (June 2024 – Present)
- Vice President of Media, Geological Society of Kharazmi University (November 2023 – June 2024)
- Ranked 8th out of 60 students in the Undergraduate Studies

University of Lille, International Academy Lille Hdf — Lille, France
Water Resource Management (Hydro 2024) Summer School — *Summer 2024*
- Completed 5 ECTS credits in water resource management topics.
- Presented an oral defense on numerical groundwater modeling, focusing on changing water abstraction in the Weyib Watershed, Ethiopia.

University of Tabriz — Tabriz, Iran
The 2nd Summer School of Geology — *Summer 2023*
- Conducted field studies and geological mapping at Aras Geopark
- Developed essential fieldwork skills, including rock sampling, stratigraphic logging, and structural analysis

TEACHING EXPERIENCE

Kharazmi University — Tehran, Iran
Teaching Assistant — *April 2025 – Present*
- Programming Course, Under Supervision of Dr. Morteza Asemani

Young Scholars Club — Tehran, Iran
Instructor — *July 2024*
- Taught "Applied Data Science in Geology" for the Iran National IESO[1] 2024 Team

Kharazmi University — Tehran, Iran
Instructor — *April 2024 – June 2024*
- Organized and instructed the Advanced Python and Machine Learning Workshop

NODET[2] — Tehran, Iran
Teacher — *May 2021 – September 2021*
- Taught ITEO[3] Marketing at Allameh Helli (Branches 5 & 8) and Farzanegan High Schools

WORK EXPERIENCE

FEZtool — Tehran, Iran
Co-Founder & Research and Development Specialist — *August 2023 – Present*
- Led research initiatives in Earth sciences to drive innovation and scientific understanding
- Developed advanced algorithms to support research and analytical processes
- Conducted in-depth geospatial data analysis for environmental and spatial insights

NovaVira — Tehran, Iran
Board Member — *June 2023 – November 2024*
- Collaborated on company vision and CRM development to drive growth

ARYANIC — Tehran, Iran
Project Manager — *November 2022 – June 2023*
- Managed a project titled "Business Factory", leading a team of 7

GreenOly — Tehran, Iran
Product Manager — *August 2022 – January 2023*
- Created an Entrepreneurship MOOC with over 15 Olympiad Medalists.

Olgoo Publication — Tehran, Iran
Proofreader — *December 2021 – February 2022*
- Worked as a proofreader to Edit Geology books for University Entrance Exams

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[1] International Earth Science Olympiad
[2] National Organization for Development of Exceptional Talents
[3] Iranian Thinking & Entrepreneurship Olympiad

COMMUNITY SERVICE

The 3ʳᵈ National Festival of Young Iranian Geologists Tehran, Iran
Graphics Committee Member *May 2024 – June 2024*

Imam Khomeini International University Qazvin, Iran
Editorial Board Member *September 2023 – June 2024*

BABAEEE Tehran, Iran
Talent Acquisition Specialist *July 2022 – March 2024*

PUBLICATIONS

Journal Articles

1. **Farmahini Farahani, M.** (2024). Effects and social damage of fine dust. ***Ovan Scientific Journal***

2. **Farmahini Farahani, M.** (2024). Designing the green belt in the southwest of Zahedan. ***Ovan Scientific Journal***

3. Saravani, M. J., Kashef, S., **Farmahini Farahani, M.**, Kashefi, M., & Zohreh, M. (2023). Investigating the accuracy of hybrid models with wavelet transform in the forecast of watershed runoff. ***Journal of Water Management Modeling (JWMM)***

Conference Papers

1. Rezaei, K., & **Farmahini Farahani, M.** (2024, March). Visualization of magnetometric data with Python (case study: Segregation sedimentary units of Torud Playa). In ***The 1ˢᵗ Conference on Applied Geophysics in Mines***, Tehran, Iran

2. Rezaei, K., & **Farmahini Farahani, M.** (2024, February). Comparing the performance of the k-means clustering method and spectral indices in characterizing land use and land cover using remote sensing with Python (case study: Landsat 8 multi-spectral images). In ***2ⁿᵈ International Conference for Iranian Geography and Earth Sciences Students***, Tehran, Iran

3. **Farmahini Farahani, M.**, Rezaei, K., Karamollahi, S., & Moghadam, F. J. (2024, January). Application of PCA algorithm in remote sensing using Python programming language (case study: Landsat 9 multispectral images). In ***8ᵗʰ Symposium of Sedimentological Society of Iran***, Hormozgan, Iran

4. Rezaei, K., & **Farmahini Farahani, M.** (2023, September). The importance of using Python programming language in Earth science. In ***26ᵗʰ Conference of Geological Society of Iran***, Urmia, Iran

Books

1. Rezaei, K., **Farmahini Farahani, M.**, Karimzadehasl, E. (Trans.). (2024). *Introduction to Python in Earth science data analysis: From descriptive statistics to machine learning.* **Tasir Publication.** (Original work published by Maurizio Petrelli)

2. Karimi Pashaki, A., **Farmahini Farahani, M.**, Soleimani, J., & Karimzadegan, Y. (2023). *Environmental risk management.* **Azargan Publication**

PROJECTS

FEZrs (Open Source) | `pypi.org/project/fezrs` *2023 – Present*
- Advanced Python library for remote sensing, developed by FEZtool

FEZClient (Open Source) | `github.com/FEZtool-team/FEZClient` *2024 – 2025*
- Graphical user interface (GUI) to support and extend the FEZtool ecosystem

Awesome Geophysics | `aradfarahani.com/awesome-geophysics` *2025*
- Community-curated essential geophysics datasets and open-source tools for researchers

Geoelectricspy (Open Source) | `github.com/aradfarahani/Geoelectricspy` *2023*
- Interactive 3D visualization tool for subsurface resistivity using geoelectrics survey data

LICENSES & CERTIFICATIONS

International Data Masterclass, United Nations Big Data *2024*

Application of Remote Sensing in Geology, Zawinas

Investigating practical issues in the exploration of Sulphide Deposits using the IP-RS method, (NIGS)[1]

AI and Climate Change, DeepLearning.AI (Offred by Coursera) *2023*

Global Environmental Management, DTU[2] (Offred by Coursera)

Remote Pilot Certification (Multirotor), CAAIRI[3]

Unmanned Aerial Vehicle Surveying, Maan Academy

GIS, Mapping, and Spatial Analysis Specialization, University of Toronto (Offred by Coursera)

Hydraulic Modeling of flood plains in Urban Rivers, Kharazmi University *2022*

CS50 Certificate, CS50 (Harvard Uiversity) *2021*

Introduction to Data Analytics, IBM (Offred by Coursera)

HONORS & AWARDS

LeetCode Global Ranking - *Ranked Top 100*, LeetCode *2025*

Deep-ML Global Leaderboard - *Ranked Top 50*, Deep-ML.com

Hydro 2024 Research-Oriented Summer School - *Full Scholarship*, University of Lille *2024*

Master's Entrance Exam (Geophysics) - *Ranked 11th Nationwide*

Geological Society Logo Design Contest - *Winner*, Kharazmi University

Research Visit Grant (2500 DKK) - *Awardee*, University of Copenhagen *2022*

DrCT 2021 Global Computational Competition - *Gold Medalist* *2021*

1st national Thinking & Entrepreneurship Olympiad (ITEO) - *Silver Medalist* *2020*

WMI 2015 World Mathematical Championships Selection - *Silver Medalist* *2015*

SKILLS & INTERESTS

Programming Languages: Python (ObsPy, pyGIMLi, XGBoost, OpenCV, TensorFlow, NumPy, PyGMT, Xarray, Pandas, Scikit-learn, Matplotlib, Plotly, kepler.gl, Leafmap, Folium, Seaborn, Rasterio, GeoPandas), Julia, Bash (Shell scripting), SQL (MySQL); Familiar with R

Markup Languages: Markdown, LaTeX

Software: ENVI, Global Mapper, ArcGIS, QGIS, Canva, Agisoft Metashape, Blender, 3ds Max, Google Earth Pro, Datamine, SAS.Planet, CorelDRAW, Groundwater Vistas

Field Techniques: Drone Surveying, Geoelectrical Methods (Induced Polarization–Resistivity Sounding, IP-RS)

Languages: Farsi (Persian): *Native*; English: *Fluent (C1)*

Research Interests: Seismic Data Processing, Applied Geophysics, Remote Sensing, Hydrogeophysics, Machine Learning, Image Processing, Open-Source Software Development

PROFESSIONAL MEMBERSHIPS

Google Maps Platform Innovators Member, 2025 – Present

Young Scholars Club Member, 2020 – Present

Geological Society of Iran Student member, 2021 – 2022

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[1] National Iranian Geophysical Society
[2] Technical University of Denmark
[3] Civil Aviation Authority of Islamic Republic of Iran