

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 IESO¹ 2024 Team

Kharazmi University

Tehran, Iran

Instructor

April 2024 – June 2024

- Organized and instructed the Advanced Python and Machine Learning Workshop

NODET²

Tehran, Iran

Teacher

May 2021 – September 2021

- Taught ITEO³ 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

Kharazmi University

Tehran, Iran

Research Assistant

October 2024 – January 2025

- Performed MASW to extract dispersion images under supervision of Dr. Mehdi Talkhablou.

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.

¹International Earth Science Olympiad

²National Organization for Development of Exceptional Talents

³Iranian Thinking & Entrepreneurship Olympiad

The 3rd National Festival of Young Iranian Geologists

Graphics Committee Member

Tehran, Iran

May 2024 – June 2024

Imam Khomeini International University

Editorial Board Member

Qazvin, Iran

September 2023 – June 2024

BABAEER

Talent Acquisition Specialist

Tehran, Iran

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. **Farmahini Farahani, M.**, Najibifar, Y., & Akbarzadeh Afshari, A. (2025). *Earthquake Prediction Using Geophysical Data Analysis and Artificial Intelligence*. **Heritage Branch, Library and Archives Canada**
2. 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)

PROJECTS

FEZrs (Open Source) | pypi.org/project/fezrs

2023 – Present

- Advanced Python library for remote sensing, developed by FEZtool with over 50,000 downloads

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

Goelectricspy (Open Source) | github.com/aradfarahani/Goelectricspy

2023

- Interactive 3D visualization tool for subsurface resistivity using goelectrics survey data

LICENSES & CERTIFICATIONS

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| The Science of the Solar System , Caltech (Offred by Coursera) | 2025 |
| AstroTech , The University of Edinburgh (Offred by Coursera) | |
| Space Exploration , Technical University of Munich (Offred by Coursera) | |
| Rocket Science for Everyone , Yale University (Offred by Coursera) | |
| 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 | |
| Global Environmental Management , DTU ² (Offred by Coursera) | 2023 |
| 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 University) | 2021 |

HONORS & AWARDS

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| LeetCode Global Ranking - Ranked Top 100 , LeetCode | 2025 |
| Deep-ML Global Leaderboard - Ranked Top 50 , Deep-ML.com | |
| Master's Entrance Exam (Geophysics) - Ranked 8th Nationwide | |
| Hydro 2024 Research-Oriented Summer School - Full Scholarship , University of Lille | 2024 |
| 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, L^AT_EX

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: Signal Processing, Applied Geophysics, Remote Sensing, Hydrogeophysics, Machine Learning, Image Processing, Open-Source Software Development, Inverse Problems

PROFESSIONAL MEMBERSHIPS

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| Google Maps Platform Innovators | Member, 2025 – Present |
| Young Scholars Club | Member, 2020 – Present |
| Geological Society of Iran | Student member, 2021 – 2022 |

¹National Iranian Geophysical Society

²Technical University of Denmark

³Civil Aviation Authority of Islamic Republic of Iran