

## 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 8<sup>th</sup> 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 2<sup>nd</sup> 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<sup>1</sup> 2024 Team

### Kharazmi University

Tehran, Iran

*Instructor*

April 2024 – June 2024

- Organized and instructed the Advanced Python and Machine Learning Workshop

### NODET<sup>2</sup>

Tehran, Iran

*Teacher*

May 2021 – September 2021

- Taught ITEO<sup>3</sup> 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.

<sup>1</sup>International Earth Science Olympiad

<sup>2</sup>National Organization for Development of Exceptional Talents

<sup>3</sup>Iranian Thinking & Entrepreneurship Olympiad

**The 3<sup>rd</sup> 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

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### 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 1<sup>st</sup> 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 *2<sup>nd</sup> 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 *8<sup>th</sup> 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 *26<sup>th</sup> 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

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**FEZrs** (Open Source) | [pypi.org/project/fezrs](https://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](https://github.com/FEZtool-team/FEZClient)

*2024 – 2025*

- Graphical user interface (GUI) to support and extend the FEZtool ecosystem

**Awesome Geophysics** | [aradfarahani.com/awesome-geophysics](https://aradfarahani.com/awesome-geophysics)

*2025*

- Community-curated essential geophysics datasets and open-source tools for researchers

**Goelectricspy** (Open Source) | [github.com/aradfarahani/Goelectricspy](https://github.com/aradfarahani/Goelectricspy)

*2023*

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

## LICENSES & CERTIFICATIONS

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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) <sup>1</sup>	
AI and Climate Change, DeepLearning.AI (Offred by Coursera)	2023
Global Environmental Management, DTU <sup>2</sup> (Offred by Coursera)	
Remote Pilot Certification (Multirotor), CAAIRI <sup>3</sup>	
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
Introduction to Data Analytics, IBM (Offred by Coursera)	

## HONORS & AWARDS

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LeetCode Global Ranking - <i>Ranked Top 100</i> , LeetCode	2025
Deep-ML Global Leaderboard - <i>Ranked Top 50</i> , Deep-ML.com	
Hydro 2024 Research-Oriented Summer School - <i>Full Scholarship</i> , University of Lille	2024
Master's Entrance Exam (Geophysics) - <i>Ranked 11<sup>th</sup> Nationwide</i>	
Geological Society Logo Design Contest - <i>Winner</i> , Kharazmi University	
Research Visit Grant (2500 DKK) - <i>Awardee</i> , University of Copenhagen	2022
DrCT 2021 Global Computational Competition - <i>Gold Medalist</i>	2021
1 <sup>st</sup> national Thinking & Entrepreneurship Olympiad (ITEO) - <i>Silver Medalist</i>	2020
WMI 2015 World Mathematical Championships Selection - <i>Silver Medalist</i>	2015

## SKILLS & INTERESTS

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**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<sup>A</sup>T<sub>E</sub>X

**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

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<sup>1</sup>National Iranian Geophysical Society

<sup>2</sup>Technical University of Denmark

<sup>3</sup>Civil Aviation Authority of Islamic Republic of Iran