We are looking for Ph.D. students to join the **Decision Analysis for Trustworthy Autonomy** (DATA) Lab at the University of Toronto, The Edward S. Rogers Sr. Department of Electrical & Computer Engineering (**#1** Engineering school in Canada).

Our goal is to investigate novel and important research questions at the intersection of risk analysis and stochastic control theory, with emphasis on environmental and healthcare-related applications. We have particular interest in exploring mathematical fundamentals and their applications to devise new methods that advance decision-making under uncertainty.

Example projects include:
-Combining ideas from environmental science and stochastic control to manage microbial growth for water treatment applications.
-Applying risk analysis from financial engineering to develop new metrics for assessing the safety of control systems.
-Advancing methods to optimize the performance of control systems with respect to both the severity and probability of harmful outcomes.
-Bringing together patient data, dynamical models of chemotherapy, and expert knowledge from oncologists to improve the management of blood cancer.
-Developing and assessing the capability of low-cost controllers to reuse stormwater for the purpose of irrigating green roofs in Toronto.

Benefits: Successful applicants will receive a 4-5 year fully-funded scholarship to pursue doctoral research in the DATA lab. Typical PhD students will develop advanced skills in computational science, mathematical analysis, technical writing, and critical reasoning. In particular, students will learn how to critically assess the state of the art and use these assessments to devise and pursue innovative research.

Required qualifications: A Master's degree in Mathematics, Applied Mathematics, Electrical Engineering (control theory), or equivalent. Deep interest in applying mathematical fundamentals rigorously to problems in stochastic control and communicating findings with clarity. Strong skills in linear algebra and real analysis. Prior research experience in math or engineering that included synthesizing related work from the literature.

For more information about recent research, please see my website here:
https://www.control.utoronto.ca/~mchapman/

If you are interested in this opportunity, please email Margaret Chapman at mchapman@ece.utoronto.ca with the subject heading "PhD DATA Lab Candidate." We hope to hear from you.