Séminaire conjoint CIRRELT et la Chaire CN en intermodalité des transports
CIRRELT Joint Seminar with the CN Chair in Optimization of Railway Operations

CIRRELT

CN CHAIR IN OPTIMIZATION OF RAILWAY OPERATIONS

Erik Nygren

Swiss Federal Railway

Real World Application of Multi-Agent Deep Reinforcement Learning: Autonomous Traffic Flow Management

Abstract: Swiss Federal Railway Company (SBB) is working on a project on "Multi-Agent Reinforcement Learning for Train Dispatching". The project is about learning from scratch how to dispatch railway traffic on a simulator, to keep network traffic stable even in presence of disturbances. With more than 10k trains running each day, passing over 13k switches and being managed by over 32k signals, this is a rather challenging project. In this seminar we want to highlight how we use multi-agent reinforcement learning to tackle the re-scheduling problem on railway networks. We will show you current research results where we use multiple agents to achieve global solution through emergent behavior. We will also provide a preview for an upcoming AIcrowd crowdsourcing challenge on this topic.

Bio: Erik Nygren holds a M.Sc. in Theoretical Particle Physics and a Ph.D. in Computational Neuroscience. He has worked on lattice simulations, deep learning and mathematical modelling of the brain. During his PhD he investigated the emergence of global phenomena from local learning rules in recurrent neural networks. He currently works at the Research and Innovation Lab at Swiss Federal Railways SBB. His research focus lies on applications of deep reinforcement learning for transportation systems and the combination of OR and Deep Learning to solve combinatorial optimization problems.

JEUDI / THURSDAY
22 août 2019 / August 22, 2019
10h00

Salle / Room 5441
Pavillon André-Aisenstadt
Université de Montréal

SÉMINAIRE DOUBLE SUR DES SUJETS DE SWISS RAILWAY COMPANY

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