

Shira Epstein

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250 Natural Resources Rd

Agricultural Engineering Building North Room 116A

Amherst, MA 01003

Interests: Makerspaces in higher education

Positions:

- Director of Campus Makerspaces, UMass Amherst 2018 - Present
- Senior Lecturer, Electrical & Computer Engineering, UMass Amherst 2024 - Present
- Lecturer, Electrical & Computer Engineering, UMass Amherst 2018 - 2024
- Engineer-in-residence, UMass ECE's M5 Makerspace 2017 - 2018

Education

- University of Massachusetts Amherst, May 2022 - Sept. 2023, M.S. in Computer Science
- University of Michigan Ann Arbor, Sept. 2012 - Nov. 2013, EECS PhD program, no degree
- University of Southern California, Sept. 2008 – May 2012, B.S. in Electrical Engineering

Teaching experience, University of Massachusetts Amherst

Courses taught

- Course co-coordinator, Senior Design Project ECE 415, ECE 416
- Integrated Concentration in STEM Fellow/Co-instructor for iCONS 389H: *Team-Oriented Lab Discovery in Renewable Energy*
- Instructor, Faculty First Year Seminar FFYS 191ENG13: *Makerspaces at UMass Amherst*
- Instructor, Honors 391AH: *Electronics for Research & Prototyping*
- Co-instructor, SPP 597M: *Makerspace Leadership I & II*

Undergraduate projects advised

- Electrical & Computer Engineering Senior Design Project
 - ECE 415, Team 12: "Robot Camera" Fall 2023
 - ECE 415 & 416, Team 30: "The Wall" AY 2022-2023
 - ECE 415 & 416, [Team 10: "Magichess"](#) AY 2020-2021
 - ECE 415 & 416, Team 25, "Battery Box" AY 2018-2019
- BDIC 396A Independent Study Fall 2023
- E&C-ENG 499Y: Honors Research Project AY 2022-2023

Other teaching experience

Hampshire College:

- Creative Electronics IA-0116, Fall 2017, Fall 2018
- Introduction to Robotics IA-0253, Spring 2017

Summer programs:

- Massenberg Summer STEM Institute Robotics Instructor, Summer 2023
- Wisconsin Center for Academically Talented Youth
 - “Adv. Topics in Computer Science,” Summer 2016
 - “Engineering Missions and Design Challenges,” Summer 2017
- Duke Talent Identification Program
 - Robotics Instructor, Summer 2014 & 2015

Other research & professional experience

- Software Engineer, Quietyme 2015 - 2016
- Graduate student researcher & lab team lead, University of Michigan-Ann Arbor
PI: Prof. Shai Revzen, Biologically Inspired Robotics and Dynamical Systems Lab 2012 - 2013
- Teamcore Group Undergraduate Student Researcher, USC 2009-2011
- Perceptronic Solutions Undergraduate Student Researcher, USC 2008-2009

Publications

- *Applying Multi-Agent Techniques to Cancer Modeling.*
M. Brown, E. Bowring, S. Epstein, M. Jhaveri, R. Maheswaran, P. Mallick, M. Povinelli, M. Tambe at MSDM AAMAS 2011.
- *ESCAPES: Evacuation Simulation with Children, Authorities, Parents, Emotions, and Social Comparison.*
J. Tsai, N. Fridman, E. Bowring, M. Brown, S. Epstein, G. Kaminka, S. Marsella, A. Ogden, I. Rika, A. Sheel, M. Taylor, X. Wang, A. Zilka, M. Tambe at AAMAS 2011.
- *Agent-based Evacuation Modeling: Simulating the Los Angeles International Airport.*
J. Tsai, E. Bowring, S. Epstein, N. Fridman, P. Garg, G. Kaminka, A. Ogden, M. Tambe, M. Taylor at EMWS 2009.

Invited Talks

- “Makerspaces” talk, as part of the SciTech Café series sponsored by the National Science Foundation. Pioneer Valley MakerFaire, October 14th 2024
- Guest lectures, Biomedical Engineering Senior Design Project. Spring 2021, Fall 2021, Fall 2022, Fall 2023, Fall 2024.
- Guest lecture, Innovation & Entrepreneurship Residential Academic Program, Fall 2024

- Invited Talk UW-Madison Computer Sciences Department
Title: "A Low-Cost, Open Source, Autonomous Robot Platform, " October 30th 2014

Awards

- UMass IEEE Tesla Award (student choice), Most Outstanding Junior Faculty 2019
- Infosys Infy Maker Award, \$10k for "Talking Calipers" project 2017
- University of Southern California Leadership Scholarship, \$10k/year for 4 years
2008-2012
- Women in Science & Engineering Research Fellowship, \$2.5k twice 2011, 2012
- Research Experience for Undergraduates, USC. \$1.1k + room and board 2010
- Madison SOUP Community Voted Microgrant, "Project MOARbots," \$500 2015
- Viterbi School of Engineering Dean's List 2008-2010

Service

- Member, ECE Department Head Search, 2023
- Member, CICS Makerspace Supervisor Hiring Committee, 2020
- Member, ECE Lab Tech Search Committee, 2021

Volunteering

- MIE Capstone Design Project Judge 2024
- HackUMass mentor, judge, volunteer organizer, and workshop instructor 2017 - present
- UMass Summer Engineering Institute, Makerspace & Circuits Activities 2019 - 2023
- Hackaday Prize Project Judge 2022
- HackHer Judge 2022, 2023
- Coach for FIRST Robotics Team at East High School, Madison WI 2016 - 2017
- Madison Science Symposium Mentor 2016 - 2017
- Madison Area Technical College Robotics Advisor & Project Judge 2016 - 2017
- Sector67 Afterschool Science Club Program Mentor 2016
- UW-Madison MadHacks + WACM Hackathon Judge 2016
- Madison Science Festival Robot Zoo Exhibit Creation/Installation 2015 - 2016
- Tormach Science Festival Exhibit Creation/Installation 2016
- Sector67 Intro to 3D Art with Blender Class Instructor 2016
- UW-Madison IoT Lecture Series Final Project Judge 2015
- Madison Science Museum Robotics Exhibit Creation/Installation 2015
- UW-Madison MOARbots Robotics Independent Study Instructor 2015

Certifications

- NFPA Hot Work Safety Certificate program
- Arts, Crafts, & Theater Safety program taught by industrial hygienist Monona Rossol

Selected Other Projects

- [3D printable recreation of the Locking Disc Puzzle](#) 2023 - present
- [Discord Automod for Makerspace Community Server](#) 2021 - present
- [Ventilator cable extension](#), team project during COVID-19 pandemic 2020
- [3D Printed Parametric Magnetic Tile Polyhedra](#) 2015 - 2022
- [Theta* RRT Implementation in Python for steering a virtual bicycle](#) 2019
- Makerspace Inventory & RSVP Systems using Google Web Apps Script 2017 - 2018
- ["Talking Calipers": Tool Accessibility for the Visually Impaired](#) 2017
- MOARbots (Modular, Open Source, Affordable Robots) 2014 - 2017
- Gait Optimizer Framework for BIRDS Lab at the University of Michigan 2012 - 2013
- Fingerprint. C++ OpenCV application for drawing to the screen with a webcam 2009