

Industrial & Systems Engineering Seminar

On Big Data, Optimization and Learning

Wednesday, March 22

3:15 PM - Refreshments, 3:30 - Graduate Seminar

Lind Hall Room 305



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In this talk I review a couple of applications on Big Data that I personally like and I try to explain my point of view as a Mathematical Optimizer -- especially concerned with discrete (integer) decisions -- on the subject. I advocate a tight integration of Machine Learning and Mathematical Optimization (among others) to deal with the challenges of decision-making in Data Science. For such an integration I try to answer three questions: 1) What can optimization do for machine learning? 2) What can machine learning do for optimization? 3) Which new applications can be solved by the combination of machine learning and optimization?

BIO:

Andrea Lodi received the PhD in System Engineering from the University of Bologna in 2000 and he has been Herman Goldstine Fellow at the IBM Mathematical Sciences Department, NY in 2005–2006. He has been full professor of Operations Research at DEI, University of Bologna between 2007 and 2015. Since 2015 is Canada Excellence Research Chair in “Data Science for Real-time Decision Making” at the École Polytechnique de Montréal. His main research interests are in Mixed-Integer Linear and Nonlinear Programming and Data Science and his work has received several recognitions including the IBM and Google faculty awards. He is author of more than 80 publications in the top journals of the field of Mathematical Optimization. He serves as Associated Editor for several prestigious journals in the area. He has been network coordinator and principal investigator of two large EU projects/networks, and, since 2006, consultant of the IBM CPLEX research and development team. Finally, Andrea Lodi is the co-principal investigator (together with Yoshua Bengio) of the project "Data Serving Canadians: Deep Learning and Optimization for the Knowledge Revolution", recently generously funded by the Canadian Federal Government under the Apogée Programme.