

Adam Lechowicz

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Education

University of Massachusetts Amherst

Ph.D. Computer Science, Manning College of Information and Computer Sciences
ELEVATE Graduate Fellow, GPA: 4.0 / 4

Amherst, Mass.

2022 –

University of Massachusetts Amherst

B.S. Computer Science, B.A. Political Science, Summa Cum Laude
Phi Beta Kappa, 21st Century Leader. GPA: 3.99 / 4.0

Amherst, Mass.

2019 – 2022

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 designing algorithms for online optimization, particularly of the learning-augmented or provably fair types. On the application side, I am especially interested in novel system designs which promote the decarbonization of energy systems and computing infrastructure.

Experience

Research Assistant

Manning College of Information and Computer Sciences

Amherst, Mass.

Jun. 2022 –

- Designing fair algorithms for online problems such as knapsack, caching, and bin packing
- Working on topological optimization of residential heating decarbonization in a small city
- Areas: Online Optimization, Online Fairness, Energy Analytics

Undergraduate Honors Thesis Research

Advisor: Cameron Musco

Amherst, Mass.

Mar. 2021 – Aug. 2022

- Explored mechanics behind opinion polarization in social networks, using simulation and spectral graph theory. Using local edge dynamics and an opinion dynamics model, answered questions about the topologies which correspond with the emergence of polarization.

Course Assistant

Intro to Machine Learning (CS 389) – College of Information and Computer Sciences

Amherst, Mass.

Jan. 2022 – May 2022

REU Internship

Laboratory for Advanced System Software

Amherst, Mass.

Jun. 2021 – Dec. 2021

- Assisted with projects designing sensor systems for indoor air health and HVAC efficiency.
- FlowSense is an applied ML sensing system that filters and feeds smartphone microphone signals through supervised learning models to sense the presence and magnitude of airflow.

Publications & Academic Papers

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

Local Edge Dynamics and Opinion Polarization

ACM International Conference on Web Search and Data Mining (WSDM), 2023.

Bhawana Chhagani, 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

Energy Transition Institute: ELEVATE Graduate Fellowship

Fall 2022

UMass Amherst: Class of 2022 – 21st Century Leader Award

Spring 2022

Manning CICS: 2022 Outstanding Undergraduate Achievement Award

Spring 2022

UMass Amherst: 2021-2022 UMass Amherst Rising Researcher	Spring 2022
Manning CICS: Class of 2022 – Senior Leadership Award	Spring 2022
Manning CICS: Outstanding Undergraduate Course Assistant Award	Spring 2022
UMass Amherst: Inducted into Phi Beta Kappa & Phi Kappa Phi Honor Societies	Spring 2021
Massachusetts Department of Higher Education: John and Abigail Adams Scholarship	Fall 2018

Presentations

On the Necessary “Unfairness” of Competitive Online Algorithms <i>UMass CS Theory Seminar</i> (Slides)	Nov. 2022
Edge Dynamics and Opinion Polarization in Social Networks <i>Honors Thesis Defense</i> (Slides)	Apr. 2022
Machine Learning for Absolute Beginners – Mathematical Foundations of ML <i>Workshop @ HackUMass IX</i> (Slides)	Nov. 2021

Other Professional Experience

Student Trustee – <i>Board of Trustees, University of Massachusetts</i> <ul style="list-style-type: none"> Serving as student representative of the Amherst campus on system-wide Board of Trustees. 	Boston, Mass. Jul. 2022 –
Peer Advisor – <i>Manning College of Information and Computer Sciences</i> <ul style="list-style-type: none"> Advised students on course selection and offered guidance for struggling students. 	Amherst, Mass. Jan. 2021 – Jan. 2022
Web Developer – <i>Public Higher Education Network of Massachusetts (PHENOM)</i> <ul style="list-style-type: none"> Created new web UI & recruitment tools for a nonprofit in the higher education sector. 	Worcester, Mass. Dec. 2020 – Nov. 2021
Summer Engineering Intern – <i>Bin1 ATE</i> <ul style="list-style-type: none"> Intern at firm building automated test equipment for semiconductor manufacturing 	Ashland, Mass. May. 2019 – Aug. 2019

Personal Projects

Backtrack – <i>iOS application, Swift & SwiftUI</i> 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
Béton3 Macro Pad – <i>Hardware and firmware design, C, CAD, Arduino</i> Created an Arduino-based open-source input device design hosted on GitHub. Custom firmware, hardware, CAD chassis, and concrete cast volume knob.	Summer 2020
UMass Campus Architecture & Campus Tour – <i>iOS, watchOS application, SwiftUI</i> Created an interactive guide to highlight the architecture of the UMass campus. Also explored the feasibility of a tour app for prospective students, in collaboration with University Relations.	Summer 2020

Service, Extracurriculars, and Memberships

Mentor & Instructor – <i>UMass Turing Summer Program</i>	Jul. 2022 – Aug. 2022
CICS New Building Committee – <i>Manning College of Information and Computer Sciences</i>	Jun. 2022 – ongoing
Committee Against Racism and for Equity – Structural Barriers to Academic Success <i>Manning College of Information and Computer Sciences</i>	Sep. 2021 – ongoing
Flexible Learning Task Force & Implementation Committee – <i>UMass Amherst</i>	Jan. 2021 – May 2022
Undergrad. Research Volunteer Program – <i>College of Information and Computer Sciences</i>	Dec. 2020 – Jan. 2021
Founder & Editor-in-Chief – <i>UMass Index Yearbook</i> <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. 	Aug. 2020 – Jul. 2022
Organizing Co-director – <i>UMass CEPA Food Justice Campaign</i> <ul style="list-style-type: none"> Leadership role in a campaign focused on advocacy around food insecurity and sustainability 	Sep. 2019 – May 2021
Senator, Secretary of Technology – <i>UMass Student Government Association</i>	Sep. 2019 – May 2022

Skills

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