Adam Lechowicz

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Education

University of Massachusetts Amherst — **Amherst, Mass.**
B.S. Computer Science & Political Science, Commonwealth Honors College — Jan. 2019 – May 2022
Phi Beta Kappa, GPA: 4.0 / 4

Honors Thesis (Advisor: Cameron Musco): Edge Dynamics and Opinion Polarization in Social Networks

Selected Coursework: Artificial Intelligence, Algorithms, Machine Learning (390A), Networks, Systems Principles, Computation, Linear Algebra, Multivariate Calculus, Political Psychology, SPRING '22: CS 589, CS 514

University of Massachusetts Lowell — **Lowell, Mass.**
Computer Science, Honors College — Sep. 2018 – Dec. 2019

Research Interests

I'm interested in studying how to build robust automated systems that can perform useful tasks with minimal human intervention. I'm particularly interested in tackling problems with potential future applications serving a societal interest. In the context of societal inequities, I'm also particularly interested in designing these systems with inbuilt constraints that prevent undesirable behavior and misuse, while ideally helping to alleviate inequalities.

Relevant Experience

REU Summer Intern, Undergraduate Research Assistant — **Amherst, Mass.**
Laboratory for Advanced System Software, College of Information and Computer Sciences — Jun. 2021 – ongoing

- Assisting with two research projects that jointly examine the design and deployment of smart sensing systems to optimize indoor air quality and circulation
- *FlowSense* is an applied ML sensing system that feeds smartphone microphone signals through supervised learning models to sense the presence and magnitude of airflow.
- In a related and ongoing project, we study indoor ventilation dynamics. One research direction that I work on leverages reinforcement learning to enable dynamic safe occupancy, which optimizes for *both* HVAC energy efficiency and public health.

Undergraduate Honors Thesis Research — **Amherst, Mass.**
Advisor: Cameron Musco – Manning College of Information and Computer Sciences — Mar. 2021 – ongoing

- Building on the work of former graduate student Nikita Bhalla, exploring the effects of varied local edge dynamics on synthetic and real-world social networks.
- Using an opinion dynamics model, we particularly focus on how these edge dynamics can drive opinion polarization, and seek to answer open questions concerning which combination of edge dynamics and network topologies correspond with the emergence of polarization.

Undergraduate Course Assistant (UCA) — **Amherst, Mass.**
Intro to Machine Learning (CS 390A) – College of Information and Computer Sciences — Jan. 2022 – May 2022

Academic Papers

Bhawana Chhaglani, Camellia Zakaria, Adam Lechowicz, Prashant Shenoy, and Jeremy Gummeson
FlowSense: Monitoring Airflow in Building Ventilation Systems Using Audio Sensing
In submission at IMWUT, November 2021.

Nikita Bhalla, Adam Lechowicz, and Cameron Musco
Local Edge Dynamics and Opinion Polarization
In submission at WWW, October 2021. (arXiv)

Honors and Awards

UMass Amherst: Inducted into Phi Beta Kappa & Phi Kappa Phi Honor Societies — Spring 2021
UMass Amherst: David C. Knapp Scholarship — Spring 2020
UMass Lowell & UMass Amherst: Dean's List (seven-time recipient) — 2018 – 2021
Massachusetts Department of Higher Education: John and Abigail Adams Scholarship — Fall 2018

Presentations

Machine Learning for Absolute Beginners – Mathematical Foundations of ML Nov. 2021
Workshop @ HackUMass IX (Slides)

Other Professional Experience

Peer Advisor – *Manning College of Information and Computer Sciences* **Amherst, Mass.**
Jan. 2021 – Jan. 2022
- Advised students on courses fitting their respective interests during registration, offered guidance for struggling students, and worked with prospective CS applicants to create pathways for success.

Web Developer – *Public Higher Education Network of Massachusetts (PHENOM)* **Worcester, Mass.**
Dec. 2020 – Nov. 2021
- Attended to the information and web needs of a non-profit working in the higher education sector, on as-needed basis. Created new user experiences, tools for recruitment, and completed migrations across hosting providers.

Summer Engineering Intern – *Bin1 ATE* **Ashland, Mass.**
May. 2019 – Aug. 2019
- Intern at small firm building automated test equipment for semiconductor manufacturing
- Gained hands-on experience with precise instruments, hardware debugging, and deployment

Personal Side Projects

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 system API integration.

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

UMass Campus Architecture & Campus Tour – *iOS, watchOS application, SwiftUI* Summer 2020
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.

Service, Extracurriculars, and Memberships

Committee Against Racism and for Equity – Structural Barriers to Academic Success Sep. 2021 – ongoing
Manning College of Information and Computer Sciences

Flexible Learning Implementation Committee – *UMass Amherst* Sep. 2021 – ongoing

Chancellor's Flexible Learning Task Force – *UMass Amherst* Jan. 2021 – May 2021

Student Member – *Association for Computing Machinery* Jan. 2021 – ongoing

UGRAD Research Program – *Manning College of Information and Computer Sciences* Dec. 2020 – Jan. 2021
- Joined a small team mentored by PhD student Bhawana Chhaglani to create an adaptive sampling algorithm for optimally mapping a 2D scalar field using a Gaussian Process.

Founder & Editor-in-Chief – *UMass Index Yearbook* Sep. 2020 – ongoing
- Leading an ongoing effort to revive the university's yearbook, dormant for 16 years.
- Over the span of 3 semesters, took the project from a conceptual stage to collecting thousands of dollars in preorder funds ahead of a tentative publication date in May 2022.

Peer Mentor – *Manning College of Information and Computer Sciences* Sep. 2020 – Dec. 2020

Member – *UMass Racial Justice Coalition* Jun. 2020 – ongoing

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 – ongoing

Student Advisory Boards – *UMass Amherst* Sep. 2019 – ongoing
- Have served on Information Technology, University Relations, Campus Planning, Administration & Finance, and Student Affairs Student Advisory Boards

Skills

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