Adam Lechowicz

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⌂ adamlechowicz.github.io

Education

University of Massachusetts Amherst (Manning CICS), *Ph.D. Computer Science*   2022 –
Supported by DOE Computational Science Graduate Fellowship, 2023 –
Advised by: Mohammad Hajiesmaili and Prashant Shenoy

University of Massachusetts Amherst   2019 – 2022
B.S. Computer Science & B.A. Political Science, summa cum laude
Phi Beta Kappa, 21st Century Leader. GPA: 3.99 / 4.0
Honors Thesis (Advisor: Cameron Musco): Edge Dynamics and Opinion Polarization in Social Networks

Research Interests

I work at the intersection of theory and systems, with an emphasis on problems that hold implications for energy, equity, and climate change. From a theoretical perspective, I am interested in algorithms for online optimization, particularly of the learning-augmented or provably fair varieties. On the application side, I am especially interested in novel system designs that accelerate the decarbonization of societal energy systems and computing infrastructure.

Experience

Ph.D. Intern   **Golden, Colo.**
Power Systems Engineering Center, National Renewable Energy Laboratory (NREL)   Summer 2024
○ Advised by Dr. Joshua Comden – *areas: Incentive design, Power system control*

Visiting Researcher   **Pasadena, Calif.**
Computing and Mathematical Sciences, California Institute of Technology   Summer 2023
○ Advised by Prof. Adam Wierman – *areas: Online optimization, Carbon-aware computing*

Research Assistant   **Amherst, Mass.**
Manning College of Information and Computer Sciences   Jun. 2022 – May 2023
○ Designed algorithms for online problems such as knapsack and online search, and worked
  on residential heating decarbonization in a small city
○ *areas: Online optimization, Algorithmic fairness, Energy analytics*

Course Assistant   **Amherst, Mass.**
Intro to Machine Learning (CS 389) – College of Information and Computer Sciences   Spring 2022

Publications and Academic Papers

† – *indicates undergraduate I advised* $(\alpha-\beta)$ – *indicates alphabetical author order*

Mohammadreza Daneshvaramoli, Helia Karisani, Adam Lechowicz, Bo Sun, Cameron Musco, and Mohammad Hajiesmaili
Near-Optimal Consistency-Robustness Trade-Offs for Learning-Augmented Online Knapsack Problems
International Conference on Machine Learning (ICML), 2025.

Anupama Sitaraman, Adam Lechowicz, Noman Bashir, Xutong Liu, Prashant Shenoy, and Mohammad Hajiesmaili
Dynamic Incentive Allocation for City-scale Deep Decarbonization
ACM Journal on Computing and Sustainable Societies, June 2025.

Adam Lechowicz, Joshua Comden, and Andrey Bernstein
Optimizing Individualized Incentives from Grid Measurements under Limited Knowledge of Agent Behavior
ACM International Conference on Future Energy Systems (e-Energy), 2025.

Cooper Sigrist, Adam Lechowicz, Jovan Champ, Noman Bashir, and Mohammad Hajiesmaili
Lost in Siting: The Hidden Carbon Cost of Inequitable Residential Solar Installations
ACM International Conference on Future Energy Systems (e-Energy), 2025.

Adam Lechowicz, Nicolas Christianson, Bo Sun, Noman Bashir, Mohammad Hajiesmaili, Adam Wierman, and Prashant Shenoy
Learning-Augmented Competitive Algorithms for Spatiotemporal Online Allocation with Deadline Constraints
Proc. of the ACM on Measurement and Analysis of Computing Systems 9(1), Mar. 2025. Also in SIGMETRICS '25.

Cooper Sigrist, Archimedes Li, Mimi Lertsaroj, Ryan Bahlous-Boldi, Adam Lechowicz, Noman Bashir, and Mohammad Hajiesmaili
Learning to Site: A Multi-objective Optimization of Rooftop Solar Installations using Evolutionary Neural Networks
AI Crossroads Workshop @ ACM SIGMETRICS, 2025.

Adam Lechowicz, Rohan Shenoy[†], Noman Bashir, Mohammad Hajiesmaili, Adam Wierman, Christina Delimitrou
Carbon- and Precedence-Aware Scheduling for Data Processing Clusters
In submission, 2025.

Roozbeh Bostandoost, Walid A. Hanafy, Adam Lechowicz, Noman Bashir, Prashant Shenoy, and Mohammad Hajiesmaili
Data-driven Algorithm Selection for Carbon-Aware Scheduling
ACM SIGEnergy Energy Informatics Review 4(5), Dec. 2024. Also in HotCarbon '24.

Julia Köhlke, Adam Lechowicz, Oluwole Fabikun[†], Noman Bashir, Abel Souza, Prashant Shenoy, and Sebastian Lehnhoff
Examining The Adoption of Electromobility Concepts Across Social Contexts for Energy Transition
ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys), 2024.

Adam Lechowicz and Joshua Comden
Distribution Grid Incentive Design with Unknown Agent Behavior
Seventh Workshop on Autonomous Energy Systems, 2024.

Adam Lechowicz, Nicolas Christianson, Bo Sun, Noman Bashir, Mohammad Hajiesmaili, Adam Wierman, and Prashant Shenoy
Chasing Convex Functions with Long-term Constraints
International Conference on Machine Learning (ICML), 2024.

Adam Lechowicz, Nicolas Christianson, Bo Sun, Noman Bashir, Mohammad Hajiesmaili, Adam Wierman, and Prashant Shenoy
Online Conversion with Switching Costs: *Robust and Learning-augmented Algorithms*
ACM SIGMETRICS / IFIP Performance, 2024.

Roozbeh Bostandoost, Adam Lechowicz, Walid A. Hanafy, Noman Bashir, Prashant Shenoy, and Mohammad Hajiesmaili
LACS: Learning-Augmented Carbon-Aware Resource Scaling for Uncertain Demand
ACM International Conference on Future Energy Systems (e-Energy), 2024.

Adam Lechowicz, Rik Sengupta, Bo Sun, Shahin Kamali, and Mohammad Hajiesmaili
Time Fairness in Online Knapsack Problems
International Conference on Learning Representations (ICLR), 2024.

Adam Lechowicz, Nicolas Christianson, Jinhang Zuo, Noman Bashir, Mohammad Hajiesmaili, Adam Wierman, and Prashant Shenoy
The Online Pause and Resume Problem: *Optimal Algorithms and An Application to Carbon-Aware Load Shifting*
Proc. of the ACM on Measurement and Analysis of Computing Systems 7(3), Dec. 2023. Also in SIGMETRICS / Performance '24.

Adam Lechowicz, Noman Bashir, John Wamburu, Mohammad Hajiesmaili, and Prashant Shenoy
Equitable Network-Aware Decarbonization of Residential Heating at City Scale
ACM International Conference on Future Energy Systems (e-Energy), 2023.

Nikita Bhalla, Adam Lechowicz, and Cameron Musco ($\alpha-\beta$)
Local Edge Dynamics and Opinion Polarization
ACM International Conference on Web Search and Data Mining (WSDM), 2023.

Bhawana Chhaglani, Camellia Zakaria, Adam Lechowicz, Jeremy Gummeson, and Prashant Shenoy
FlowSense: Monitoring Airflow in Building Ventilation Systems Using Audio Sensing
Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), March 2022.

Honors and Awards

ACM SIGEnergy: Student Travel Grant (for ACM e-Energy 2025)	Spring 2025
ACM SIGMETRICS: Student Travel Award (for ACM SIGMETRICS '25)	Sp. 2024, Sp. 2025
Manning CICS: Ph.D. Portfolio with Distinction	Fall 2024
National Science Foundation: Student Travel Grant (for ACM SIGMETRICS '24)	Spring 2024
U. of Michigan, Georgia Tech, UC San Diego: 2023 NextProf Pathfinder Workshop (invited)	Fall 2023
Manning CICS: Dr. C. Mohan Graduate Scholarship	Fall 2023
U.S. Department of Energy: Computational Science Graduate Fellowship	2023-2027
ACM SIGIR & National Science Foundation: Student Travel Award (for ACM WSDM 2023)	Spring 2023
Energy Transition Institute: NSF ELEVATE Fellowship	2022-2024
UMass Amherst: Class of 2022 – 21st Century Leader Award (*highest undergraduate honor*)	Spring 2022
Manning CICS: Outstanding Undergraduate Achievement Award	Spring 2022
UMass Amherst: 2021-2022 UMass Amherst Rising Researcher	Spring 2022
Manning CICS: Senior Leadership Award	Spring 2022
Manning CICS: Outstanding Undergraduate Course Assistant Award	Spring 2022

UMass Amherst: Phi Beta Kappa (*junior year inductee*)	Spring 2021
UMass Amherst: David C. Knapp Scholarship in Political Science	Spring 2020
Massachusetts Department of Higher Education: John and Abigail Adams Scholarship	Fall 2018

Presentations

⋆ – *indicates invited*

Learning-Augmented Online Optimization with Switching Costs and Long-term Constraints	Jul. 2025
⋆ *INFORMS Applied Probability Society Conference* ([Slides](#))	
Optimizing Individualized Incentives from Grid Measurements under Limited Knowledge of Agent Behavior	
⋆ *RSRG / FALCON Group Meeting @ Caltech* ([Slides](#))	May 2025
ELEVATE Retreat, Energy Transition Institute @ UMass	Jan. 2025
⋆ *ACM SIGEnergy Graduate Seminar* ([Slides](#))	Nov. 2024
Online Optimization with Switching Costs and Long-term Constraints	Aug. 2024
⋆ *SODALab Group Meeting @ University of Alberta* ([Slides](#))	
Equitable Network-Aware Decarbonization of Residential Heating at City Scale	Apr – May. 2024
⋆ *PIT × UMass: Developing Tech for the Public Interest* (**poster in library exhibit**)	
Theoretical Foundations for Carbon-aware Load Shifting	Feb. 2024
ELEVATE Retreat, Energy Transition Institute @ UMass	
Fresh Challenges for Online Problems: new directions motivated by practice	Jun. 2023
⋆ *RSRG / FALCON Lunch Seminar @ Caltech* ([Slides](#))	
On the Necessary "Unfairness" of Competitive Online Algorithms	Nov. 2022
UMass CS Theory Seminar ([Slides](#))	
Edge Dynamics and Opinion Polarization in Social Networks	Apr. 2022
Honors Thesis Defense ([Slides](#))	
Machine Learning for Absolute Beginners – Mathematical Foundations of ML	Nov. 2021
Workshop @ HackUMass IX ([Slides](#))	

Research Advising and Mentorship

Ezra Johnson (*UG, Caltech*) – Computing for an Equitable Energy Transition REU	Summer 2025
Tri Than (*UG, UMass*) – Undergraduate Research Assistant	2024 –
Rohan Shenoy (*UG, UC Berkeley*) – Undergraduate Research Assistant	2024 –
Anisha Prathi (*UG, UMass*) – Undergraduate Honors Thesis *Next: Capital One*	2023 – 2024
Kaosisochukwu Nwosu (*UG, UMass*) – (*received Outstanding Achievement Award*) *Next: Schneider Electric*	2023 – 2024
Lily Davoren (*UG, Bryn Mawr*) – Computing for an Equitable Energy Transition REU	Summer 2023
Coo Katsuno, Saif Masoud, Riley Kim Connell (*UG, UMass*) – URV Program @ MCICS	Summer 2023
Oluwole Fabikun (*UG, UMass*) – LSAMP Scholar – (*featured in graduating "Senior Series"*) *Next: Fidelity Investments*	2023 – 2024

Other Professional Experience

Student Trustee – *Board of Trustees, University of Massachusetts*	**Boston, Mass.**
○ Served as student representative of the Amherst campus on system-wide Board of Trustees.	Jul. 2022 – Jul. 2023
Peer Advisor – *Manning College of Information and Computer Sciences*	**Amherst, Mass.**
○ Advised students on course selection and offered guidance for struggling students.	Jan. 2021 – Jan. 2022
Web Developer – *Public Higher Education Network of Massachusetts (PHENOM)*	**Worcester, Mass.**
○ Created new web UI & recruitment tools for a nonprofit in the higher education sector.	Dec. 2020 – Nov. 2021
Engineering Intern – *Bin1 ATE*	**Ashland, Mass.**
○ Interned at firm building automated test equipment for semiconductor manufacturing.	May. 2019 – Aug. 2019

Side Projects

Venti – *macOS application, JavaScript & shell*   Winter 2023, Spring 2025
A carbon-aware battery management tool for Apple silicon MacBooks. Used to prolong
battery health and defer charging to periods of time when grid electricity is sufficiently clean.

Backtrack – *iOS application, Swift & SwiftUI*   Summer 2021
A privacy-centric, open-source location logging solution that provides a history of location
data for a personal device with minimal battery impact, leveraging deep API integration.

Béton3 Macro Pad – *Hardware and firmware design, C, CAD, Arduino*   Summer 2020
Created an Arduino-based open-source input device design hosted on GitHub. Custom
firmware, hardware, CAD chassis, and concrete cast volume knob.

Service

– Program Committees –

Workshop on Learning-augmented Algorithms: Theory and Applications (LATA) – Organizer   SIGMETRICS '25
Workshop on Measurements, Modeling, and Metrics for Carbon-Aware Computing

– Journal Reviewing –

IEEE Transactions on Network Science and Engineering   2025

– Conference and Workshop Reviewing –

Conference on Neural Information Processing Systems (NeurIPS)   2025
International Conference on Learning Representations (ICLR)   2025
ACM SIGMETRICS (subreviewer)   2024, 2025

– Seminars –

Grad Student Organizer – CS Systems & Sustainability Lunches, *UMass Amherst*   Fall 2024 – ongoing
Grad Student Organizer – CS Theory Seminar, *UMass Amherst*   Spring 2024 – ongoing
Grad Student Organizer – Algorithms with Predictions Seminar, *UMass Amherst*   Fall 2022

– Department & University Service –

New Building Committee – Manning CICS   Jun. 2022 – ongoing
Headmaster (Organizer) – OlympCICS *– Manning CICS*   Jan. 2024
  ○ Organized the 2nd iteration of an annual competition and celebration for CS PhD students.
Grad Student Social Committee – Manning CICS   Sep. 2023 – Aug. 2024
New PhD Student Committee – Manning CICS   Sep. 2023 – Aug. 2024
Committee Against Racism and for Equity – Structural Barriers to Academic Success   Sep. 2021 – Aug. 2022
Flexible Learning Task Force & *Implementation Committee – UMass Amherst*   Jan. 2021 – May 2022

– Outreach & Volunteering –

Mentor & Instructor – UMass Turing Summer Program   Summers 2022, 2023, 2025
Workshop Co-lead and Presenter – Holyoke Energy Justice Leaders Workshop #3   May 2024
Judge – HackUMass XI (hackathon)   Nov. 2023
Mentor – Undergraduate Research Volunteers (URV) Program   Summer 2023
Founder & Editor-in-Chief – UMass Index Yearbook   Aug. 2020 – Jul. 2022
  ○ Led a successful effort to revive the university's yearbook – took project from conceptual
    stage to raising funds from scratch through preorders and delivering several hundred books.
Organizing Co-director – UMass CEPA Food Justice Campaign   Sep. 2019 – May 2021
  ○ Leadership role in a campaign focused on advocacy around food insecurity and sustainability
Senator, Secretary of Technology – UMass Student Government Association   Sep. 2019 – May 2022

Languages

English (U.S., native); Polish; American Sign Language