

## 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<sup>†</sup>, Noman Bashir, Mohammad Hajiesmaili, Adam Wierman, Christina Delimitrou  
**Carbon- and Precedence-Aware Scheduling for Data Processing Clusters**  
*In submission, 2025.*

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, Oluwole Fabikun<sup>†</sup>, 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

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

UMass Amherst: David C. Knapp Scholarship

Spring 2020

Massachusetts Department of Higher Education: John and Abigail Adams Scholarship

Fall 2018

## --- Presentations

\* – indicates invited

### **Optimizing Individualized Incentives from Grid Measurements under Limited Knowledge of Agent Behavior**

\* ACM SIGEnergy Graduate Student Seminar ([Slides](#))

Nov. 2024

ELEVATE Retreat, Energy Transition Institute @ UMass

Jan. 2025

\* RSRG / FALCON Group Meeting @ Caltech ([Slides](#))

May 2025

### **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

2023 – 2024

Next: *Capital One*

**Kaosisochukwu Nwosu** (UG, UMass) – Undergraduate Research Assistant

2023 – 2024

Next: *Schneider Electric*

**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”*)

2023 – 2024

Next: *Fidelity Investments*

## --- 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

**Summer Engineering Intern** – Bin1 ATE

**Ashland, Mass.**

○ Intern 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.

<b>Backtrack</b> – iOS application, Swift & SwiftUI 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.	Summer 2021
<b>Béton3 Macro Pad</b> – Hardware and firmware design, C, CAD, Arduino Created an Arduino-based open-source input device design hosted on GitHub. Custom firmware, hardware, CAD chassis, and concrete cast volume knob.	Summer 2020

## Service

### – Program Committees –

<i>Workshop on Learning-augmented Algorithms: Theory and Applications (LATA)</i> – Organizer	SIGMETRICS,
<i>Workshop on Measurements, Modeling, and Metrics for Carbon-Aware Computing</i>	Jun. 2025

### – Journal Reviewing –

<i>IEEE Transactions on Network Science and Engineering</i>	2025
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### – Conference and Workshop Reviewing –

<i>International Conference on Learning Representations (ICLR)</i>	2025
<i>ACM SIGMETRICS (subreviewer)</i>	2024, 2025

### – Seminars –

<i>Grad Student Organizer – CS Systems &amp; Sustainability Lunches</i> , UMass Amherst	Fall 2024 – ongoing
<i>Grad Student Organizer – CS Theory Seminar</i> , UMass Amherst	Spring 2024 – ongoing
<i>Grad Student Organizer – Algorithms with Predictions Seminar</i> , UMass Amherst	Fall 2022

### – Department & University Service –

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

### – Outreach & Volunteering –

<i>Workshop Co-lead and Presenter – Holyoke Energy Justice Leaders Workshop #3</i>	May 2024
<i>Judge – HackUMass XI (hackathon)</i>	Nov. 2023
<i>Mentor – Undergraduate Research Volunteers (URV) Program</i>	Summer 2023
<i>Mentor &amp; Instructor – UMass Turing Summer Program</i>	Summer 2022 & 2023
<i>Founder &amp; Editor-in-Chief – UMass Index Yearbook</i>	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.	
<i>Organizing Co-director – UMass CEPA Food Justice Campaign</i>	Sep. 2019 – May 2021
◦ 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

## Skills

Python; C/C++; Swift; Go; Java; Kotlin; JavaScript; MATLAB; SQL; HTML/CSS  
NumPy; SciPy; NetworkX; pandas; scikit-learn; PyTorch; CVX; Xcode; Arduino; SolidWorks