

**SÉMIN-AIRO**  
**Série de séminaires en optimisation, apprentissage et prise de décision**

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## Scheduling the recharge of electric vehicles using videogames

### Abstract

What if scheduling EV charging were as simple as playing Tetris? We reformulate the online centralized charging scheduling problem as a video game: each arriving EV becomes a block that a player must drop within its arrival–departure window onto a time–capacity grid, and the goal is to keep the skyline as flat as possible. This gamification is not just a metaphor — we show theoretically that image-based inputs and joystick-like movement outputs yield tighter generalization bounds than conventional vector formulations. We train a convolutional policy to play the game via supervised learning on oracle demonstrations, then sharpen it with Dataset Aggregation (DAGger), which corrects the agent on states it actually visits. On a case study calibrated to a typical Hydro-Québec feeder in Greater Montréal (~200 Level-2 sessions/day), the DAGger-trained agent consistently outperforms heuristic, re-optimization, and non-gamified baselines in load-flattening metrics, yielding potential avoided distribution-capacity costs of tens of millions of CAD per year versus uncoordinated charging.

**Link zoom:** <https://etsmtl.zoom.us/j/92414858668>

### Bio

Jorge E. Mendoza is Full Professor in the Department of Logistics and Operations Management at HEC Montréal and holds the Clean Transportation Analytics research professorship. He is a regular member of CIRRELT and serves on its board. His research focuses on the application of optimization and machine learning methods to logistics and transportation systems. He has published extensively in leading journals such as Transportation Science, INFORMS Journal on Computing, Transportation Research Parts B and C, EJOR, and Computers & Operations Research. He serves as Associate Editor for Transportation Science and INFORMS Journal on Computing. He holds a Ph.D. from the Université de Nantes and Universidad de los Andes, and before joining HEC Montréal he held faculty positions at Polytech Tours and the Université Catholique de l'Ouest in France



Thursday  
April 16<sup>th</sup>  
12h00

ÉTS - Pavillon A  
Dept. Génie de Systèmes  
Room A-3644.1

Open to all  
Pizza and coffee offered

Organizer:  
Fausto Errico