
Job title **TFG/TFM: Development of Deep Neural Network Algorithms for Water Quality Monitoring**

Job description Master's/Bachelor's Thesis (TFM/TFG)

Description

This work continues the research started within the framework of a collaborative European project with the company Aigües de Barcelona pursuing the integration of new predictive microanalytical solutions for environmental monitoring.

Along the thesis, you will specify, train, and validate Deep Learning algorithms for the prediction of water quality parameters set by European regulations. To this end you will employ a database created from multiparametric measurements carried out with commercial instrumentation and with electrochemical microsensors manufactured in the clean room of IMB-CNM-CSIC, both installed in a drinking water treatment plant. You will collaborate with a multidisciplinary team with experience in Machine Learning, microelectronics, analytical chemistry and water quality monitoring.

Background and Skills

- Currently enrolled in a degree or MSc program in Computer Science, or a related field;
- Programming experience in Python (Numpy, Matplotlib, Scikit-learn, Pandas libraries);
- Knowledge of Git version control systems;
- Knowledge of training / inference of artificial neural networks in GPU-accelerated environments (TensorFlow and / or PyTorch libraries).

Tasks

- Specify Deep Neural Network architectures and optimize their accuracy to predict different water quality parameters from IMB-CNM's microsensor readings;
- Benchmark algorithmic performance against alternative Machine Learning algorithms such as Support Vector Machines/Regression.

How to apply

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