

# EO4cultivar

## Delivering analysis-ready and value-added data to the South American agricultural supply chain and farmer advisory services **\*\*PhD study opportunities in the UK\*\***

The **Open University** and **Environment Systems** are looking for applicants to undertake **PhD research** as part of the **EO4cultivar** program; a **3 year project** that will enable growers and government organisations in the agricultural sector in **Peru** and **Colombia** to improve competitiveness and food security.

Satellite and remote sensing data analysis provides up to date information on crop status (e.g. health, growth stage or vigour) throughout the growing season. These data can help improve crop production, support sustainable farming practices and manage risk. This PhD project will help develop techniques and services to provide meaningful agricultural information for growers and farmer advisory services that will support management activities in the field and improve agriculture.



Improving agriculture using radar satellite images

Synthetic Aperture Radar (SAR) backscatter from agricultural fields can be decomposed in two contributions: one coming from plants and another coming from the ground underneath. The ground backscattering is influenced by soil moisture, roughness and rows orientation and is generally masked out when the canopy is well developed. On the other hand, leaf area index and plant water content have a strong impact on the backscattering. We therefore observe a variation of the backscattering while the plant goes through its maturation stages. The student will analyse the temporal trend to separate plant and ground contributions, and improve the extraction of information regarding crop growth. Using SAR together with ground data from project locations, temporal models of backscatter will be trained and adaptive filters developed able to identify divergences from the model. These will form the base of a SAR-based crop health monitoring algorithm.

For more information contact [armando.marino@open.ac.uk](mailto:armando.marino@open.ac.uk) by email. Armando Marino is a lecturer in Electronics and Signal Processing within the School of Engineering & Innovation at The Open University. A formal PhD advert will be published shortly but you are strongly advised to register your interest as soon as possible.

Candidates must be nationals from a Latin American country and will be based primarily in Milton Keynes, UK. The ability to deliver your PhD research within the project timeframe and flexibility to travel between UK and project locations in Peru / Colombia as part of the international project team are essential. The PhD will start in September 2017 and must be completed by August 2020.



### Who are we?

Environment Systems is a **UK based company** working on environmental and agricultural projects throughout the world. We are specialists in the use satellite data.

### Where will you be studying?

The Open University (OU) is a world leading research university in the south-east of England and was the world's first successful distance learning university. This PhD will be based at the University campus in the Department of Engineering and Innovation.

### What are we looking for?

The successful candidate should have a Master's degree in Electrical Engineering, Computing, Geosciences, Mathematics or related subjects. The working language is English and a proficiency in this is required. It is beneficial if the candidate has already experience with a programming language.

### What will the benefits be?

- Annual Stipend for 3 years tax free.
- Fees fully paid.
- Interdisciplinary training between University and Industry in a rapidly expanding area of applied research.