

*Curriculum Vitae***EDUCATION**

- 09/2019-09/2023: **Doctor of Philosophy:** Geological Sciences and Engineering
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

WORK HISTORY

- 10/2023 – 04/2024: **Research Associate**
“Application and Validation of Machine Learning for Rockfall Analysis”
School of Engineering – College of Engineering, Science and Environment –
The University of Newcastle, NSW, Australia.
- 09/2022 – 01/2023 **Research Fellow**
“3D mapping of the underground galleries of the ancient quarries of Nymfwn and Panos, at Marathi site, Paros island and engineering geological-geotechnical characterization through the development of applications based on the use of digital technologies”
Central Greece administrative region– National Technical University of Athens.
- 09/2021 – 05/2023: **Research Fellow**
“Development of digital tools and integration of them in geotechnological methods for the investigation of the hazard of landslide occurrence in an environment of poor and complex rock masses in the area of Evrytania and the protection and support of road cuts per failure mechanism”
Central Greece administrative region– National Technical University of Athens.
- 12/2018 – 08/2023: **Research Technician**
RMC Green Team (Civil Engineering Department, Royal Military College of Canada, Kingston, Ontario, K7K 7B4, CA)
website: www.rmcreenteam.com
- 09/2021 – 05/2022: **Research Fellow**
“Engineering geological and geotechnical research with the application of modern digital technologies for the stabilization of the volcanic rocky slopes of the Holy Monastery of Panaghia Spiliani, Municipality of Nisyros.”
Municipality of Nisiros island – National Technical University of Athens.
- 11/2021 – 8/2022: **Research Fellow**
“Research of reality capture technologies integration in a) the assessment of engineering geological and geotechnical conditions related to the stability, hazard, and evolution of rockfall and landslide events, and b) the definition and evaluation of optima I support and protection measures of the Therma – Agios Fokas coast cliffs, Municipality of Kos”
Municipality of Kos – National Technical University of Athens.

RELATED ACADEMIC ASSIGNMENTS

- 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.**, 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. doi: 10.3390/rs15112712.
- 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. doi:10.3390/rs14225668.
- Journal article: **Farmakis, I.**, DiFrancesco, P-M., Hutchinson, D.J., Vlachopoulos, N. 2022. Rockfall detection using LiDAR and deep learning. *Engineering Geology*. 309:106836. doi: 10.1007/s10706-020-01203-x
- 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. doi: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*. doi:10.1007/s10706-020-01203-x.
- Journal article: **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. *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences - ISPRS Archives*.
- Technical report: The September 18-20 2000 Medicane Ianos Impact on Greece, Phase I Reconnaissance Report, Geotechnical Extreme Events Reconnaissance Association (GEER), <http://geerassociation.org/>

CONFERENCES AND LECTURES

- Invited lecture: “Point Clouds and Machine Learning Applications in Rock Slope Modelling” 6/2/2024 - Australian Geomechanics Society, NSW Chapter Seminar
- Conference article: **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.
- Conference abstract: 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.
- Conference abstract: Marinos, V., **Farmakis, I.**, Chatzitheodosiou, T., Papouli, D., Stoumpos, G., Karantanellis, E., and Proutzopoulos, G. 2022. Landslide and rockfall investigation and mitigation design in complex natural slopes based on modern 3D reality capture technologies. 16th International Congress of the Geological Society of Greece, Patra, Greece, 17-19 October 2022.
- Conference article: **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.

- Conference abstract: **Farmakis, I.,** Bonneau, D., Hutchinson, D.J., Vlachopoulos, N. 2020. Integrating 3D point clouds and machine learning for intelligent rock slope environments development. EUROENGE0, 3rd European Regional Conference of IAEG. Athens 2020, Greece, October 2021.
- Conference article: **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.
- Conference article: **Farmakis, I.,** Marinos, V., Vlachopoulos, N., 2019. Assessment of the GSI along rock slopes based on LiDAR and photogrammetry point clouds. 53rd US Rock Mechanics / Geomechanics Symposium, New York, New York, USA, June 2019.
- Conference abstract: **Farmakis, I.,** Karantanellis, E., Marinos, V., 2019. Rock Mass Characterization Using Lidar Terrestrial Laser Scanner for Rockfall Susceptibility Assessment in Perissa Area (Santorini). GSG 2019, Athens, Greece, May 2019.
- Conference abstract: **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.
- Conference abstract: 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

Mother tongue:	Greek
Proficiency:	English
Conversational:	Italian

OTHER SKILLS

Computer/Software:	Certificate of IT skills, Faculty of Sciences, Aristotle University of Thessaloniki
	Deep Learning specialization, www.deeplearning.ai .
	Python, C++, Mathworks Matlab, 3D Modelling, GIS, CAD software
	Rocscience Suite, Numerical Modelling 2D/3D