

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)
Associate Academic Member, Mila – Québec’s AI Institute
Member, Institute for Data Valorization (IVADO)
Member, Réseau québécois de l’énergie intelligente (RQEI)

Publications **Journal Papers**

- J16. Vincent Mai, Philippe Maisonneuve, Tianyu Zhang, Hadi Nekoei, Liam Paull, and **Antoine Lesage-Landry**. *Multi-agent Reinforcement Learning for Fast-Timescale Demand Response of Residential Loads*, Machine Learning. March 2023. Under review.
- J15. Feng Li, Ilhan Kocar, and **Antoine Lesage-Landry**. A Rapid Method for Impact Analysis of Grid-edge Technologies on Power Distribution Networks. *IEEE Transactions on Power Systems*, March 2023.
- J14. **Antoine Lesage-Landry**, Félix Pellerin, Joshua A. Taylor, and Duncan S. Callaway. Optimally Scheduling Public Safety Power Shutoffs. *INFORMS Stochastic Systems*, May 2023.
- J13. Jean-Luc Lupien and **Antoine Lesage-Landry**. An Online Newton’s Method with Linear Time-varying Equality Constraints. *IEEE Control Systems Letters*, 6: 1423-1428. February 2023.

- J12. **Antoine Lesage-Landry** and Duncan S. Callaway. Approximate Multi-Agent Fitted Q-Iteration. *Systems & Control Letters*, 177: 105563. July 2023.
- J11. **Antoine Lesage-Landry** and Duncan S. Callaway. Batch reinforcement learning for network-safe demand response in unknown electric grids. *Electric Power Systems Research*, 2021:108735. November 2022.
- 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, Sjøerd 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

- C10. Feng Li, Ilhan Kocar, and **Antoine Lesage-Landry**. Mitigating Equipment Overloads due to Electric Vehicle Charging Using Customer Incentives. *2023 IEEE Power & Energy Society General Meeting*, March 2023. Accepted.
- C9. Vincent Mai, Philippe, Maisonneuve, Tianyu Zhang, Hadi Nekoei, and **Antoine Lesage-Landry**. Multi-Agent Reinforcement Learning for Fast-Timescale Demand Response of Residential Loads. *22nd International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, online. October 2022. Under review.
- C8. Vincent Mai, Philippe, Maisonneuve, Tianyu Zhang, José Montalvo, Liam Paull, and **Antoine Lesage-Landry**. Multi-agent Reinforcement Learning for Fast-Timescale Demand Response. *Reinforcement Learning for Real Life Workshop at NeurIPS 2022*. December 2022.
- 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)*, June 2022.
- 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

- S19. *Online Dynamic Submodular Optimization for Power Systems*, 2023 CORS/Optimization Days, Montréal, QC, Canada. May 2023.
- S18. *Optimally Scheduling Public Safety Power Shutoffs*, University of Michigan: Michigan Power and Energy Laboratory Seminar, Ann Arbor, MI, USA. February 2023.
- S17. *Analyzing and Mitigating Impacts of Grid-edge Technologies on Power Distribution Networks*, University of Toronto: ECE Seminar, Toronto, ON, Canada. February 2023.
- S16. *A Rapid Method for Impact Analysis of Grid-edge Technologies on Power Distribution Networks*, Resilient Electric Grid Consortium of North America Symposium 2022 (RECONS 2022), College Station, Texas, USA. November 2022.
- S15. *Optimally Scheduling Public Safety Power Shutoffs*, University of British Columbia: ECE Seminar, Vancouver, Canada. June 2022.
- S14. *Optimally Scheduling Public Safety Power Shutoffs*, 2022 CORS/INFORMS International Meeting, Vancouver, Canada. June 2022.
- S13. *Optimally Scheduling Public Safety Power Shutoffs*, Northeastern University: MIE Seminar Series, Boston, United States. May 2022.
- 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, Australia. 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, 2022
- ELE8453 – Méthodes d’optimisation et d’apprentissage pour les réseaux électriques (Optimisation & Learning Methods for Power Systems), Winter 2022, 2023
- ELE8456 – Réseaux de distribution (Distribution Networks), *coordinator*, Winter 2022, 2023
- ELE8452 – Réseaux électriques (Power System Analysis), *coordinator*, Fall 2022
- ELE8459 – Protection des réseaux électriques (Power System Protections), *coordinator*, Winter 2023

Supervision

Graduate students & fellows (Electrical Engineering)

Ph.D.

- PhD-3. Kouamé N’Zi, 2023 – present (co-supervised with Prof. Jean Mahseredjian);
- PhD-2. Fatemeh Rajabi, 2022 – present (Mathematics, co-supervised with Prof. Antoine Legrain);
- PhD-1. Feng Li, 2021 – present (co-supervised with Prof. Ilhan Kocar).

M.A.Sc.

- MASc-11. Étienne Tremblay, 2023 – present;
- MASc-10. Samuel Mendoza, 2023 – present (co-supervised with Prof. Sébastien Le Digabel);
- MASc-9. Christina G. Soldati, 2023 – present (co-supervised with Prof. Sébastien Le Digabel);
- MASc-8. Bouh Abdillahi, 2023 – present (co-supervised with Prof. Gunes Karabulut Kurt);
- MASc-7. Olivier Bélanger, 2023 – present (co-supervised with Prof. Gunes Karabulut Kurt);
- MASc-6. Matthias Molénat, 2022 – present (Energy Engineering, co-supervised with Prof. Jean Mahseredjian);
- MASc-5. Loreley Sepho, 2022 – present (Applied Mathematics, co-supervised with Prof. Hanane Dagdougui);

- MASc-4. Philippe Maisonneuve, 2022 – present (Energy Engineering);
- MASc-3. Jean-William Lauzon, 2022 – present (co-supervised with Prof. Ilhan Kocar);
- MASc-2. Jean-Luc Lupien, 2022 – present;
- MASc-1. Marie-Christine Paré, 2021 – present (Energy Engineering);

M.Eng.

- MEng-7. Christian Ngansop, 2023 – present;
- MEng-6. Louis-Philippe Parent, 2023 – present (Energy Engineering);
- MEng-5. Élodie Campeau, 2022 – present (Energy Engineering);
- MEng-4. Laurella Dionisi, 2022 – present (Energy Engineering);
- MEng-3. Ulrich Ephraim Yepmou-Kepnang, 2022 – present (Energy Engineering);
- MEng-2. Anne-Marie Sauvageau, 2021 – present (Energy Engineering);
- MEng-1. Inès Conde, 2022 – 2022 (Energy Engineering).

Interns

- I-4. Adam Osmani (B.Eng.), Summer 2023, (co-supervised with Prof. Karabulut Kurt);
- I-3. Julien Pallage (B.Eng.), Summer 2021, 2022 – present;
- I-2. Olivier Daoust (B.Eng.), Summer 2021, 2022 – 2023 (co-supervised with Prof. Karabulut Kurt);
- I-1. Félix Pellerin (B.Eng.), Summer 2021.

Postdoctoral fellows

- PDF-3. Olfa Ben Yahia, 2023 – present (Mathematics, co-supervised with Prof. Gunes Karabulut Kurt);
- PDF-2. Zineb Garroussi, 2023 – present (Mathematics, co-supervised with Profs. Gunes Karabulut Kurt, Brunilde Sanso, Jean-François Frigon);
- PDF-1. Christian Bingane, 2022 – present (Mathematics, co-supervised with Prof. Hanane Dagdougui).

Visitors

- V-4. Yu-Hsin (Larry) Wu (Ph.D., Nagoya University, Japan), Summer 2023;
- V-3. Alexis Caraud (M2, ENAC, France), Summer 2023 (co-supervised with Prof. Sébastien Le Digabel);
- V-2. Stéphane Salim (M2, ENAC, France), Summer 2023 (co-supervised with Prof. Sébastien Le Digabel);
- V-1. Félix Pellerin (B.Eng.), Summer 2021.

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 L^AT_EX.

Rock climbing, mountain/road biking, hiking, hockey, Ultimate Frisbee.