



Séminaire du CIRRELT Seminar

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RISK-AWARE POWER SYSTEMS OPERATIONS

Abstract: Over the past decade, the soaring growth of renewable generation like wind and solar, and of distributed energy resources such as electric vehicles and rooftop solar generation, have triggered a paradigm shift in the operations of power grids. The resulting increase in operational uncertainty, both on the demand and the supply side, calls for new operational practices that explicitly quantify and manage risk. In this talk, I will present a new generation of tools that address this challenge, via a combination of optimization and machine-learning techniques, namely, probabilistic forecasting, optimization under uncertainty, principled risk assesment, and machine learning-based acceleration techniques. The presentation will focus on stochastic optimization, and ML-based optimization proxies for fast risk assessment. Computational results will be reported on a real industrial system.

Biography: Mathieu Tanneau is a post-doctoral researcher at the Georgia Institute of Technology since 2021. He is involved in managing the Risk-Aware Market Clearing project (<https://ramc.isye.gatech.edu/>), and is part of the NSF Artificiation Intelligence institute in for Advances in Optimization (AI4OPT, <https://www.ai4opt.org/>). His research interests include the development of new algorithms for mixed-integer and nonlinear optimization, their integration with machine learning techniques, and their application to power systems operations. Mathieu holds a Masters degree from Ecole polytechnique (France), and a PhD in applied mathematics from Polytechnique Montréal.

MARDI / TUESDAY

17 janvier / January 17th, 2023

10h30

Salle / Room 3195

Pavillon André-Aisenstadt
Université de Montréal

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Organisatrice / Organizer

Emma Frejinger, DIRO