

Opportunity for PhD Research - Sustainable Minerals Institute

There are multiple student opportunities to apply for exciting PhD research in the fields of geological sciences, mineral resources, environmental monitoring, drones, and application of AI and ML to hyperspectral sensing. You will be hosted at the prestigious **University of Queensland** (ranked #47 in the Academic Ranking of World Universities) and the **Sustainable Minerals Institute, Brisbane, Queensland, Australia**. The candidates will join the large, **M4MINING international consortium**, which is a multi-year collaborative project with eight European partners. Europe's key funding programme for research and innovation (Horizon Europe) will support research costs, field work around Australia and opportunities to travel to Europe.

There are two broad research opportunities:

1. We are looking for enthusiastic students to develop workflows for characterising mineralogy and chemical compositions using cutting-edge technologies such as drone-based hyperspectral imaging systems integrated with 3D LIDAR and conventional digital photography, and supplemented by satellite and ground data. There will be collaboration with existing students and researchers and a focus on cross-validation with geochemical analyses of rocks and tailings materials. Candidates will benefit from backgrounds in Geological or Environmental Sciences but it will not be a pre-requisite.
2. Students will combine artificial intelligence/machine learning with the ground, drone and satellite data, in order to accelerate the ability to extract mineralogical, chemical and environmental information. A core component will be development of methods which can scale between ground, air and satellite to maximise information. There will be access to University of Queensland and national Australian high-performance computing facilities. Candidates interested in these opportunities will either have an interest in developing coding skills (Python etc), or a coding background.

Your work will lead to development of universally applicable methods, which could transform the environmental and resource management strategies of mining companies.

Generous research and project-related travel costs are provided. Candidates are required to apply for competitive scholarships that will cover living stipend, tuition fees and, for international students, Overseas Health Cover (OSHC). Scholarship opportunities for both national and international applicants include The University of Queensland Graduate School Scholarship (UQGSS), the WH Bryan Scholarship and, for Chilean applicants, the ANID Becas Chile Scholarship.

If you are interested to apply, then contact Katerina (Kat) Savinova (k.savinova@uq.edu.au) and Steven Micklethwaite (s.micklethwaite@uq.edu.au).