Griffith UNIVERSITY
Queensland, Australia

Position Description

Position Title	Research Fellow in AI and Computational Soil Biogeochemistry
Group/Portfolio	School of Environment and Science
Classification	Research Fellow Grade 2
Position Number	00063665
Reports To	Distinguished Professor Chengrong Chen
Employment Type	Fixed Term

1.0 Position Purpose

To undertake research in the areas of dynamics of soil carbon and biogeochemistry using cutting-edge hyperspectral imaging, machine learning and modelling techniques. This position offers the opportunity to work at the forefront of soil science and data analytics, aiming to improve our understanding of soil carbon processes, their spatial and temporal variability, and long-term carbon sequestration. The successful candidate will contribute to both research excellence and teaching innovation in environmental and soil sciences.

2.0 Eligibility Requirements

- PhD in Soil Science, Computer Science, Environmental Science, Geoinformatics, Machine learning, or a related field.
- Experience with hyperspectral or spectroscopic or computational analysis of soils or natural materials.
- Proficiency in machine learning (e.g., Python, R, MATLAB) and multivariate data analysis.

3.0 Key Responsibilities

- **Research:** contribute to the advancement of knowledge through a research-intensive portfolio of high-quality outputs that demonstrate impacts, including the ability to obtain research funding. Demonstrated capacity to successfully supervise research students, both undergraduate research and higher degree research. Particularly, you will be expected to contribute to the following specific research areas:
    - Develop and apply machine learning models to extract meaningful patterns from spectral datasets and predict key soil biogeochemical properties.
    - Integrate spectral data with laboratory analyses to understand mechanisms of soil carbon storage and stabilization.
    - Build and maintain spectral libraries of soil samples across different land uses, soil types, and climate zones to support broader modelling and scaling efforts.
    - Collaborate with colleagues across disciplines (soil science, computer science, ecology) to co-develop methodologies and interpret results in the context of soil function and carbon dynamics.

- Prepare and publish high quality research outputs in peer-reviewed journals and present at national and international conferences.
- Assist in training and supervising students or research assistants.
- Contribute to reporting requirements for funded projects and support grant writing or project development where appropriate.
- Be able to work collaboratively and effectively in a team environment as well as independently.

- **Learning and Teaching Practice**: This position will teach into Soil Science / Earth Science across both undergraduate and postgraduate levels. You will be expected to foster an outstanding student experience and encourage active participation and engagement in learning and teaching, and strive to continuously improve your teaching practice through professional development and critical reflection informed by a range of evaluation approaches.

- **Service and Engagement:** Provide strong management support for the Research Group and develop meaningful and impactful partnerships with the broader community by actively engaging and collaborating with external stakeholders as well as contributing to the enhancement of the School and Institute's standing and reputation by promoting educational and research activities with external communities.

4.0 Key Capabilities

- Griffith University identifies the attributes of resilience, flexibility, creativity, digital literacy and entrepreneurship as critical to our graduates' success, in the rapidly changing future world of work. We have established a Griffith University Capability Development Framework to provide a common language of some of the non-technical organisation skills that will support our staff to thrive now and into the future. The Capability Development Framework will assist you to understand the current skill level of this position in the non-technical but critical skill domains that are increasingly important in a changing workplace context.

  To read about some of the non-technical organisation skills for this position, please see the Leads Others section of our Capability Development Framework.