Intersections between Control, Learning and Optimization

Monday February 24, 2020

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 **Moritz Diehl** (University of Freiburg)
Convexity Exploiting Newton-Type Optimization for Learning and Control

10:00–10:15 *Break*

10:15–11:05 **Dimitri Bertsekas** (Massachusetts Institute of Technology and Arizona State University)
Distributed and Multiagent Reinforcement Learning

11:15–11:30 *Break*

11:30–12:20 **Csaba Szepesvari** (University of Alberta)
Model misspecification in reinforcement learning

12:30–2:30 *Lunch (on your own)*

2:30–3:20 **Necmiye Ozay** (University of Michigan)
A fresh look at some classical system identification methods

3:30–4:00 *Break*

4:00–4:50 **Mengdi Wang** (Princeton University)
On the statistical complexity of reinforcement learning

5:00–6:30 *Poster Session & Reception (Hosted by IPAM)*

Tuesday February 25, 2020

8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*

9:00–9:50 **Russell Tedrake** (Massachusetts Institute of Technology)
From pixels to torques: output feedback for robotics

10:00–10:15 *Break*

10:15–11:05 **Martin Riedmiller** (DeepMind Technologies)
Learning Control from Minimal Prior Knowledge

11:15–11:30 *Break*

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11:30–12:20 **Ben Recht** (University of California, Berkeley (UC Berkeley))
Trying to Make Sense of Control from Pixels

12:30–2:30 *Lunch (on your own)*

2:30–3:20 **Emma Brunskill** (Stanford University)
Curbing Our Enthusiasm: Constraining Decision Policies Learned from the Past to Ensure Good Futures

3:30–4:00 *Break*

4:00–4:50 **Anca Dragan** (University of California, Berkeley (UC Berkeley))
Learning Intended Cost Functions: Extracting all the right information from all the right places

Wednesday February 26, 2020

8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*

9:00–9:50 **Andreas Krause** (ETH Zurich)
Safe and Efficient Exploration in Reinforcement Learning

10:00–10:15 *Break*

10:15–11:05 **Daniel Kuhn** (École Polytechnique Fédérale de Lausanne (EPFL))
Wasserstein Distributionally Robust Optimization: Theory and Applications in Machine Learning

11:15–11:30 *Break*

11:30–12:20 **Zico Kolter** (Carnegie Mellon University)
Integrating optimization, constraints, and control within deep learning models

12:30–2:30 *Lunch (on your own)*

2:30–3:20 **Melanie Zeilinger** (ETH Zurich)
Learning-based Model Predictive Control - Towards Safe Learning in Control

3:30–4:00 *Break*

4:00–4:50 **Francesco Borrelli** (University of California, Berkeley (UC Berkeley))
Sample-Based Learning Model Predictive Control

Thursday February 27, 2020

8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*

9:00–9:50 **Maryam Fazel** (University of Washington)
Finite-sample System Identification: Optimal Rates and the Role of Regularization

10:00–10:15 *Break*

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10:15–11:05 **Richard Murray** (California Institute of Technology)
Can We Really Use Machine Learning in Safety Critical Systems?

11:15–11:30 *Break*

11:30–12:20 **Dorsa Sadigh** (Stanford University)
Beyond Theory of Mind: Learning and Influencing Conventions in Multi-Agent Interactions

12:30–2:30 *Lunch (on your own)*

2:30–3:20 **James Rawlings** (University of California, Santa Barbara (UCSB))
Industrial, large-scale model predictive control with deep neural networks

3:30–4:00 *Break*

4:00–4:50 **Stephen Wright** (University of Wisconsin-Madison)
Nonconvex optimization in matrix optimization and distributionally robust optimization

Friday February 28, 2020

8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*

9:00–9:10 **Rohit Kannan** (University of Wisconsin-Madison)
Predict, then smart optimize with stochastic programming

9:15–9:25 **Sungho Shin** (University of Wisconsin-Madison)
A Unifying Framework for Subspace Identification and Dynamic Mode Decomposition

9:30–9:40 **Victor Magron** (Laboratoire d'analyse et d'architecture des systèmes (LAAS-CNRS))
Polynomial Optimization for Bounding Lipschitz Constants of Deep Networks

9:45–9:55 **Jia-Jie Zhu** (Max Planck Institute for Intelligent Systems)
Distributionally Robust Optimization and Control using RKHS Embedding

10:00–10:15 *Break*

10:15–11:05 **Lieven Vandenberghe** (University of California, Los Angeles (UCLA))
Bregman proximal methods for semidefinite optimization.

11:15–11:30 *Break*

11:30–12:20 **Angela Schoellig** (University of Toronto)
Machine Learning for Robotics: Achieving Safety, Performance and Reliability by Combining Models and Data in a Closed-Loop System Architecture

12:30 *Conclusion*