



Le génie pour l'industrie



Machine learning for cognitive load

Job description

The INIT Robots lab is seeking a PhD student to work on the recognition (classification) of cognitive states based on multimodal sensors. Our group collected extensive user dataset on various cognitive and physical tasks load from which we expect to extract a handful of models to support the deployment of robotic systems adapting to their operator state.

This project involves the collaboration of several partners, namely LIO lab directed by Pr. Rachid Aissaoui and the company iKinesia. 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 advance knowledge on Human-robot teaming, cognitive load measurements, multimodal machine learning and user-centered design.
- You will design a user study to validate an adaptive automation artefact (adapting to the operator state), conduct the experiment and share the results.
- You will publish original research as the first author in journals such as Applied Ergonomics, Autonomous Robot Journal and IEEE Transactions on Human-Robot Interaction.
- You will work with a team of several MScs and PhDs and several engineering interns where you will enhance your supervision and mentoring experience.
- Network with academics and representatives from the aerospace industry.

Resources

We have access to the full range of products by Tobii (pupillometry) and BioPac Systems (ECG, EDA, RSP, etc.) to capture cognitive load-related physiological features.

Duration

Start date is as soon as possible. The PhD project is expected to cover at least three (3) years of full-time work.

Salary and benefits

You will have a yearly scholarship ranging from \$20,000 to \$26,000 CAD based on experience. 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 for activities involving user studies, user tests, etc.

Profile and Job Requirements

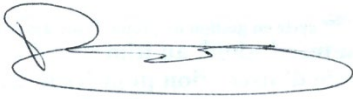
- You hold a MSc in Engineering, Computer science, Ergonomics or Psychology;
- You have practical experience in programming Python and/or C++;
- Having experience with the Robotic Operating System (ROS) is an asset.

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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