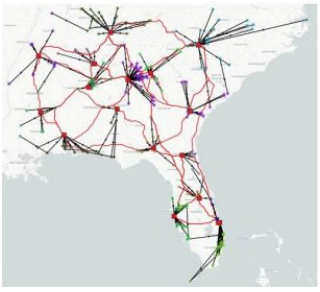
institute for pure & applied mathematics

Artificial Intelligence and Discrete Optimization

FEBRUARY 27 - MARCH 3, 2023



Scientific Overview

In recent years, the use of Machine Learning techniques to Operations Research (OR) problems, especially in the Discrete Optimization (DO) a.k.a. Combinatorial Optimization context, opens very interesting scenarios because DO is the "home" of an endless list of decision-making problems that are of fundamental importance in multitude applications.

The workshop will bring together experts in mathematics (optimization, graph theory, sparsity, combinatorics, statistics), operations research (assignment problems, routing, planning, Bayesian search, automation, scheduling), machine learning (deep learning, supervised, self-supervised and reinforcement learning) and artificial intelligence at large (including multi-agent systems, interpretability, fairness, etc.). In addition, the focus will be on:

- Algorithmic challenges and potential of the interaction between AI and OR;
- Data requirements in which such an interaction can be profitable; and
- Application areas that are likely to lead to game-changing results (e.g., transportation, supply chain, public policy, energy).

Participation

Additional information about this workshop including links to register and to apply for funding, can be found on the webpage listed below. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission, and we welcome their applications.

Organizers

Xavier Bresson (National University of Singapore), **Bistra Dilkina** (University of Southern California (USC)), **Andrea Lodi** (Cornell University), **Pascal Van Hentenryck** (Georgia Institute of Technology).

Speakers

Xavier Bresson (National University of Singapore)
Bistra Dilkina (USC)
Priya Donti (Carnegie Mellon University)
Tina Eliassi-Rad (Northeastern University)
Maxime Gasse (École Polytechnique de Montréal)
Stefanie Jegelka (MIT)
Elias Khalil (University of Toronto)
Andrea Lodi (Cornell University)
Rahul Mazumder (MIT)
Azalia Mirhoseini (Google AI)
Vinod Nair (DeepMind Technologies)
Le Song (Georgia Institute of Technology)
Bartolomeo Stellato (Princeton University)
Yuandong Tian (Facebook AI Research)
Pascal Van Hentenryck (Georgia Institute of Technology)
Petar Veličković (DeepMind Technologies)
Ellen Vitercik (Carnegie Mellon University)
Segev Wasserkug (IBM Research)
Marinka Zitnik (Harvard University)

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For more information, visit the program webpage:
www.ipam.ucla.edu/AID2023