

## **Funded four-year PhD position at Maynooth University - Ireland**

### **Title: Spatio-temporal machine learning and statistical modelling of Carbon Sequestration**

**Start date:** September 2024 or as soon as possible thereafter

#### **Project Description:**

This PhD project is part of a wider project on Carbon sequestration from Agricultural soils from different Land-uses, Managements and Soil types (CALMS) in collaboration between Teagasc (lead organisation), Maynooth University, University College Dublin, and Trinity College Dublin.

The initial phase of the project will involve collaboration with a Teagasc Data Technologist to assemble the data taken from the Eddy Flux towers over a pre-specified period and construct an SQL database. This will form the start of a data analysis pipeline that will allow monitoring greenhouse gas fluxes across the spatio-temporal network of sites.

The PhD student will use and develop state of the art machine learning and statistical modelling techniques to both predict the behaviour of the diurnal fluxes and understand the causal relationships between land use, management, weather and CO<sub>2</sub> and CH<sub>4</sub> fluxes.

**Qualifications:** Minimum educational background: BSc (honours) or MSc degree at 2.1 grade or above (or equivalent) in Mathematics/Statistics/Machine Learning or related discipline. Computational skills and experience with programming in R and/or Python are required. Desirable: experience with SQL, spatio-temporal data analysis, time series analysis, missing data analysis.

**Stipend:** The student will receive a tax-free stipend of €25,000 per year, full coverage of tuition fees and funds for conference travel. If desired, the student will have the opportunity to serve as tutor (Teaching Assistant), which will be paid on top of the stipend at the hourly rate.

**Equality and diversity:** Maynooth University is an equal opportunities employer. To learn more about our commitment to Equality and Diversity, please read the Maynooth University Equality and Diversity Policy (<https://www.maynoothuniversity.ie/edi/edi-policies/EDpolicy>), and our policy on the Employment of People with Disabilities (<https://www.maynoothuniversity.ie/edi/edi-policies/disability>). Additionally, as an Athena SWAN Bronze Award Institute, we are committed to advancing gender equality across the University. Applications from all suitably qualified candidates will be considered.

**About MU:** Maynooth University is a very distinctive university, a collegial institution focused on science and engineering, humanities, and social sciences, and equally committed to research, teaching and community engagement. Located 25 kilometres outside of Dublin, in Ireland's only university town, its distinctive features and character owe much to its unique history and heritage. Maynooth University is one of the leading young universities in the world, and in 2023 ranked #1 in Ireland (85th in the world) in the latest Times Higher Education (THE) Best Young University Rankings.

**Informal enquiries are welcome and should be made to Dr Katarina Domijan ([katarina.domijan@mu.ie](mailto:katarina.domijan@mu.ie)) or Professor Andrew Parnell ([andrew.parnell@mu.ie](mailto:andrew.parnell@mu.ie)).**

To apply please e-mail [katarina.domijan@mu.ie](mailto:katarina.domijan@mu.ie) a **single pdf** document with

- a detailed curriculum vitae describing any previous research experience,
- a cover letter (max 2 pages) detailing your research interests and goals, and
- the contact details (e-mail and phone number) of at least two academic referees.

Please reference "PhD spatio-temporal" in the subject line of the email.

Evaluation of applicants will commence on **June 4, 2024**, and will continue on a rolling basis until the position is filled. Only shortlisted candidates will be contacted.