Antoine Lesage-Landry

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Employment

Department of Electrical Engineering, Polytechnique Montréal
Assistant Professor, January 2021 – present

Energy & Resources Group, University of California, Berkeley
Postdoctoral Scholar, August 2019 – December 2020

Dept. of Electrical and Electronic Eng., The University of Melbourne
Visiting Scholar, January 2018 – April 2018 and February 2019

Education

University of Toronto, Toronto, ON, Canada
Ph.D., Electrical & Computer Engineering, November 2019

Polytechnique Montréal, Montréal, QC, Canada
B.Eng., Engineering Physics, June 2015

Professional affiliation

Engineer, Ordre des Ingénieurs du Québec (OIQ)
Member, Group for Research in Decision Analysis (GERAD)
Member, Institute for Data Valorization (IVADO)
Member, Réseau québécois de l'énergie intelligente (RQEI)

Publications

Journal Papers

J12. **Antoine Lesage-Landry**, Félix Pellerin, Joshua A. Taylor, and Duncan S. Callaway. Optimally Scheduling Public Safety Power Shutoffs. *INFORMS Stochastic Systems*, March 2022. Under review.

J11. **Antoine Lesage-Landry** and Duncan S. Callaway. Approximate Multi-Agent Fitted Q-Iteration. *Systems & Control Letters*, July 2021. Under review.

J10. **Antoine Lesage-Landry**, Joshua A. Taylor, and Duncan S. Callaway. Online Convex Optimization with Binary Constraints. *IEEE Transactions on Automatic Control*, 66 (12): 6164 - 6170. December 2021.

J9. **Antoine Lesage-Landry**, Joshua A. Taylor, and Iman Shames. Second-order Online Nonconvex Optimization. *IEEE Transactions on Automatic Control*, 66 (10): 4866 - 4872. October 2021.

J8. **Antoine Lesage-Landry**, Han Wang, Iman Shames, Pierluigi Mancarella, and Joshua A. Taylor. Online Convex Optimization of Multi-energy Building-to-grid Ancillary Services. *IEEE Transactions on Control Systems Technology*, 28 (6): 2416 - 2431. November 2020.

J7. **Antoine Lesage-Landry** and Duncan S. Callaway. Dynamic and Distributed Online Convex Optimization for Demand Response of Commercial Buildings. *IEEE Control Systems Letters*, 4 (3): 632-637, July 2020.

J6. **Antoine Lesage-Landry**, Siyu Chen, and Joshua A. Taylor. Estimating the Frequency Coupling Matrix from Network Measurements. *IEEE Transactions on Control of Network Systems*, 7 (2): 724 - 733. June 2020.

J5. **Antoine Lesage-Landry**, Iman Shames, and Joshua A. Taylor. Predictive Online Convex Optimization. *Automatica*, 113: 108771, March 2020.

J4. **Antoine Lesage-Landry** and Joshua A. Taylor. A Second-order Cone Model of Transmission Planning with Alternating and Direct Current Lines. *European Journal of Operational Research*, 281 (1): 174-185, February 2020.

J3. Olivier Ouellette, **Antoine Lesage-Landry**, Benjamin Scheffel, Sjœrd Hoogland, F. Pelayo García de Arquer, and Edward H. Sargent. Spatial Collection in Colloidal Quantum Dot Solar Cells. *Advanced Functional Materials*, 3 (1): 1908200. January 2020.

J2. **Antoine Lesage-Landry** and Joshua A. Taylor. Setpoint Tracking with Partially Observed Loads. *IEEE Transactions on Power Systems*, 32 (5): 5615 - 5627, September 2018.

J1. **Antoine Lesage-Landry** and Joshua A. Taylor. The Multi-armed Bandit with Stochastic Plays. *IEEE Transactions on Automatic Control*, 63 (7): 2280-2286, July 2018.

Conference Papers

C7. **Antoine Lesage-Landry** and Duncan S. Callaway. Batch Reinforcement Learning for Network-Safe Demand Response in Unknown Electric Grids. *22nd Power Systems Computation Conference (PSCC 2022)*, September 2021. Accepted.

C6. Vincent Mai, Tianyu Zhang, and **Antoine Lesage-Landry**. Multi-agent Reinforcement Learning for Renewable Integration in the Electric Power Grid. *Tackling Climate Change with Machine Learning: workshop at NeurIPS 2021*, online. December 2021.

C5. Rodrigo Henríquez, **Antoine Lesage-Landry**, Joshua A. Taylor, Daniel Olivares, and Matías Negrete-Pincetic. Managing Load Contract Restrictions with Online Learning. *Signal and Information Processing (GlobalSIP), IEEE Global Conference on*, November 2017.

C4. Amr Mohamed, **Antoine Lesage-Landry** and Joshua A. Taylor. Dispatching Thermostatically Controlled Loads for Frequency Regulation Using Adversarial Multi-armed Bandits. *Electrical Power and Energy Conference (EPEC), 2017 IEEE*, October 2017.

C3. **Antoine Lesage-Landry** and Joshua A. Taylor. Online Convex Optimization for Demand Response. *X Bulk Power Systems Dynamics and Control Symposium, IREP'2017 Symposium.*, August 2017.

C2. **Antoine Lesage-Landry** and Joshua A. Taylor. Learning to Shift Thermostatically Controlled Loads. *Proceedings of the 50th Hawaii International Conference on System Sciences*, January 2017.

C1. Sébastien Loranger, **Antoine Lesage-Landry**, Elton Soares de Lima Filho, Galina Nemova, Noelio O. Dantas, Paulo C. Morais, and Raman Kashyap. Spectroscopic and life-time measurements of quantum dot doped glass for optical refrigeration: A feasibility study. *SPIE OPTO. International Society for Optics and Photonics*, February 2013.

Seminars and Talks

S12. *Batch Reinforcement Learning for Network-Safe Demand Response.* ETH Zürich: Power Systems Laboratory Seminar, Zürich, Switzerland/online. March 2021.

S11. *Real-time Decision-Making for Demand Response.* University of California, San Diego: Energy Seminar, San Diego, CA/online. November 2021.

S10. *Fitted Q-Iteration for Network-Safe Demand Response.* 2021 INFORMS Annual Meeting, Anaheim, CA/online. October 2021. Invited.

S9. *Real-Time Decision-making for Demand Response Under Uncertainty.* GERAD Webinar. Montréal, QC/online, March 2021.

S8. *Dynamic and Distributed Online Convex Optimization for Demand Response of Commercial Buildings.* 59th IEEE Conference on Decision and Control (CDC), online. December 2020.

S7. *Online Convex Optimization with Binary Constraints for Demand Response.* 2020 INFORMS Annual Meeting, online. November 2020. Invited.

S6. *Predictive Online Convex Optimization for Demand Response.* 2019 INFORMS Annual Meeting, Seattle, WA. October 2019. Invited.

S5. *A Second-order Cone Model of AC–DC Transmission Expansion Planning.* Canadian Operational Research Society 61st Annual Conference, Saskatoon, SK. May 2019.

S4. *Online Convex Optimization for Demand Response in Power Systems.* Conference on Information Sciences and Systems, Johns Hopkins University. Baltimore, MD, March 2019. Invited.

S3. *Renewable Integration & Demand Response.* ECE1476 – LEDs & Solar Cells, University of Toronto, Toronto, ON. November 2018.

S2. *Online Learning for Demand Response.* The University of Melbourne, Australia: Electrical & Electronic Engineering Seminar, Melbourne, VIC, Autralia. February 2018.

S1. *Estimation du mouvement de tumeur pulmonaire: un modèle basé sur des images diagnostiques 3D.* Student Conference of the Clinical Medical Physicists Association of Québec. Québec City, QC, November 2014.

Teaching

Department of Electrical Engineering, Polytechnique Montréal

- ELE2700 – Analyse des signaux (Signal & Systems), Fall 2021
- ELE6953H – Méthodes d'optimisation et d'apprentissage pour les réseaux électriques (Optimisation & Learning Methods for Power Systems), Winter 2022
- ELE8456 – Réseaux de distribution (Distribution Networks), *coordinator*, Winter 2022

Supervision

Graduate students (Electrical Engineering)

G10. Laurella Dionisi, M.Eng., 2022 – present (Energy Engineering)
G9. Ulrich Ephraim Yepmou Kepnang, M.Eng., 2022 – present (Energy Engineering)
G8. Inès Conde, M.Eng., 2022 – present (Energy Engineering)
G7. Fatemeh Rajabi, Ph.D., 2022 – present (Applied Mathematics, co-supervised with Prof. Antoine Legrain)
G6. Philippe Maisonneuve, M.A.Sc., 2022 – present (Energy Engineering)
G5. Jean-William Lauzon, M.A.Sc., 2022 – present (co-supervised with Prof. Ilhan Kocar)
G4. Jean-Luc Lupien, M.A.Sc., 2022 – present
G3. Anne-Marie Sauvageau, M.Eng., 2021 – present (Energy Engineering)
G2. Feng Li, Ph.D., 2021 – present (co-supervised with Prof. Ilhan Kocar)
G1. Marie-Christine Paré, M.A.Sc., 2021 – present (Energy Engineering)

Interns

I1. Félix Pellerin, B.Eng. (Summer 2021)

Awards and Fellowships

Postdoctoral Fellowship
Natural Sciences and Engineering Research Council of Canada (NSERC), 2019–2020

Doctoral Research Scholarship
Fonds de recherche du Québec – Nature et Technologies (FQRNT), 2017–2019

Teaching Assistant Award
ECE department and ECE Student Club, University of Toronto, 2015

Master's Research Scholarship
FRQNT, 2016–2017

Canada Graduate Scholarship-Master's Program
NSERC, 2015–2016
Graduated with Distinction
Polytechnique Montréal, 2015
de Vinci Profile
Polytechnique Montréal, 2015
Undergraduate Student Research Awards (USRA)
NSERC, 2014, 2013 (declined), 2012
Best student presentation award
Clinical Medical Physicists Association of Québec, 2013

Service

Journal referee
Automatica, European Journal of Operational Research, IEEE Transactions on {Automatic Control, Control on Network Systems, Control Systems Technology, Power Systems, Smart Grid}, IEEE Control Systems Letter, IEEE Journal of Selected Topics in Signal Processing
Conference referee
IEEE-PES General Meeting, IEEE Conference on Decision and Control, Power Systems Computation Conference

Languages, Skills and Sports

French & English
Python, MATLAB, Wolfram Mathematica, TensorFlow and LaTeX.
Rock climbing, mountain/road biking, hiking, hockey, Ultimate Frisbee.