PhD and Masters (thesis research) positions in the CL2 group, University of Waterloo

Dated: 14-October-2022

The Control, Learning and Logic (CL2) group at ECE, University of Waterloo, has multiple open positions for:

1 **PhD students** (PhD-F2023) for Fall 2023
2 **MASc students** (MASc-F2023) for Fall 2023

Overview of positions: The positions will focus on problems at the intersection of control theory and machine learning, with applications to autonomous or semi-autonomous systems, especially in the automotive domain. Based on the research interests and background of the candidates, the research may focus on topics such as motion prediction and planning, safe reinforcement learning, bridging the simulation-to-reality gap in learning-based control, correct-by-construction synthesis of ML-based controllers, testing and verification of autonomous systems, etc. Successful candidates are expected to publish (and present) their research at top conferences and journals.

Required Qualifications:
- Strong mathematical foundations in linear algebra, optimization, and probability, along with an interest in dynamical systems, and simulation and control of dynamical systems.
- Proficiency in programming with Python.
- **For PhD students:** Masters (or in exceptional cases, a Bachelors) degree in Systems and Control, Machine Learning, Robotics, Mathematics, Computer Science, or a related area.
- **For MASc students:** Bachelors degree in a relevant discipline (e.g., engineering, mathematics etc.).

Additional qualifications:
Plus-points if you have one or more of the following skills (please highlight/list them in your cover letter/research statement):
- Knowledge of C++
- Familiarity with Matlab
- Experience with deep learning packages in Python (such as Tensorflow, Pytorch, Keras)
- Experience with optimization packages such as Casadi, CVX, Yalmip etc.
- Experience with Control toolboxes such as MPT 3+
- Experience with the Robot Operating System (ROS)
- Experience working with Autonomous Vehicle (AV) simulators such as Carla, LGSVL and Webots.
- Experience with AV software stacks as Apollo or Autoware.
- Experience with Formal Verification and Testing tools such as Storm, VerifAI, S-Taliro etc.

Instructions for MASc and PhD candidates:
Please list me as a potential advisor in your application. *After* you submit your application, please email yash.pant@uwaterloo.ca with your UW/Quest id, CV, transcripts (unofficial is fine), and a few lines on how your background and research interests align with ours. I will not be able to reply to all emails, but will reach out to applicants whose applications make it to my shortlist.

Important: Use the position code PhD-F2023 or MASc-F2023 to start the email's subject line.

Please see https://uwaterloo.ca/graduate-studies-postdoctoral-affairs/future-students/programs/electrical-and-computer-engineering-phd-waterloo for application details, and https://uwaterloo.ca/research/find-and-manage-funding/apply-funding/building-budget/recommended-salary-rates for information on salary and benefits.