ELENA LEAH GLASSMAN

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Interests

I create tools and user interfaces for teaching and learning online and at scale. Applications include teaching massive programming classes and learning from Google Books. *Human-computer interaction (HCI), learning at scale, computer science education.*

Education

Massachusetts Institute of Technology — Cambridge, MA
Ph.D., Electrical Engineering and Computer Science — September 2016
4.8/5.0 GPA
Advisor: Robert C. Miller

Massachusetts Institute of Technology — Cambridge, MA
Master of Eng., Electrical Engineering and Computer Science — Feb. 2010
Advisor: Russ Tedrake. Thesis: "A quadratic regulator-based heuristic for rapidly exploring state space."

Massachusetts Institute of Technology — Cambridge, MA
B.S., Electrical Science and Engineering — June 2008
4.8/5.0 GPA

Research Positions

Berkeley EECS Berkeley Institute of Design — Aug. '16 - present
Postdoctoral researcher — Cambridge, MA

MIT CSAIL User Interface Design Group — Feb. '13 - Aug. '16
Ph.D. student and research assistant — Cambridge, MA

Google Search — May '15 - Aug. '15
User Experience Research Intern — Mountain View, CA
- Prototyping interfaces that help people learn, mentored by Dan Russell.

Microsoft Research neXus Research Team — May '14 - Aug. '14
Research Intern — Redmond, WA
- Created, studied, and published Mudslide, a novel system for flipped classrooms.
- Mentored by Merrie Ringel Morris, Andres Monroy-Hernandez, and Anoop Gupta.

Stanford University Biomimetics & Dexterous Manipulation Lab
Visiting Researcher — Oct. '10 - Jan. '11
- Led an MIT-Stanford collaboration on agile autonomous aerial vehicles, resulting in a publication and a funded grant.

MIT CSAIL Robot Locomotion Group — June '08 - May '12
Graduate Research Assistant — Cambridge, MA

MIT CSAIL Networks & Mobile Systems Group — Feb. '05 - June '06
Undergraduate Researcher — Cambridge, MA
- Created and published a novel algorithm for processing EEGs, and later helped file a patent application on the technology.

Princeton University EEG Lab — Mar. '04 - Aug. '04
Independent Researcher, invited by the EEG Lab director — Princeton, NJ

Teaching Positions

MIT EECS

- **Co-Lecturer** User Interface Design & Implementation — Spring '16
  Undergraduate and graduate course with approx. 200 students.
- **Teaching Assistant** Computation Structures — Spring '12 - Fall '13, Fall '14
  Undergraduate lab course on computer architecture.
  Ran twice-weekly recitations, created new tools to support students, and assisted students in the course lab space.
- **Teaching Assistant**, Introduction to EECS 1 — Fall '11
- **IAP Course Instructor**, Review of Signals & Systems — Jan. '11, '12, '13
  Designed and co-taught the EECS Department's month-long course reviewing signals and systems for undergraduate and graduate students.
- **EECS Honor Society Tutor** — '06 - '11
  Signals, Systems, & Probabilistic Systems Analysis

MIT Teaching and Learning Lab

- **Educational video creator** — Spring '13
  Produced for the Singapore University of Technology and Design, explained radio receiver technology.

Beyond MIT

- **Software Carpentry Instructor**, NYU — Mar. '14
- **Python Programming Instructor**, Jerusalem — Summer '13
  Middle East Education through Technology (MEET)
  Taught the basics of programming and teamwork to Israeli and Palestinian gifted high school sophomores in Jerusalem.

Awards and Honors

- Invited to participate in **Rising Stars** program for aspiring CS faculty. — June '15
- **Honorable Mention Award** — Apr. '15
  CHI 2015. Among the top 5% of all submissions.
- **Amar Bose Teaching Fellowship** — Jan. '14 - Dec. '14
  Awarded to 3 nominated teaching assistants across MIT.
- **NSF Graduate Research Fellowship** — Sept. '11 - Sept. '14
- **National Defense Science and Engineering Graduate (NDSEG) Fellowship** — Sept. '08 - Sept. '11
- **MIT EECS Dept. Masterworks Oral Thesis Presentation Award** — May '09
- **Eta Kappa Nu**, an EECS honor society — '08
- **National Gallery for America's Young Inventors** Induction — Feb. '04
- Selected awards from the **Intel International Science and Engineering Fair**
  - **Intel Foundation Young Scientist Award** ($50,000) — May '03
    Given to the top 3 out of 1300 projects at Intel International Science and Engineering Fair.
  - **IEEE President's Scholarship** ($10,000) — May '04
  - **Best of Category: Computer Science** ($5,000) — May '03

Selected Press

- **MIT News**: "Reviewing online homework at scale" — March '15
  Chosen as the MIT homepage Spotlight story
- **The New York Times**: "Not Too Young for a Patent" — Feb. '04
- **Science**: "Rising Stars" (30 May 2003), *Science* 300 (5624), 1368d.

Journal Articles

OverCode: Visualizing variation in student solutions to programming problems at scale.
Elena L. Glassman, Jeremy Scott, Rishabh Singh, Philip J. Guo, Robert C. Miller.
ACM Transactions on Computer-Human Interaction (TOCHI) 22, no. 2 (2015).

- Online Learning at Scale Special Issue

A wavelet-like filter based on neuron action potentials for analysis of human scalp electroencephalographs.
Elena L. Glassman
IEEE Transactions on Biomedical Engineering 52, no. 11 (2005).

- A single-author IEEE journal article on the signal processing of EEGs based on my Intel ISEF project, which shared the top award with 2/1300 other projects.

Conference Papers

Learnersourcing Personalized Hints.
Elena L. Glassman, Aaron Lin, Carrie J. Cai, and Robert C. Miller.
CSCW 2016: ACM Conference on Computer-Supported Cooperative Work and Social Computing.
(25% Acceptance rate, 10 pages)

Foobaz: Variable Name Feedback for Student Code at Scale.
Elena L. Glassman, Lyla Fischer, Jeremy Scott, and Robert C. Miller.
UIST 2015: ACM Symposium on User Interface Software and Technology.
(Historically, 20% Acceptance rate, 9 pages)

Mudslide: A spatially anchored census of student confusion for online lecture videos.
Elena L. Glassman, Juho Kim, Andres Monroy-Hernandez, Meredith Ringel Morris.
CHI 2015: ACM Conference on Human Factors in Computing Systems.
Honorable Mention Award (top 5%)*(23% acceptance rate, 10 pages)*

RIMES: Embedding interactive multimedia exercises in lecture videos.
Juho Kim, **Elena L. Glassman**, Andres Monroy-Hernandez, Meredith Ringel Morris.
CHI 2015: ACM Conference on Human Factors in Computing Systems.
(23% acceptance rate, 10 pages)

Toward facilitating assistance to students attempting engineering design problems.
Elena L. Glassman, Ned Gulley, Robert C. Miller.
ICER 2013: ACM Conference on International Computing Education Research.
(31% acceptance rate, 6 pages)

Region of attraction estimation for a perching aircraft: a lyapunov method exploiting barrier certificates.
Elena L. Glassman, Alexis Lussier Desbiens, Mark Tobenkin, Mark Cutkosky, Russ Tedrake.
ICRA 2012: IEEE International Conference on Robotics and Automation.
(40% acceptance rate, 8 pages)

A quadratic regulator-based heuristic for rapidly exploring state space.
Elena L. Glassman, Russ Tedrake.
ICRA 2010: IEEE International Conference on Robotics and Automation.
(41% acceptance rate, 8 pages)

Technical Reports

iBCM: Interactive Bayesian Case Model Empowering Humans via Intuitive Interaction.
Been Kim, **Elena Glassman**, Brittney Johnson, and Julie Shah.
MIT CSAIL TR-2015-010, April 1, 2015.

Seminars and Invited Talks

- **Berkeley Institute of Design Seminar** Sep '16
  "Clustering and Visualizing Solution Variation in Massive Programming Classes"
- **Harvard Berkman Center Cooperation Group** Dec '15
  "Learnersourcing Personalized Hints"
- **Duke CS** Nov '15
  "Systems for Teaching Programming and Hardware Design at Scale"
- **Stanford HCI** July '15
  "Learnersourcing Personalized Hints"
- **HarvardX** May '15
  "User Interfaces for Teaching Online and at Scale"
- **Wellesley HCI** March '15
  "User Interfaces for Teaching Online and at Scale"
- **DUB Seminar, HCI & Design, U. of Washington** July '14
  "OverCode: Visualizing variation in student solutions to programming problems at scale."
- **Schlumberger-Doll Research Center** Oct. '01
  "Signal Dissection by Repetitive Smoothing and Extraction."
  Talk given as part of receiving the Schlumberger Excellence in Educational Development award at Intel ISEF 2001.

Profiles, Interviews, and Op-Eds

- **Reddit's Upvoted podcast** Feb. '15
  Interviewed with Jean Yang and Neha Narula.
  Chosen as one of the A.V. Club's best podcasts of the week.
- **WIRED** opinion piece: "MIT Computer Scientists Demonstrate the Hard Way That Gender Still Matters" with Jean Yang and Neha Narula Dec. '14
- Profiled in the **MIT EECS Department Newsletter** Fall '10
- **CNN's Lou Dobbs Tonight** Fall '03
  Profiled in the segment "America's Bright Future"
- **CNN's American Morning**, Guest May '03

Research Mentoring

- Stacey Terman, MIT Master's of Engineering student Spring '15 - present
- Aaron Lin, MIT undergraduate Spring '15 - Dec. '15
  Built and deployed Dear Beta, a platform for crowdsourcing hints in a large undergraduate computer architecture course

Certifications

- **Graduate Student Teaching Certificate Program**, *MIT* May '11
  A year-long seminar in state-of-the-art teaching techniques.
- **Amatuer (Ham) Radio License** (KB3IXI) Dec. '02

Service and Leadership

- **Reviewer**, *ACM Computer-Human Interaction* (CHI) Oct '15
- **Reviewer**, *User Interface Software and Technology* (UIST) May '15
- **Session Chair** *ACM Computer-Human Interaction* (CHI) Apr. '15
  Social Media & Citizen Science
- **Works-in-Progress Program Committee** *ACM Computer-Human Interaction* (CHI) Jan. '15
- **President**, *Middle East Education through Technology's student group at MIT*
  Recruiting and coordinating MIT students as summer instructors. Fall '13 - present
- **MIT EdTech Reading Group Co-Organizer** Fall '12
  Formed a reading group for MIT students, faculty, and staff to discuss papers relevant to the growing interest in technology in education and education at scale.

- **Eta Kappa Nu Vice-President**, *MIT Chapter* Spring '08 - '09
  MIT's EECS honor society
- **MIT EECS Department Education Committee** Dec. '06 - Fall '08
  Served as a student representative during a significant department-wide curriculum redesign.
- **MIT Council on Educational Technology** Spring '05

Panels, Invited Public Speaking

- Panelist, MIT EECS SuperUROP (Undergraduate Research) Seminar Apr. '16
- Speaker, MIT Can Talk speech competition Jan '16
  Received **Audience Choice Award**
- Invited speaker, GirlTechPower summer camp for girls Aug. '15
- Panelist, Women Techmaker's Summit at Google Cambridge March '15
- Invited speaker, MIT CSAIL's Hour of Code event Dec. '14
- Panelist, MIT EECS Teaching Assistant Orientation Feb. '13
- Invited speaker, MIT Women's Technology Program July '08, '11
- Invited speaker, MIT CSAIL Campus Preview Weekend Apr. '08

Outreach

- **Reddit AMA** on gender, CS, and academia with Jean Yang and Neha Nerula
  Received 4763 comments, rose to the top 5 stories on the Reddit homepage, and was covered by Business Insider, Gigaom, and BostInno among others. Dec. '14
- **Harvard Women in CS**'s "Women Engineers Code Hackathon", Mentor Dec. '13
- **Cambridge Science Festival**, Robotics representative Nov. '11
- **NH TechFest**, Robotics representative May '11

Other activities

Wrestling

- Team Member, MIT's NCAA Div. III Varsity Wrestling Team Winter '08 - '09
- Competitor, US and Canada in regional & national women's tournaments '09 - '12
- Two-time Training Camp participant, US Olympic Training Center in Colorago Springs, CO Aug. '10, Sept. '12