

## EDUCATION

<b>University of Tehran, Institute of Geophysics</b>	Tehran, Iran
<i>Master of Science, Geophysics (Exploration Seismology)</i>	2025 – 2027
<b>Kharazmi University, Faculty of Earth Sciences</b>	Tehran, Iran
<i>Bachelor of Science, Geology</i>	2021 – 2025
<ul style="list-style-type: none"> <li>Chairperson, Geological Society of Kharazmi University (June 2024 – June 2025)</li> <li>Vice President of Media, Geological Society of Kharazmi University (November 2023 – June 2024)</li> <li>Ranked 8<sup>th</sup> out of 60 students in the Undergraduate Studies</li> </ul>	
<b>University of Lille, International Academy Lille Hdf</b>	Lille, France
<i>Water Resource Management (Hydro 2024) Summer School</i>	Summer 2024
<ul style="list-style-type: none"> <li>Completed 5 ECTS credits in water resource management topics.</li> <li>Presented an oral defense on numerical groundwater modeling, focusing on changing water abstraction in the Weyib Watershed, Ethiopia.</li> </ul>	

## TEACHING EXPERIENCE

<b>Kharazmi University</b>	Tehran, Iran
<i>Programming Teaching Assistant</i>	April 2025 – June 2025
<ul style="list-style-type: none"> <li>Programming Course, under supervision of Dr. Morteza Asemani</li> </ul>	
<b>Kharazmi University</b>	Tehran, Iran
<i>Geostatistics Teaching Assistant</i>	February 2025 – June 2025
<ul style="list-style-type: none"> <li>Geostatistics Course, under supervision of Dr. Ehsan Pegah</li> </ul>	
<b>Young Scholars Club</b>	Tehran, Iran
<i>Instructor</i>	July 2024
<ul style="list-style-type: none"> <li>Taught "Applied Data Science in Geology" for the Iran National IESO<sup>1</sup> 2024 Team</li> </ul>	
<b>Kharazmi University</b>	Tehran, Iran
<i>Instructor</i>	April 2024 – June 2024
<ul style="list-style-type: none"> <li>Organized and instructed the Advanced Python and Machine Learning Workshop</li> </ul>	
<b>NODET<sup>2</sup></b>	Tehran, Iran
<i>Teacher</i>	May 2021 – September 2021
<ul style="list-style-type: none"> <li>Taught ITEO<sup>3</sup> Marketing at Allameh Helli (Branches 5 &amp; 8) and Farzanegan High Schools</li> </ul>	

## WORK EXPERIENCE

<b>FEZtool</b>	Tehran, Iran
<i>Co-Founder &amp; Research and Development Specialist</i>	August 2023 – Present
<ul style="list-style-type: none"> <li>Led Earth science research initiatives, developing advanced algorithms and conducting geospatial data analysis for scientific insights.</li> </ul>	
<b>International Astronomical Search Collaboration, NASA Partner</b>	Remote
<i>Asteroid Search Team Member</i>	July 2025 – September 2025
<ul style="list-style-type: none"> <li>Contributed to the Astronomy Enthusiasts of Iran 5 &amp; 3 team in analyzing Pan-STARRS data, earning credit for 3 preliminary asteroid discoveries (Object IDs: P22c6kw, P12cZ6o and P12dtv1).</li> </ul>	
<b>Kharazmi University</b>	Tehran, Iran
<i>Research Assistant</i>	October 2024 – January 2025
<ul style="list-style-type: none"> <li>Performed MASW to extract dispersion images under supervision of Dr. Mehdi Talkhablou.</li> </ul>	
<b>ARYANIC</b>	Tehran, Iran
<i>Project Manager</i>	November 2022 – June 2023
<ul style="list-style-type: none"> <li>Managed a project titled "Business Factory", leading a team of 7</li> </ul>	
<b>GreenOly</b>	Tehran, Iran
<i>Product Manager</i>	August 2022 – January 2023
<ul style="list-style-type: none"> <li>Created an Entrepreneurship MOOC with over 15 Olympiad Medalists.</li> </ul>	

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

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

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

## COMMUNITY SERVICE

**The 4<sup>th</sup> National Festival of Young Iranian Geologists**

*Education Committee Member*

Tehran, Iran

*June 2025 – July 2025*

**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*

## SELECTED PUBLICATIONS

### Journal Articles

1. Talkhablou, M., **Farmahini Farahani, M.**, & Mansouri, S. S. (2025). A Python-Based Framework for Land Cover Classification in Engineering Geology: A Comparative Assessment of SVM, K-Means, and Spectral Indices. *Kharazmi Journal of Earth Sciences*.
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. **Farmahini Farahani, M.** (2025, August). Machine Learning-Enhanced Seismic Event Detection and Noise Reduction for Planetary Seismology: Insights from Mars and Lunar Data. In *Seismology Student Workshop (SSW 2025)*, GatherTown (Virtual)
2. 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
3. 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
4. **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
5. 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**.

## PROJECTS

**PlanetaryGeophysics** | [github.com/aradfarahani/PlanetaryGeophysics](https://github.com/aradfarahani/PlanetaryGeophysics)

*2025 – Present*

- Built an open-source Python platform for analyzing and visualizing planetary geophysical data.
- Created a 3D interactive Mars globe and mapped gravity, seismic, and magnetic data.

**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 80,000 downloads

**Seismicity Analysis in Iran (2010–2025)** | [iris.edu/hq/workshops/2025/06](https://iris.edu/hq/workshops/2025/06)

*2025*

- performed Iran seismicity analysis for the *Seismology Skill-Building Workshop 2025* final project.

**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

<b>Seismology Skill Building Workshop 2025</b> , EarthScope Consortium	2025
<b>The Science of the Solar System</b> , California Institute of Technology (Offered by Coursera)	
<b>AstroTech</b> , The University of Edinburgh (Offered by Coursera)	
<b>Space Exploration</b> , Technical University of Munich (Offered by Coursera)	
<b>Rocket Science for Everyone</b> , Yale University (Offered by Coursera)	
<b>International Data Masterclass</b> , United Nations Big Data	2024
<b>Application of Remote Sensing in Geology</b> , Zawinas	
<b>Investigating practical issues in the exploration of Sulphide Deposits using the IP-RS method</b> , (NIGS) <sup>1</sup>	
<b>Global Environmental Management</b> , DTU <sup>2</sup> (Offered by Coursera)	2023
<b>The 2<sup>nd</sup> Summer School of Geology</b> , University of Tabriz	
<b>Remote Pilot Certification (Multirotor)</b> , CAAIRI <sup>3</sup>	
<b>Unmanned Aerial Vehicle Surveying</b> , Maan Academy	
<b>GIS, Mapping, and Spatial Analysis Specialization</b> , University of Toronto (Offered by Coursera)	
<b>Hydraulic Modeling of flood plains in Urban Rivers</b> , Kharazmi University	2022
<b>CS50 Certificate</b> , CS50 (Harvard University)	2021

## HONORS & AWARDS

<b>LeetCode Global Ranking - Ranked Top 100</b> , LeetCode	2025
<b>Deep-ML Global Leaderboard - Ranked Top 50</b> , Deep-ML.com	
<b>Master's Entrance Exam (Geophysics) - Ranked 8<sup>th</sup> Nationwide</b>	
<b>Hydro 2024 Research-Oriented Summer School - Full Scholarship</b> , University of Lille	2024
<b>Geological Society Logo Design Contest - Winner</b> , Kharazmi University	
<b>Research Visit Grant (2500 DKK) - Awardee</b> , University of Copenhagen	2022
<b>DrCT 2021 Global Computational Competition - Gold Medalist</b>	2021
<b>1<sup>st</sup> national Thinking &amp; Entrepreneurship Olympiad (ITEO) - Silver Medalist</b>	2020
<b>WMI 2015 World Mathematical Championships Selection - Silver Medalist</b>	2015

## SKILLS & INTERESTS

**Programming Languages:** Python (ObsPy, pyGIMLi, Astropy, OpenCV, TensorFlow, PyGMT, Xarray, Scikit-learn, kepler.gl, Leafmap, Folium, Rasterio, GeoPandas), Julia, Bash (Shell scripting), SQL (MySQL), GMT, GDAL; Familiar with R

**Markup Languages:** Markdown, L<sup>A</sup>T<sub>E</sub>X

**Softwares:** Astrometrica, ENVI, Global Mapper, ArcGIS, QGIS, 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, Planetary Science, Machine Learning, Image Processing, Open-Source Software Development, Inverse Problems

## PROFESSIONAL MEMBERSHIPS

<b>Space Generation Advisory Council</b>	Member, 2025 – Present
<b>Google Maps Platform Innovators</b>	Member, 2025 – Present
<b>Geological Society of Iran</b>	Student member, 2021 – 2022

<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