CIRRELT

Séminaire du CIRRELT Seminar

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Data-Driven Optimization: Inverse and Structural Models

Abstract: Optimization models are increasingly used to support decision-making in applications such as transportation, healthcare, energy, and finance. However, designing and fitting these models can be time consuming and data intensive. In this talk, I will present new techniques for fitting optimization models using observed solutions and model outputs. In the first half, I will focus on the use of inverse optimization to estimate objective parameters of discrete optimization problems. Specifically, I propose a new class of algorithms that outperform state-of-the-art methods by orders of magnitude across a wide range of problem domains. In the second half, I will introduce new methods for estimating shadow prices of unobserved constraints in commodity markets. In a case study, I will show how U.S. gasoline price data can be used to estimate the effects of transportation bottlenecks during the 2017 hurricane season.

Biography: Mathieu Ian is a PhD Candidate in Industrial Engineering at the University of Toronto. His research interests broadly lie at the intersection of optimization and data analytics, particularly for understanding and informing decision-making in the context of transportation and operations management. His research has been published in journals such as Operations Research and the INFORMS Journal on Computing. He was a Finalist at the MSOM Student Paper Competition and won First Place at the Canadian OR Society (CORS) Student Paper Competition. Ian also has extensive experience teaching analytics – he has received different teaching awards and has written and published on analytics education.

Lundi / Monday

16 janvier / January 16th, 2023

10h30

Salle / Room 6214
Pavillon André-Aisenstadt
Université de Montréal

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