

Openings for Master and Ph.D. Student Positions

We are currently looking for outstanding graduate students at the research master's and Ph.D. levels to participate in a large-scale research project on reducing the energy footprint of next-generation wireless networks using machine learning. The selected students will be joining the research project "Energy Efficient and AI-Powered 5G and Beyond Network" conducted in collaboration with Ericsson Canada (Global AI Accelerator – GAIA and Ericsson Research), Environment and Climate Change Canada, and two other academic institutions in Montreal.

At Polytechnique Montreal, the research supervised by **Professors François Leduc-Primeau and Jean-François Frigon** will focus on reducing the physical layer and radio resource management (RRM) energy consumption by leveraging machine learning. The challenges include developing new deep learning methods, exploiting heterogeneous environmental data sources (video, LiDAR, localization, etc.) and reducing the compute energy of base stations, while developing solid theoretical analysis and experimental validation of the proposed methods.

Candidates should:

- For a master-level position, hold a bachelor's degree in electrical engineering or similar diploma, or for a Ph.D.-level position, hold a master's degree in electrical engineering or similar diploma,
- Have prior expertise in wireless communication theory and machine learning,
- Have excellent programming skills in python, Matlab, or C++,

However, candidates with an excellent grasp of either communications systems or machine learning with an interest in developing the missing skills are also highly encouraged to apply. Furthermore, the following are assets for this position:

- Knowledge of 5G mobile networks in general,
- Experience with a deep learning framework such as Pytorch, TensorFlow, or Keras,
- Have excellent writing skills.
- Be fluent in French (oral).

In this position, you will spend your time on the main campus of Polytechnique Montreal in Canada while also having the opportunity to collaborate with engineers from Ericsson Canada. Founded in 1873, Polytechnique Montreal is one of Canada's largest engineering teaching and research institutions and is tightly integrated into Montreal's world-renowned AI ecosystem. You will be joining a large research project with tens of graduate students working on similar topics, creating a rich learning environment. Furthermore, you will have access to leading edge supercomputer resources for simulations and neural network training. Competitive financial aid is provided.

To apply, submit an application package to the care of Prof. François Leduc-Primeau including a cover letter, a curriculum vitae, and university transcripts. If applicable, the cover letter may describe any special circumstances that should be considered when evaluating your application. Applications should be submitted by September 27, 2022, by emailing francois.leduc-primeau@polymtl.ca. Please include "ML for wireless comm. / Ericsson project" in the subject line.