

Post-Doc position in hyperspectral remote sensing for forest trait retrievals and biodiversity estimation at the University of Milano-Bicocca, Milano, Italy

Job description

A Post-Doc position under the supervision of Prof. Micol Rossini is available at the remote sensing of environmental dynamics lab, Department of Earth and Environmental Sciences, University of Milano Bicocca.

The position is related to the Project "Development and test of algorithm for vegetation functional parameter retrieval from PRISMA in agro-forestry" funded by the Italian Space Agency.

Subject description

The objective of this position is to capitalise on newly available Earth Observation data sources offering complementary spatial resolutions, wide spectral ranges and revisit capabilities to advance the capability to monitor biodiversity changes from space.

In particular, the main aim of the project is to develop a PRISMA data processing chain for the generation of Earth Observation products related to plant functional traits from PRISMA reflectance data and the exploitation of plant trait maps to generate products related to functional diversity.

Important tasks are to:

- develop algorithms for the retrieval of plant traits (e.g. leaf and canopy pigment content, leaf and canopy water content, leaf and canopy nitrogen content, leaf area index) from PRISMA reflectance data through machine learning algorithms and radiative transfer models;
- create plant trait maps and validate them in forest ecosystems;
- apply multivariate and machine learning methods to estimate functional diversity based on a combination of leaf and canopy traits;
- investigate possible integration with other earth observation (EO) products;
- evaluate the value of the products generated by PRISMA data in the context of forest biodiversity monitoring

Work duties

The work is carried out together with a team of remote sensing expertise within the Department of Earth and Environmental Sciences, and in close collaboration with remote sensing researchers within the project belonging to the following institutions:

- CNR-IREA, Council of National research, Institute for Electromagnetic Sensing of the Environment (Dr. Mirco Boschetti)
- CNR-IMAA, Council of National research, Institute of Methodologies for Environmental Analysis (Dr. Stefano Pignatti)
- University of Tuscia, Department of Agriculture and Forest Sciences (Prof. Raffaele Casa)
- ITC-NRS, Faculty of Geo-Information Sciences and earth Observation, Department of natural Resources (Prof. Darvishzadeh Varchehi Roshanack)

Applicants must have

- Basic university education in technical or natural science with a large component of geomatics (GIS, remote sensing)
- PhD with specialization in optical remote sensing of vegetation

- Good experience in computer programming
- Experience in data analysis (time series analysis, statistics, numerical analysis, etc.)
- Very good oral and written proficiency in English (C1 level- Common European Framework of Reference for Languages - CEFRL)
- Experience within applications towards plant science / ecology / biodiversity

Additional assessment criteria:

- Publications in international conference and peer-reviewed journals
- Other documented communication skills
- Documented previous work, courses or summer schools in remote sensing field

Consideration will also be given to good collaborative skills, drive, and how the applicant's experience and skills complement and strengthen ongoing research within the group.

This is a full time position (40 hours/week) available for one year, from October/November 2022 to September/October 2023 (extendable). The salary will be 29000 EUR per year, corresponding to approximately 1700 EUR monthly net income.

Interested candidates are encouraged to send inquiries and applications (CV, letter of motivation and the contact of two references) to Prof. Micol Rossini (micol.rossini@unimib.it).