***IOANNIS FARMAKIS*** ***ioannis.farmakis@uniroma1.it***

***Curriculum Vitae***

## PERSONAL INFORMATION

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| First name: | Ioannis |
| Last name: | Farmakis |
| Nationality: | Greek |
| Date of birth: | 23/08/1992 |
| Telephone: | (+30) 6984101585 |

## EDUCATION

09/2019-09/2023: **Doctor of Philosophy:** Geological Sciences and Engineering
"Point Clouds and Machine Learning Applications in Rock Slope Modelling"
Coursework: Departments of Computer Science and Remote Sensing
**Queen's University, Kingston, ON, Canada**

10/2017-08/2018: **Master of Science:** Engineering Geology
**Aristotle University of Thessaloniki, Greece**
Grade: 9.12/10

09/2010-09/2017: **Bachelor of Science:** Geology
**Aristotle University of Thessaloniki, Greece**
Specialization: Applied Geology
Grade: 7.05/10

## RESEARCH EXPERIENCE

06/2024 – Currently: **Postdoctoral Researcher @ Sapienza University of Rome, Italy**
Department of Earth Sciences
*"Development of Machine Learning and Change Detection Methods for the Characterization of Instability and Deterioration Processes of Cultural Heritage"*

10/2023 – 05/2024: **Postdoctoral Researcher @ The University of Newcastle, Australia**
School of Engineering, College of Engineering, Science and Environment.
*"Application and Validation of Machine Learning for Rockfall Analysis"*

09/2022 – 01/2023: **Research Fellow @ National Technical University of Athens, Greece**
Department of Civil Engineering, Geotechnical Division
*"3D mapping and engineering geological-geotechnical characterization of the ancient underground marble quarries of Paros Island, Greece, through the development of virtual reality applications"*

09/2021 – 05/2023: **Research Fellow @ National Technical University of Athens, Greece**
Department of Civil Engineering, Geotechnical Division
***"****Development of digital tools and integration of them in geotechnological methods for the investigation of landslide hazards in an environment of poor and complex rock masses"*

09/2021 – 05/2022: **Research Fellow @ National Technical University of Athens, Greece**
Department of Civil Engineering, Geotechnical Division
***"****Engineering geological and geotechnical research with the application of modern digital technologies for the stabilization of volcanic rocky slopes"*

11/2021 – 8/2022: **Research Fellow @ National Technical University of Athens, Greece**
Department of Civil Engineering, Geotechnical Division
***"****Applications of reality capture technologies in the assessment of engineering geological and geotechnical conditions related to the evolution of landslide events, and the definition of optimal support and protection measures"*

## RELATED ACADEMIC ASSIGNMENTS

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| Doctoral dissertation: | **Farmakis, I.** 2023. Point Clouds and Machine Learning Applications in Rock Slope Modelling. [Doctoral dissertation, Queen's University], Queen's University. https://hdl.handle.net/1974/31869. |
| Journal article: | **Farmakis, I.,** Guccione, D.E., Thoeni, K., Giacomini, A. 2025. VoxFall: A non-parametric volumetric change detection for rockfalls. Engineering Geology, (in press). |
| Journal article: | **Farmakis, I.,** Hutchinson, D.J., Vlachopoulos, N., Westoby, M., Lim, M. 2023. Slope-scale rockfall susceptibility modelling as a 3D computer vision problem. Remote Sensing, 15(11): 2712. https://doi.org/10.3390/rs15112712. |
| Journal article: | **Farmakis, I.**, DiFrancesco, P-M., Hutchinson, D.J., Vlachopoulos, N. 2022. Rockfall detection using LiDAR and deep learning. Engineering Geology. 309:106836. https://doi.org/10.1016/j.enggeo.2022.106836. |
| Journal article: | **Farmakis, I.**, Karantanellis, E., Hutchinson, D.J., Vlachopoulos, N., Marinos, V. 2022. Superpixel and Supervoxel Segmentation Assessment of Landslides Using UAV-Derived Models. Remote Sensing. 14(22):5668. https://doi.org/10.3390/rs14225668. |
| Journal article: | **Farmakis, I.**, Bonneau, D., Hutchinson, D.J., and Vlachopoulos, N. 2021. Targeted Rock Slope Assessment Using Voxels and Object-Oriented Classification. Remote Sensing, 13(7):1354. https://doi.org/10.3390/rs13071354. |
| Journal article: | **Farmakis, I.**, Marinos, V., Papathanassiou, G., and Karantanellis, E. 2020. Automated 3D Jointed Rock Mass Structural Analysis and Characterization Using LiDAR Terrestrial Laser Scanner for Rockfall Susceptibility Assessment: Perissa Area Case (Santorini). Geotechnical and Geological Engineering. https://doi.org/10.1007/s10706-020-01203-x. |

## RELATED CONFERENCE PRESENTATIONS AND LECTURES

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| Invited lecture: | "Point Clouds and Machine Learning Applications in Rock Slope Modelling" 6/2/2024 - Australian Geomechanics Society, NSW Chapter Seminar |
| Abstract / Presentation: | **Farmakis, I.**, Guccione, D.E., Thoeni, K., Giacomini, A. 2025. A non-parametric change detection method for rockfall monitoring. EUROENGEO, 4th European Regional Conference of IAEG. Dubrovnik 2024, Croatia, 8-12 October 2024. |
| Abstract / Presentation: | **Farmakis, I.**, Hutchinson, D.J., Vlachopoulos, N. 2024. Point Clouds and Machine Learning in Rock Slope Modelling. EUROENGEO, 4th European Regional Conference of IAEG. Dubrovnik 2024, Croatia, 8-12 October 2024. |
| Article / Presentation: | Chatzitheodosiou, T., **Farmakis, I.**, Prountzopoulos, G., Stoumpos, G., Papouli, D., Thomaidis, T., Marinos, V. 2024. Addressing Rockfall Challenges in flysch environment – A case study from Greece. 6$^{th}$ Regional Symposium on Landslides in the Adriatic-Balkan Region, Belgrade, Serbia, 15-18 May 2024. |
| Article / Presentation: | **Farmakis, I.**, Bonneau, D., DiFrancesco, P-M., Hutchinson, D.J., Vlachopoulos, N. 2022. Rockfall monitoring using LiDAR and AI: Opportunities and challenges. 11th International Symposium of Field Monitoring in Geomechanics. Imperial College, London, UK, 4-7 September 2022. |

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| Abstract / Presentation: | Marinos, V., Karantanellis, E., and **Farmakis, I.** 2022. Low-cost monitoring of coastal instabilities via UAV photogrammetry: Lessons learnt from the Red Beach in Santorini Island, Greece. 16th International Congress of the Geological Society of Greece, Patra, Greece, 17-19 October 2022. |
| Article / Presentation: | **Farmakis, I.**, Karantanellis, E., Hutchinson, D.J., Vlachopoulos, N., Marinos, V. 2021. Qualitative assessment of multi-dimensional UAV photogrammetry models for computer vision applications in landslide investigation. GeoNiagara 2021. Niagara, ON, Canada, 26-29 September 2021. |
| Abstract / Presentation: | **Farmakis, I.**, Bonneau, D., Hutchinson, D.J., Vlachopoulos, N. 2020. Integrating 3D point clouds and machine learning for intelligent rock slope environments development. EUROENGEO, 3rd European Regional Conference of IAEG. Athens 2020, Greece, October 2021. |
| Article / Poster: | **Farmakis, I.**, Bonneau, D., Hutchinson, D.J., and Vlachopoulos, N. 2020. Supervoxel-Based Multi-Scale Point Cloud Segmentation Using FNEA for Object-Oriented Rock Slope Classification Using TLS. XXIV International Society of Photogrammetry and Remote Sensing (ISPRS) Congress, Nice, France, June 2022. |
| Abstract / Presentation: | **Farmakis, I.**, Hutchinson, D.J., 2019. Semi-automated discontinuity orientation extraction in complex rock masses using single-scan LiDAR data. EGU 2019, Vienna, Austria, April 2019. |
| Abstract / Poster: | Konstantinidis, I., Karantanellis, E., **Farmakis, I.**, Marinos, V., 2019. Multi-sensor Change Detection for Quantification of Landslide Hazard in Santorini island, Greece. EGU 2019, Vienna, Austria, April 2019. |

## LANGUAGES

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| Mother tongue: | Greek |
| Proficiency: | English |
| Conversational: | Italian |

## OTHER SKILLS

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| Computer/Software: | Certificate of IT skills,<br>Faculty of Sciences, Aristotle University of Thessaloniki |
| | Deep Learning specialization, www.deeplearning.ai. |
| | Python, C++, C#, Mathworks Matlab programming |
| | OpenCV, Open3D, Tensorflow, PyTorch frameworks |
| | Unity Game Engine, 3D Modelling, GIS, CAD software |
| | Rocscience Suite, Numerical Modelling 2D/3D |