

Open PhD Position

INVERSE MULTIPHASE METHODS IN GEOTECHNICAL ENGINEERING APPLICATIONS

POSITION OVERVIEW:

We are seeking a highly motivated **PhD student** with a strong background in **inverse methods** in geotechnical/civil engineering to participate in an interdisciplinary research project, which focuses on the development of cutting-edge 3D Digital Twin (DT) technology. We aim to develop innovative solutions for monitoring, early detection, and warning systems of geo-infrastructure (e.g., embankments, tailing dams) affected by climate change. The project will take place at **Polytechnique Montréal** and will be led by Professor Pooneh Maghoul. The project will be conducted in close collaboration with Professors Giovanni Beltrame (Software Engineering) and Soumaya Yacout (Mathematical and Industrial Engineering) at Polytechnique Montreal.

QUALIFICATIONS:

- Strong background in **inverse methods** and **multi-objective optimization** in Geotechnical Engineering and **coupled Thermo-Hydro-Mechanical modeling** techniques.
- Experience in **computational geomechanics**.
- Track record of research-based publications in above-mentioned fields.
- Strong technical writing for scientific publications.
- Strong communication skills in English (a minimum IELTS score of 7.0 is required for international applicants)
- Strong problem-solving skills.
- Ability to work well with a team and be driven and self-motivated in achieving goals.
- Motivation to work in an interdisciplinary environment.

HOW TO APPLY:

Interested applicants should send their applications to Prof. Pooneh Maghoul (pooneh.maghoul@polymtl.ca) and Dr. Sophie Jung (sophie.jung@polymtl.ca) using the subject line "**PhD Application – Inverse Methods**".

A complete application should include:

- A cover letter including a brief description of research interests relative to the above topics and a motivation of why the applicant's expertise and background is appropriate for the position.
- Curriculum Vitae (CV) including a complete list of international scientific publications.
- Copies of transcripts (BSc & MSc).
- Contact information for two references.

EQUAL ACCESS EMPLOYMENT PROGRAM

Our institutes are strongly committed to fostering diversity and inclusion. Through its Equal Access Employment Program, our institutes invite women, Aboriginal people, visible and ethnical minorities, as well as persons with disabilities to submit their application. We will confidentially adapt our recruitment mechanisms to the specific needs of people with disabilities who request it. We also welcome applications from candidates of all orientations and sexual identities.