

Jacob Epstein

Amherst, MA | jepstein@umass.edu | [linkedin.com/in/epstein-jacob/](https://www.linkedin.com/in/epstein-jacob/) | github.com/jacobe90

EDUCATION

• University of Massachusetts, Amherst

September 2021 - May 2025

Bachelors of Science in Computer Science, Bachelors of Science In Mathematics

Amherst, MA

- GPA: 3.99/4.00
- Commonwealth Honors College student. Thesis Title: *Adding an Optimal Transport-Based Location Loss to BirdFlow*. Thesis Advisor: Daniel Sheldon
- Coursework: Machine Learning, Artificial Intelligence, Algorithms, Computer Architecture, Linear Algebra, Abstract Algebra, Probability and Statistics, Real Analysis, Complex Analysis, Functional Analysis, Measure Theory
- Honors and Awards: Dean's List, Dean's Award, John and Abigail Adams Scholarship (all semesters). Dr. Howard R. Smith Summer Research Award in Information and Computer Science (Summer 2023).

RESEARCH EXPERIENCE

• UMass Amherst, Daniel Sheldon Research Group

June 2023 - June 2025

Undergraduate Research Assistant

Amherst, MA

- Collaborated with researchers at UMass and Cornell on the BirdFlow project, an effort to model the migration paths of birds from citizen science observations
- Implemented and evaluated the performance of Bayesian Optimization algorithms for BirdFlow hyperparameter tuning, and presented results to the BirdFlow team.
- Experimented with alternative BirdFlow model structures that enable learning from an expanded set of marginals.
- Ran experiments to analyze a 2-Wasserstein distance-based training objective to compute error between BirdFlow-modeled and ground truth population estimates. Presented results at the Massachusetts Undergraduate Research Conference (Mass URC) poster presentation. Wrote a senior honors thesis describing the project and results.

• Public Interest Technology - New England (PIT-NE)

May 2024 - July 2024

Impact Tech Fellow

Boston, MA

- Participated in the inaugural PIT-NE Fellowship, a collaborative cross-institutional program where students partner with nonprofits to make an impact on social and environmental problems using Computer Science skills
- Collaborated with a team of three students to analyze a crowdsourced set of observations of trees in India, supplied by the nonprofit Seasonwatch
- Performed data cleaning, designed pipelines to remove outliers and select representative observations to serve as weekly baselines, and designed a probabilistic method to infer flowering and fruiting times from observations.
- Presented results to an expert panel, at a community showcase, and at an invited talk with SeasonWatch and affiliates. Delivered a written report and a documented open-source codebase to SeasonWatch.

• UMass Lowell, Human-Robot Interaction Lab

June 2022 - August 2022

Undergraduate Research Assistant

Lowell, MA

- Collaborated with a team of graduate students to design a virtual reality User Interface (UI) for operating Boston Dynamics' Spot robot
- Implemented UI elements for viewing Spot's sensor data and maps of the environment, sending manipulation and navigation goals, and docking
- Presented results to the lab at an end-of-summer showcase

PUBLICATIONS

C=CONFERENCE, W=WORKING PAPER

- [W.1] Miguel Fuentes, *Jacob Epstein*, Adriaan Dokter, Benjamin Van Doren, Dave Slager, Ethan Plunkett, and Daniel Sheldon. **Learning Migration Models from Marginals with Site Fidelity**.
- [C.1] Gregory LeMasurier, James Tukupah, Murphy Wonsick, Jordan Allspaw, Brendan Hertel, *Jacob Epstein*, Reza Azadeh, Taskin Padir, Holly A. Yanco, and Elizabeth Phillips. **Comparing a 2D Keyboard and Mouse Interface to Virtual Reality for Human-in-the-Loop Robot Planning for Mobile Manipulation**. The 33rd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN), Pasadena, California, August 2024

WORK EXPERIENCE

- **Initiative for Digital Public Infrastructure**

December 2025 - February 2025

Research Assistant

Amherst, MA

- Developed functionality for Unfollow Everything v2, a chrome extension which will allow Facenook users to unfollow all their friends, groups, and pages
- Built the extension using TypeScript and WXT. Located and reverse-engineered Facebook HTTP requests for unfollowing / following friends, groups, and pages. Implemented a feature to load and store the internal Facebook IDs of a user's friends. Documented code, and helped onboard the next team of developers

- **University of Massachusetts, Amherst**

January 2025 - Present

Teaching Assistant - CS 383 (Artificial Intelligence)

Amherst, MA

- Lead weekly office hours, helping students with python programming assignments and questions on AI / ML-related course content
- Grade python programming assignments for the course
- Communicate regularly with professors and other course staff to ensure consistent grading

- **University of Massachusetts, Amherst**

September 2024 - December 2024

Teaching Assistant - CS 320 (Software Engineering)

Amherst, MA

- Mentor students in CS 320 to bring semester-long software engineering projects from idea to reality using an AGILE methodology
- Facilitate group work on software engineering projects, communicating with students if necessary. Grade and provide students with feedback on assignments.
- Communicate with professors and course staff to ensure fair and consistent grading