

## 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

### 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

<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

**BABAEIE**  
*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

**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