

COMPUTING@PNNL SEMINAR

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CityLearn: Demand Response using Multi-Agent Reinforcement Learning

Reinforcement learning (RL) has gained popularity in the research community as a model-free and adaptive control paradigm for the built environment, especially for building energy control. RL has the potential to enable inexpensive plug-and-play building controllers that can be implemented without necessitating potentially expensive control models (unlike model predictive control), and to coordinate multiple buildings for demand response, load shaping, and load shifting. In this presentation, Dr. Nagy will give an overview of CityLearn, an OpenAI Gym environment to facilitate development of Multi-Agent Reinforcement Learning controllers to study interacting buildings, and building-grid interaction.

Dr. Nagy is an assistant professor in the Department of Civil, Architectural, and Environmental Engineering at the University of Texas at Austin, directing the Intelligent Environments Laboratory since 2016. A roboticist turned building engineer, his research interests are in smart buildings and cities, in particular in control systems for zero emission building operation, and the application of machine learning and artificial intelligence for the built environment for a sustainable energy transition. He has received several Best Paper awards from the CISBAT conference, Building & Environment journal, as well as a Highest Cited Paper award from Applied Energy. He organized and chaired the first workshop on Reinforcement Learning for energy management in buildings and cities (RLEM'20) at ACM BuildSys'20.

Tuesday, June 15

11:00am - Noon

Zoom Webinar

<https://pnnl.zoomgov.com/j/1610500157?pwd=UU5wTXdlUHpDenI3TGVoTWkveDRZdz09>

Meeting ID: 161 050 0157

Passcode: 912955

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