

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 between theory and systems, encompassing the design of learning-augmented and provably robust algorithms for decision-making under uncertainty, and system designs that increase the flexibility, efficiency, and sustainability of energy systems or 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

Publications

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

Ezra Johnson[†], Adam Lechowicz, and Mohammad Hajiesmaili
Signal-Aware Workload Shifting Algorithms with Uncertainty-Quantified Predictors
ACM International Conference on Future Energy Systems (e-Energy), 2026.

Cooper Sigrist, Archimedes Li, Pichsinee Lertsaroj, Ryan Boldi, Adam Lechowicz, Noman Bashir, and Mohammad Hajiesmaili
Multi-objective Evolutionary Learning for Near Pareto-Optimal Optimization of Solar Deployment (best paper candidate)
ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys), 2025.

Adam Lechowicz, Rohan Shenoy[†], Noman Bashir, Mohammad Hajiesmaili, Adam Wierman, and Christina Delimitrou
Carbon- and Precedence-Aware Scheduling for Data Processing Clusters (SIGCOMM short)
ACM SIGCOMM, 2025.

Cooper Sigrist, Archimedes Li, Pichsinee Lertsaroj, Ryan Boldi, Adam Lechowicz, Noman Bashir, and Mohammad Hajiesmaili
Learning to Site: A Multi-objective Optimization of Rooftop Solar Installations using Evolutionary Neural Networks
ACM SIGMETRICS Performance Evaluation Review, August 2025.

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*.

Adam Lechowicz, Rohan Shenoy[†], Noman Bashir, Mohammad Hajiesmaili, Adam Wierman, and Christina Delimitrou

♠ **SPADE: Signal-Aware DAG Scheduling and Dynamic Provisioning for Data Processing Clusters**

In submission, 2026.

Roosbeh Bostandoost, Adam Lechowicz, Walid A. Hanafy, Prashant Shenoy, and Mohammad Hajiesmaili

Quantifying the Carbon Reduction of DAG Workloads: A Job Shop Scheduling Perspective

In submission, 2026.

Cooper Sigrist, Anupama Sitaraman, Alice Zhang, Adam Lechowicz, Yuvraj Agarwal, and Mohammad Hajiesmaili

The Price to Site: A Cost-effective Incentivization Strategy for Multi-objective Optimized Rooftop Solar Installations

In submission, 2026.

Fabian Francis Mkocheke, Walid A. Hanafy, Adam Lechowicz, David Irwin, and Prashant Shenoy

City-Scale Decarbonization of Residential Heating Under Transformer Constraints

In submission, 2026.

Adam Lechowicz, Nicolas Christianson, Mohammad Hajiesmaili, Adam Wierman, and Prashant Shenoy

Online Smoothed Demand Management

In submission, 2026.

Roosbeh 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, Oluwale 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.

Roosbeh 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 Gummesson, 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

UMass Graduate School: NSF Leadership Fellowship for Graduate Students	Fall 2025
Manning CICS: Ph.D. Portfolio with Distinction	Fall 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
Energy Transition Institute: NSF ELEVATE Fellowship	2022–2024
UMass Amherst: Class of 2022 – 21st Century Leader Award (<i>highest undergraduate honor</i>)	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 (<i>junior year inductee</i>)	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 Algorithms for Spatiotemporal Online Allocation with Deadline Constraints	Oct. 2025
★ <i>INFORMS Annual Meeting 2025</i> (Slides)	
Learning-Augmented Online Optimization with Switching Costs and Long-term Constraints	Jul. 2025
★ <i>INFORMS Applied Probability Society Conference 2025</i> (Slides)	
Optimizing Individualized Incentives from Grid Measurements under Limited Knowledge of Agent Behavior	
★ <i>RSRG / FALCON Group Meeting @ Caltech</i> (Slides)	May 2025
<i>ELEVATE Retreat, Energy Transition Institute @ UMass</i>	Jan. 2025
★ <i>ACM SIGEnergy Graduate Seminar</i> (Slides)	Nov. 2024
Online Optimization with Switching Costs and Long-term Constraints	Aug. 2024
★ <i>SODALab Group Meeting @ University of Alberta</i> (Slides)	
Equitable Network-Aware Decarbonization of Residential Heating at City Scale	Apr – May. 2024
★ <i>PIT × UMass: Developing Tech for the Public Interest</i> (<i>poster in library exhibit</i>)	
Theoretical Foundations for Carbon-aware Load Shifting	Feb. 2024
<i>ELEVATE Retreat, Energy Transition Institute @ UMass</i>	
Fresh Challenges for Online Problems: new directions motivated by practice	Jun. 2023
★ <i>RSRG / FALCON Lunch Seminar @ Caltech</i> (Slides)	
On the Necessary “Unfairness” of Competitive Online Algorithms	Nov. 2022
<i>UMass CS Theory Seminar</i> (Slides)	
Edge Dynamics and Opinion Polarization in Social Networks	Apr. 2022
<i>Honors Thesis Defense</i> (Slides)	
Machine Learning for Absolute Beginners – Mathematical Foundations of ML	Nov. 2021
<i>Workshop @ HackUMass IX</i> (Slides)	

Research Advising and Mentorship

Urvi Gupta, Pihul Nyati, Samuel Nkemnkia, Rakshita Saroha – ERSP @ CICS	2025 – 2026
Ezra Johnson (<i>UG, Caltech</i>) – Computing for an Equitable Energy Transition REU	Summer 2025
Tri Than (<i>UG, UMass</i>) – Undergraduate Research Assistant	2024 –
Rohan Shenoy (<i>UG, UC Berkeley</i>) – Undergraduate Research Assistant	2024 –
Anisha Prathi (<i>UG, UMass</i>) – Undergraduate Honors Thesis	2023 – 2024
<i>Next: Capital One</i>	
Kaosisochukwu Nwosu (<i>UG, UMass</i>) – (<i>received Outstanding Achievement Award</i>)	2023 – 2024
<i>Next: Schneider Electric</i>	
Lily Davoren (<i>UG, Bryn Mawr</i>) – Computing for an Equitable Energy Transition REU	Summer 2023

Coo Katsuno, Saif Masoud, Riley Kim Connell – URV Program @ CICS	Summer 2023
Oluwole Fabikun (UG, UMass) – LSAMP Scholar – (featured in graduating “Senior Series”)	2023 – 2024
Next: Fidelity Investments	

Teaching

Lecturer & Mentor UMass Turing Summer Program – College of Information and Computer Sciences	Amherst, Mass. Summers 2022, 2023, 2025
Course Assistant Intro to Machine Learning (CS 389) – College of Information and Computer Sciences	Amherst, Mass. Spring 2022

Other Professional Experience

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

Service

– Workshop Organization – Co-Chair – Workshop on Learning-augmented Algorithms: Theory and Applications (LATA) Workshop on Measurements, Modeling, & Metrics for Carbon-Aware Computing (CarbonMetrics)	SIGMETRICS '25 SIGMETRICS '25
– Journal Reviewing – IEEE Transactions on Network Science and Engineering	2025
– Conference Reviewing – International Conference on Learning Representations (ICLR) Conference on Neural Information Processing Systems (NeurIPS) ACM SIGMETRICS (subreviewer)	2025, 2026 2025 2024, 2025
– Seminars – Grad Student Organizer – CS Systems & Sustainability Lunches, UMass Amherst Grad Student Organizer – CS Theory Seminar, UMass Amherst Grad Student Organizer – Algorithms with Predictions Seminar, UMass Amherst	Fall 2024 – ongoing Spring 2024 – ongoing Fall 2022
– Department & University Service – Ph.D. Grad Rep – Manning CICS New Building Committee – Manning CICS Headmaster (Organizer) – OlympCICS – Manning CICS ○ Organized the 2nd iteration of an annual competition and celebration for CS PhD students. Grad Student Social Committee – Manning CICS New PhD Student Committee – Manning CICS Committee Against Racism and for Equity – Structural Barriers to Academic Success Flexible Learning Task Force & Implementation Committee – UMass Amherst	Sep. 2025 – ongoing Jun. 2022 – ongoing Jan. 2024 Sep. 2023 – Aug. 2024 Sep. 2023 – Aug. 2024 Sep. 2021 – Aug. 2022 Jan. 2021 – May 2022
– Outreach & Volunteering – Judge – HackUMass XIII (hackathon) Workshop Co-lead and Presenter – Holyoke Energy Justice Leaders Workshop #3 Judge – HackUMass XI (hackathon) Mentor – Undergraduate Research Volunteers (URV) Program	Nov. 2025 May 2024 Nov. 2023 Summer 2023

<i>Founder & Editor-in-Chief – UMass Index Yearbook</i>	Aug. 2020 – Jul. 2022
<ul style="list-style-type: none"> ◦ 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. 	
<i>Organizing Co-director – UMass CEPA Food Justice Campaign</i>	Sep. 2019 – May 2021
<ul style="list-style-type: none"> ◦ Leadership role in a campaign focused on advocacy around food insecurity and sustainability 	
<i>Senator, Secretary of Technology – UMass Student Government Association</i>	Sep. 2019 – May 2022

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. Custom firmware, CAD chassis, and concrete cast volume knob.	
UMass Campus Architecture – iOS, watchOS application, SwiftUI	Summer 2020 & 2025
Created an interactive guide to highlight the architecture of the UMass campus.	

Languages

English (U.S.) [native]; Polish [native]; American Sign Language [beginner]