Le génie pour l'industrie

Lab INIT Robots

Volcanic probe design

Job description

The INIT Robots lab is seeking a master student (at least 12 credits' project) to design a volcanic probe which will document the inside of an active volcano chimney. This work will lead to an artistic installation to reproduce the fall of the probe into an immersive experience and the data from the probe will serve scientists to enhance their knowledge of the geometry of the lava chimneys.

This project involves the collaboration of several partners, namely the NXI Gestatio Design lab directed by Pr. Nicolas Reeves at UQAM and the PULÉTS lab with Pr. Ricardo Zednik at ÉTS. You will work closely with the experts from these groups.

Responsibilities

The successful candidate will carry out the responsibilities of this position with dynamism and creativity, namely

- You will design a passive propeller system to slow down the fall as much as possible without requiring battery power;
- You will design an enclosure to resist the ultra-high temperature of the chimney in order to protect the sensors;
- You will test both aspects in the lab (free fall and temperature isolation) and then in the field with experts in volcanos;
- You will work alongside a team of several MScs and PhDs and several engineering interns with whom you are invited to share issues and provide support.

Resources

We have one of the largest manufacturing facilities in all Canadian university and we have high-temperature oven to test the protective shell up to 1000 degree Celsius. We also have all the required software to conduct advance fluid dynamic simulation and thermal simulation over the materials.

Duration

Start date is as soon as possible. The project will most likely spread over a minimum of eight (8) months.

Salary and benefits

A scholarship of 5 000$ to 10 000$ per semester on the project can be provided based on the quality of the candidate. This includes:

- Flexible workweek schedule adaptable to the applicant cursus;
- The work mode is hybrid, meaning that you can work remotely at times. You will have to be in the lab to experiment with the hardware.

Profile and Job Requirements

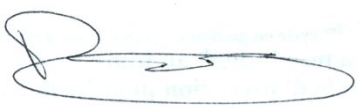
- You are registered (or planning to) in a master's program of the mechanical engineering department of ÉTS;
- You have strong knowledge of material thermal properties and aerodynamism;
- Having experience with volcano observation is an asset.

Application Instructions

Candidates are invited to submit an application file that includes:

- A CV
- Your most recent academic transcript.

To apply: https://initrobots.ca/en/positions



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