

IE Decision Systems Engineering Spring '21 Seminar Series

Friday, April 16, 12-1 p.m.

Zoom <https://asu.zoom.us/j/81413425044>

This talk will be recorded | Q&A following

“Fusing Machine Learning and Optimization for Engineering Applications”

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Bio

Pascal Van Hentenryck is the A. Russell Chandler III Chair and Professor in the H. Milton Stewart School of Industrial and Systems Engineering at the Georgia Institute of Technology, the Associate Chair for Innovation and Entrepreneurship, and the director of the Socially Aware Mobility (SAM) and the Risk-Aware Market Clearing (RAMC) labs. Van Hentenryck is an INFORMS Fellow and a Fellow of the Association for the Advancement of Artificial Intelligence (AAAI), the recipient of two honorary doctoral degrees, and teaching excellence awards at Brown University and Georgia Tech. Several of his optimization systems, including the CHIP and OPL systems, have been in commercial use for more than 20 years. His current research focuses on machine learning, optimization, and privacy with applications in mobility, energy, and resilience.

Abstract

This talk studies how to fuse of machine learning and optimization for solving complex engineering problems. It considers case studies in ride-hailing systems, public transit, and power systems, and demonstrates the benefits of this fusion on large-scale optimization problems. In particular, the talk will describe how machine learning can deliver optimization proxies that can be integrated in an end-to-end optimization pipeline, and how to optimize over machine models capturing human preferences. The talk will conclude with a discussion of the many challenges that remain to be solved.