Georgios Etsias

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Professional profile

Motivated engineer with a solid background in machine learning, image analysis and experimental data filtering. I have conducted research in the United Kingdom, United States and Greece.

I have 4 years of professional experience in the acquisition and processing of experimental data in environmental research projects. The past 2.5 years I have been working on the application of machine learning techniques (ANNs, SVMs, decision trees) on the analysis of experimental images of groundwater flow. I am proficient in three programming languages and have a deep knowledge of statistics and optimization algorithms.

Work experience

July 2018 - Present **Research Assistant, Queen's University Belfast, Belfast, NI, UK**

Research project: Saline Intrusion in coastal aquifers (SALINA)

- Employed machine learning algorithms in conducting classification and regression analysis of laboratory images of saltwater intrusion, significantly optimizing the experimental procedure
- Created novel image processing algorithms to identify and filter errors introduced to the data acquisition procedure
- Utilised experimental data of saltwater intrusion, derived from locations across Northern Ireland, in training time-series models to predict the response of coastal systems to tidal and weather variations
- Conducted CFD simulations of groundwater flow in highly heterogeneous coastal aquifers

January 2017 – April 2018 **Research Assistant, McNeese State University, Lake Charles, LA, USA**

Research project: Laboratory investigation of 3-dimensional turbulent flow around submerged breakwater designs

- Acquired laboratory data using Acoustic Doppler Velocimetry (ADV) and Particle Image Velocimetry (PIV)
- Conducted experimental data filtering and error analysis
- Executed CFD simulations of surface water flow around submerged structures of varying shapes

Education & qualifications

- **PhD, Groundwater hydrology –** Queen's University Belfast, 2021 (expected graduation)
- **MSc, Civil engineering –** McNeese State University, 2018 (Grade: 4/4)
- **MSc, Environmental protection –** Aristotle University of Thessaloniki, 2016 (Grade: 9.54/10)
- **MEng, Civil engineering –** Aristotle University of Thessaloniki, 2013 (Grade: 7.49/10)

Programming languages

Python, MATLAB, R

Languages

English: fluent, Greek: native

Latest machine learning and image analysis publications

- **Optimizing laboratory investigations of saline intrusion by incorporating machine learning techniques** (2020) - Water 2020, 12, 2996. DOI: 10.3390/w12112996
- **The effect of colour depth and image resolution on laboratory scale study of aquifer saltwater intrusion** (2020) – CERI 2020, conference proceedings. ISBN 978-0-9573957-4-9
- **Optimizing image analysis processing in thin transparent aquifers: application to pixel wise regression of salt-water intrusion** (2020) - EGU 2020. DOI: 10.5194/egusphere-egu2020-18127

References and complete list of publications available on request