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## **PhD project in applied remote sensing for monitoring the afforestation of reclaimed mine tailings storage facilities**

### **Spatial study on spontaneous vegetation recolonization starting from planted restoration islands by combining drone-based LiDAR and multispectral surveys**

#### **Duration and location**

4 years – Université du Québec en Abitibi-Témiscamingue (UQAT), Rouyn-Noranda, Québec

#### **Project start**

Winter 2024 or subsequent semesters, depending on the availability of the candidate.

#### **Research fields**

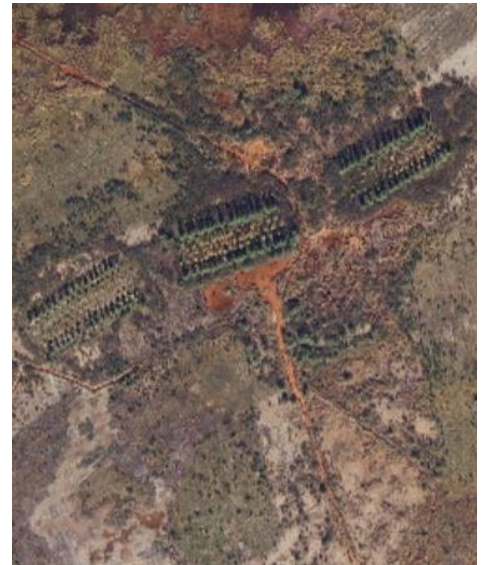
Remote sensing, revegetation of mine sites, plant ecology

#### **Research supervision**

Marie Guittonny and Vincent Boulanger-Martel

#### **Project description**

The use of planted patches of topsoil on open and degraded lands could facilitate the establishment of forest species while reducing the quantity of topsoil required for revegetation. The research project will take place on two mine tailing facilities where patches of topsoil planted with trees were created 14 years and 20 years ago. This project aims to study how these patches influence forest recolonization and plant succession in terms of vegetation structure and composition at the scale of the tailing facilities using airborne drone surveys. The project will combine the acquisition and processing of LiDAR and multispectral surveys to meet these objectives. The use of machine learning tools could be considered for data processing. The publication of 3 articles is targeted for this PhD. The project will be carried out in collaboration with private and public partners managing mining sites to be rehabilitated, within a multidisciplinary research team. The benefits of the project will contribute to improving monitoring of afforestation and plant biodiversity on mining sites after reclamation thanks to the development of innovative approaches using remote sensing tools.



#### **Research grant**

Alliance funded project from the Natural Sciences and Engineering Research Council of Canada (NSERC)

#### **Financial support**

Scholarship of 23 000 to 26 000 \$ CAD / year

#### **Candidate profile**

MSc in agronomy, ecology, geography, geomatics, forest engineering or other relevant fields. Experience in the acquisition and treatment of remote sensing data. Multidisciplinary work experience and proficiency in software such as ArcGIS, ENVI or QGIS will be considered an asset.

#### **Required documents**

Curriculum vitae, motivation letter, university transcripts and contact details of two referees.

#### **Application deadline**

Applications will be reviewed upon submission and until the position is filled.

**For more information or to apply:**

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