

Artificial Intelligence and Discrete Optimization

Monday February 27, 2023

- 8:00–8:55 *Check-In/Breakfast (Hosted by IPAM)*
- 8:55–9:00 *Welcome & Opening Remarks: Dean Miguel García-Garibay (Dean of Physical Sciences, UCLA) and Dima Shlyakhtenko (Director, IPAM)*
- 9:00–9:50 **Andrea Lodi** (Cornell University)
Continuous cutting plane algorithms in integer programming
- 10:00–10:15 *Break*
- 10:15–11:05 **Bistra Dilkina** (University of Southern California (USC))
Machine learning for MIP solving
- 11:15–11:30 *Break*
- 11:30–12:20 **Vinod Nair** (Google Brain)
Remote Talk: Restricted Boltzmann Machines for Maximum Satisfiability
- 12:30–2:30 *Lunch (on your own)*
- 2:30–3:20 **Matej Balog** (DeepMind)
AlphaTensor: Discovering faster matrix multiplication algorithms with RL
- 3:30–3:50 *Break*
- 3:50–4:40 **Xavier Bresson** (National University of Singapore)
Learning to Untangle Genome Assembly Graphs
- 4:45–5:20 *Lightning Poster Session*
- 5:20–6:30 *Poster Session & Reception (Hosted by IPAM)*

Tuesday February 28, 2023

- 8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Yuandong Tian** (Artificial Intelligence Center)
AI-guided nonlinear optimization for real-world problems
- 10:00–10:15 *Break*
- 10:15–11:05 **Ellen Vitercik** (Stanford University)
Leveraging Reviews: Learning to Price with Buyer and Seller Uncertainty
- 11:15–11:30 *Break*

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- 11:30–12:20 **Thomas Laurent** (Loyola Marymount University)
Feature Learning and Generalization on a Discrete Data Model
- 12:30–2:30 *Lunch (on your own)*
- 2:30–3:20 **Segev Wasserkug** (IBM Research - Israel)
Democratizing Optimization Modeling: Status, Challenges, and Future Directions
- 3:30–3:50 *Break*
- 3:50–4:40 **Priya Donti** (Cornell University)
Remote Talk: Optimization-in-the-loop AI for energy and climate

Wednesday March 1, 2023

- 8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Pascal Van Hentenryck** (Georgia Institute of Technology)
The Fusion of Machine Learning and Optimization
- 10:00–10:15 *Break*
- 10:15–11:05 **Bartolomeo Stellato** (Princeton University)
Learning for Decision-Making Under Uncertainty
- 11:15–11:30 *Break*
- 11:30–12:20 **Phebe Vayanos** (University of Southern California (USC))
Integer optimization for predictive and prescriptive analytics in high stakes domains
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Louis-Martin Rousseau** (École Polytechnique de Montréal)
Combining Machine Learning and Optimization for efficient healthcare delivery
- 3:00–3:15 *Break*
- 3:15–4:05 **Timo Berthold** (Technische Universität Berlin)
Machine Learning inside MIP solvers
- 4:15–4:30 *Break*
- 4:30–5:20 **Hamsa Bastani** (University of Pennsylvania)
Remote Talk: Decision-Aware Learning for Global Health Supply Chains

Thursday March 2, 2023

- 8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Stefanie Jegelka** (Massachusetts Institute of Technology)
Two aspects of learning algorithms: generalization under shifts and loss functions
- 10:00–10:15 *Break*
- 10:15–11:05 **Tias Guns** (KU Leuven)
Learning from user and environment in combinatorial optimisation
- 11:15–11:30 *Break*
- 11:30–12:20 **Petar Veličković** (DeepMind Technologies)
Reasoning Algorithmically: from Toy Experiments to AGI Modules
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Elias Khalil** (University of Toronto)
Neur2SP: Neural Two-Stage Stochastic Programming

Friday March 3, 2023

- 8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Rahul Mazumder** (Massachusetts Institute of Technology)
(Discrete) Optimization-aided structured learning at Scale: Some examples
- 10:00–10:15 *Break*
- 10:15–11:05 **Paul Grigas** (University of California, Berkeley (UC Berkeley))
Offline and Online Learning for Contextual Stochastic Optimization
- 11:15–11:30 *Break*
- 11:30–12:20 **Tina Eliassi-Rad** (Northeastern University)
Two Optimization Problems on Graphs and Why ML-based Optimization Underperforms

