

## Post-doctoral position

**Field:** Environmental Sciences

**Contract:** 1 year (with possible extension)

**Work time:** Full time

**Salary:** 3100 €/month bruto (10% about it, will be paid the last month of the contract)

The UMR CNRS 5805 EPOC research team (Bordeaux, France) is seeking applications for a Postdoctoral Fellow to develop and implement novel approaches to characterize soil-plant interactions that govern grapevine variability at a Château near Bordeaux.

The position focuses on the evaluation of the geophysical and hyperspectral methods to extract Carbon and Nitrogen components of respectively soil and plants. In order to reach the objectives, field- and lab-based understanding is developed in close integration with modeling needs and advances.

This project includes Bordeaux laboratories, Lawrence Berkeley National Laboratory and the Château, affording the successful candidate the opportunity for diverse collaborations.

The postdoc will be responsible for coordinating and integrating spatial datasets from remote sensing databases as well as the geophysical datasets and sample analysis (leaves and soil).

The primary task is focused on diverse data analysis, integration and scaling using machine learning techniques, and characterizing the spatial dynamics of vineyard ecosystem and biogeochemical functioning.

### What You Will Do:

- Work collaboratively with Lawrence Berkeley National Laboratory (California, USA), the Château and Bordeaux geophysics team dedicated to vineyard study to integrate their datasets for the spatial characterization.
- Analyze data and extract patterns and correlations from remote sensing and other environmental datasets, using appropriate data mining methods.
- Develop and implement ML based algorithms for integrating spatiotemporal datasets including remote sensing and ground-based measurements for ecosystem and biogeochemical characterization.
- Author peer-reviewed conference or journal papers.

### What is Required:

- Ph.D. in Environmental Sciences/Engineering, Earth/Soil Sciences, Data Science, Applied Mathematics, Computer Science, or other related technical disciplines.
- Experience and knowledge with environmental, ecological, and/or remote sensing datasets and research practices.
- Theoretical understanding and application of data analysis methods such as statistical techniques, signal processing, pattern recognition, or data-informed modeling.
- Strong skills with python and/or R programming language.
- Experience in remote sensing/ hyperspectral data processing,
- Demonstrated ability to publish research in relevant journals

- An ability to work independently and in an integrated team environment
- Strong and effective oral and written communication skills.

**Desired Qualifications:**

- Interest in vineyard topic.
- Desired is a solid foundation in soil physics, statistics, and geospatial constructs.
- Familiarity with libraries, frameworks, or workflow tools that enable data analytics and machine learning (e.g., NumPy, Pandas, Scikit-learn, Keras, Tensorflow, Jupyter Notebooks).
- Familiarities with geoelectrical field data inversion, integration and interpretation
- Demonstrated record of publications and conference presentations.
- Interest in collaborative research, open science and implementing maintainable and reusable software/data products for broader scientific use.

This position will remain open until filled.

**Notes:**

- This is a full-time, one-year, postdoctoral appointment with the possibility of renewal based upon satisfactory job performance, continuing availability of funds and ongoing operational needs.
- Work will be primarily performed at 1 allée F. Daguin, 33607 Pessac (Bordeaux, France) and punctually in a vineyard (near Bordeaux).
- The incumbent must have ability to commute between both to perform laboratory and numerical field site and the University.

A cover letter describing interest in and experience relative to the position, as well as a CV, will be sent to Myriam Schmutz and Nicola Falco.

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