

Postdoctoral Associate offer

Contract: **French “Contrat à durée déterminée (CDD)”**

Duration: **18 months**

Starting date: **June 2020**

Location:

Ecole d'Ingénieurs de PURPAN (EI PURPAN)

75 Voie du TOEC, 31076 Toulouse, FRANCE

Affiliation:

UMR 1201 Dynafor (UMR INRAe / Toulouse INP / EI PURPAN)



Job description

Context:

Hiring is done within the framework of the EtSaViTé project (health status of vines from remote sensing). This project, funded by the French Occitanie region and the European Union, is a partnership between EI PURPAN, Montpellier SupAgro and TerraNIS.

The EtSaViTé project aims at defining and contributing to the development of operational services related to the characterization of vines' sanitary state. The project addresses two topics of interest for Occitanie's vineyards: diseases' detection (*Flavescence dorée* and other wood diseases) and sensing of water stress level. The developments carried out in those two areas will help the partner TerraNIS complete its Oenoview® offer. The planned research will focus on exploring the potential of new remote sensing sources, considering especially i) multi-hyperspectral imagery likely to help in the diagnosis of the state of the vegetation, and ii) the high temporal resolution of images multispectral likely to provide information on the dynamics of large-scale agro-systems and in particular on access to water.

The Postdoctoral Associate will be hired within the project to help address the identified research questions and will join a dynamic interdisciplinary team. Work will be done in direct interaction with at least another postdoc and a PhD student. The experimental facilities on which the project will be implemented are vineyards located in several places in the Occitanie region.

Duties:

The hired person will contribute to the three actions planned under the project:

- Build up and analyze a database (field measurements and images) in order to i) complete our knowledge regarding the optical signal's changes according to the plant health status, and ii) test and validate the proposed methodological approaches. A first field campaign took place in 2019 and numerous biophysical and hyperspectral measurements were already collected. The applicant is expected to help in planning and performing the additional field measurements required to complete our database.

- Develop new methodological approaches based on algorithms that take into account the full complexity of the multi- and hyperspectral datasets. The intra-pixel mixtures will also be considered as this effect is particularly important when the spatial resolution is reduced, as it is when dealing with Sentinel-2 images.
- Promote scientific results at an international level (congresses, scientific articles) and technical results towards professionals (national conferences, technical articles in professional journals). The hired person will also contribute to the writing of tutorials and descriptive documents to ensure sharing and transfer of methods.

Qualifications

Experience:

- PhD degree in Computer Science, Image Processing, Remote sensing, Applied Mathematics, Statistics or equivalent
- Proven track record of scientific productivity reflected through publications in peer-reviewed scientific journals is required

Skills:

- Proficiency in Python or similar programming language (MatLab and/or IDL are a plus)
- Experience in designing and implementing scientific algorithms, especially image processing algorithms based on the latest advances in machine learning
- Demonstrated experience with remote sensing or multi/hyperspectral data processing is preferred
- Geospatial data manipulation and ability to use geomatics software (ArcGIS, QGIS)
- Knowledge in agronomy and/or viticulture is a plus
- Excellent scientific and technical English, strong oral and written communication skills are required. Knowledge of French is preferable.
- Demonstrated ability to work in diverse, interdisciplinary teams is required

Salary:

Gross annual salary: 31k€ + precariousness bounty

To apply

Please send your resume, application letter and publications list to Dr. Harold CLENET:

harold.clenet@purpan.fr

+33 5 61 15 29 66

LinkedIn.com/in/hclenet

Screening of applications will continue until the position is filled.



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