RESEARCH - ML ENGINEER

Estelle Delouche

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Research engineer with a specialization in seismology and machine learning with 4+ years of experience leading research and development projects.

Experience in innovation, optimization and development of programs and process digitization using analytical tools, programming languages (Python, Excel, MATLAB), and cloud servers.

EXPERIENCE

Post-doc
Time-series recognition and Prediction

📅 June-2023 – November 2023   📍 ISTerre, Grenoble, France

- Development of Machine Learning algorithms (Supervised and Unsupervised techniques) to separate and locate volcanic tremor sources (Python, Tensorflow)
- Determination of the long-term evolution of water resources at European scale (Python, Matlab)

PhD
Big Data and Software Development

📅 Sept 2019 – June 2023   📍 ISTerre, Grenoble, France

- Creation of signal processing software in Python and Matlab
- Software development to model and predict the water fluctuations inside aquifer systems
- Performing a wave sensitivity study at depth using 'Surf96'
- Big Data management: GPS, Satellite (GRACE), precipitation and seismic data at European scale
- Supporting global RISE project for real-time earthquake risk reduction
- Presentations and reports writing

Master Internship
Image recognition with ML

📅 Jan 2019 – July 2019   📍 ISTerre, Grenoble, France

- Creation of a machine learning-based automated system to discriminate the resting, precursory and post-seismic phases of an earthquake
- Time series and image recognition

Master Internship
Statistical study of earthquake signal

📅 May 2018 – June 2018   📍 ISTerre, Grenoble, France

- Characterization of the co-seismic impact of noise recordings for l'Aquila and Amatrice earthquakes using statistical moments

SKILLS SUMMARY

Data
Signal processing, Kernel sensitivity, Machine Learning, Seismology

Languages
Matlab, Python, Tensorflow, Bash, Latex, Java, Excel

Platforms
Linux, Windows, Cloud server (Luke, Dahu, Bigfoot, OAR)

SOFTS SKILLS

Achiever   Teamwork   Time management   Public speaking

LANGUAGES

English

Spanish

French (native)

EDUCATION

Master
Grenoble Alpes University - Isterre

📅 Sept 2017 – June 2019

Courses: Signal processing, Data analysis, Wave physics, Problem-solving, Statistics

Licence
Nice University - Géoazur

📅 Sept 2014 – June 2017

Courses: Geophysics, Mathematics, Physics, Algebra, Thermodynamics, Analysis, Mechanics

PUBLICATIONS

📄 Journal Articles

- **E. Delouche** and L. Stehly, "Long-term velocity variations in Italy related to aquifer system," *in preparation*, 2023.

- **E. Delouche** and L. Stehly, "Seasonal seismic velocity variations measured using seismic noise autocorrelations to monitor the dynamic of aquifers in Greece," *Solid Earth*, 2023.

- L. Stehly, **E. Delouche**, L. Tomasetto, and P. Ranjan, "Dynamic of seismic noise sources in the mediterranean sea : Implication for monitoring using noise correlations," *Comptes Rendus de l'Académie des Sciences*, 2023.

CONFERENCES

👥 International Conferences

- AGU conferences, 1st author, San Francisco, New Orleans, 2019, 2021.

- EGU conferences, 1st author, Vienna, 2020, 2021, 2022, 2023.

- Summer school, 1st author, Cargese, 2019, 2022.

HOBBIES

Running, Trail, Latin Dances (Salsa, Bachata), Detective fiction, Cooking