
ELENA LEAH GLASSMAN

32 Vassar Street, Rm 32-G715
Cambridge, MA 02139

ELG@MIT.edu
(215) 694-9631

Interests	I create tools for teaching programming to thousands of students at once. Specifically, I focus on systems for visualizing variation in student solutions to programming problems at scale. I aim to empower teachers with the information they need to assess students' understanding and provide feedback that is relevant to as many students as possible. I also am president of MIT-MEET, which helps teach gifted Israelis and Palestinians computer science and teamwork in Jerusalem. <i>Human-computer interaction (HCI), learning at scale, computer science education.</i>	
Education	Massachusetts Institute of Technology Ph.D., Electrical Engineering and Computer Science 4.8/5.0 GPA Advisor: Robert C. Miller	Cambridge, MA Summer 2016 (Expected)
	Massachusetts Institute of Technology Master of Eng., Electrical Engineering and Computer Science Advisor: Russ Tedrake. Thesis: "A quadratic regulator-based heuristic for rapidly exploring state space."	Cambridge, MA Feb. 2010
	Massachusetts Institute of Technology B.S., Electrical Science and Engineering 4.8/5.0 GPA	Cambridge, MA June 2008
Research Positions	Ph.D. Candidate, MIT User Interface Design Group, Computer Science and Artificial Intelligence Lab Cambridge, MA	Feb '13 - present
	Research Intern, Microsoft Research neXus Research Team Redmond, WA	May '14 - Aug. '14
	<ul style="list-style-type: none">Created, studied, and published a novel system for classroom use, supervised by Merrie Ringel Morris, Andres Monroy-Hernandez, and Anoop Gupta.	
	Visiting Researcher, Stanford University Biomimetics and Dexterous Manipulation Lab Stanford, CA	Fall '10
	<ul style="list-style-type: none">Led an MIT-Stanford collaboration on agile autonomous aerial vehicles, resulting in a publication and a funded grant.	
	Graduate Research Assistant, MIT Robot Locomotion Group, Computer Science and Artificial Intelligence Lab Cambridge, MA	June '08 - May '12
	Undergraduate Researcher, MIT Networks & Mobile Systems Group, Computer Science and Artificial Intelligence Lab Cambridge, MA	Feb. '05 - June '06
	<ul style="list-style-type: none">Created and published a novel algorithm for processing EEGs, and later helped file a patent on the technology.	

Independent Researcher, *Princeton University*

Mar. '04 - Aug. '04

(Invited by EEG Lab director)

EEG Lab, Princeton Neuroscience Institute

Princeton, NJ

- Published 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 other projects out of 1300.

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 (ACM TOCHI)
Accepted for publication in the Online Learning at Scale Special Issue, 2015.

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).

Conference Papers 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.
Conditionally accepted. (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.
Conditionally accepted. (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.

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.

A quadratic regulator-based heuristic for rapidly exploring state space.

Elena L. Glassman, Russ Tedrake.

ICRA 2010: IEEE International Conference on Robotics and Automation.

Reducing the number of channels for an ambulatory patient-specific EEG-based epileptic seizure detector by applying recursive feature elimination.

Elena L. Glassman, John V. Guttag.

EMBS 2006: IEEE Engineering in Medicine and Biology Society.

Patent Application Method and apparatus for reducing the number of channels in an EEG-based epileptic seizure detector. US Patent App. 12/196,690.
John V. Guttag, Ali Shoeb, **Elena L. Glassman**, Eugene I. Shih.
Cited by 14 other patents and applications.
Filed Aug. 2008, published May 2010, denied Aug. 2014.

**Posters,
Workshops, and
Doctoral
Consortium
Papers**

OverCode: visualizing variation in student solutions to programming problems at scale.
Elena L. Glassman, Jeremy Scott, Rishabh Singh, Philip J. Guo, Robert C. Miller.
MIT Big Data Initiative, Nov. 2014.

Interacting with massive numbers of student solutions.
(Poster and Doctoral Consortium)

Elena L. Glassman.

UIST 2014: ACM User Interface Software and Technology Symposium.

Feature engineering for clustering student solutions.

Elena L. Glassman, Rishabh Singh, Ned Gulley, Robert C. Miller.

CHI 2014: Learning Innovations at Scale Workshop.

Feature engineering for clustering student solutions.

Elena L. Glassman, Rishabh Singh, Robert C. Miller.

L@S 2014: ACM Learning at Scale Conference.

Mining student-generated alternative implementations.

Elena L. Glassman, Robert C. Miller.

Quanta Workshop and Education Symposium, Taiwan, Jan. 2014.

Visualizing and classifying multiple solutions to engineering design problems.

Elena L. Glassman.

ICER 2013: ACM Conference on International Computing Education Research.

**Awards and
Honors**

- **Amar Bose Teaching Fellowship**, awarded to 3 nominated teaching assistants across MIT Jan. 2014 - Dec. 2014
- **NSF Graduate Research Fellowship** Sept. 2011 - Sept. 2014
- **National Defense Science and Engineering Graduate (NDSEG) Fellowship** Sept. 2008 - Sept. 2011
- **MIT EECS Dept. Masterworks Oral Thesis Presentation Award** May 2009
- Inducted into **Eta Kappa Nu**, an EECS honor society 2008
- **Intel Foundation Young Scientist Award**, given to the top 3 out of 1300 projects at Intel International Science and Engineering Fair May 2003

Seminars

- **DUB Seminar, HCI & Design, University of Washington**. “OverCode: Visualizing variation in student solutions to programming problems at scale.” July 2014.
- **Invited Talk, Schlumberger-Doll Research Center in Ridgefield, Connecticut**. “Signal Dissection by Repetitive Smoothing and Extraction.” Oct. 2001. Given as part of receiving the Schlumberger Excellence in Educational Development at Intel ISEF 2001.

Teaching

- **Teaching Assistant, Computation Structures, MIT**
Undergraduate lab course on computer architecture. Spring '12 - Fall '13, Fall '14
Ran twice-weekly recitations, created new tools to support students, and assisted students in the course lab space.
- **Instructor, Software Carpentry** March 2014
Center for Urban Science and Progress of the University of New York

	<p>Worked with a team of instructors to teach a double-room workshop, featuring tracks for Python and R.</p> <ul style="list-style-type: none"> • Instructor, <i>Middle East Education through Technology</i> (MEET) Summer '13 Jerusalem Taught the basics of programming and teamwork to Israeli and Palestinian gifted high school sophomores. • Educational video creator, <i>MIT Teaching and Learning Lab</i> Spring '13 Produced for the Singapore University of Technology and Design, explained radio receiver technology. • Instructor, Review of Signals and Systems, <i>MIT</i> January '11, '12, '13 Designed and co-taught the EECS Department's month-long course reviewing signals and systems for undergraduate and graduate students. • Teaching Assistant, Introduction to EECS 1, <i>MIT</i> Fall '11 Helped undergraduate students complete their first laboratory in the EECS Department, involving programming, building circuits, and controlling robots. • Tutor, Signals, Systems, & Probabilistic Systems Analysis, <i>MIT</i> '06 - '11 Assisted students enrolled in EECS courses through the EECS/HKN tutoring service
Training	<ul style="list-style-type: none"> • Graduate Student Teaching Certificate Program, <i>MIT</i> May '11 A year-long seminar training graduate students in state-of-the-art teaching techniques, run by the MIT Teaching and Learning Lab.
Service	<p>Leadership</p> <ul style="list-style-type: none"> • President, <i>Middle East Education through Technology's student group at MIT</i> Serving as an ambassador for the MEET program on campus, and recruiting MIT students as summer instructors. Fall '13 - present • EdTech Reading Group Co-Organizer, <i>MIT</i> 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. • Vice-President, <i>Eta Kappa Nu, MIT Chapter</i> Spring '08 - '09 MIT's EECS honor society <p>Program Committees</p> <ul style="list-style-type: none"> • ACM Computer-Human Interaction Works-in-Progress (CHI WiP) Jan. '15 <p>Committee Memberships</p> <ul style="list-style-type: none"> • EECS Department Education Committee, <i>MIT</i> Dec. '06 - Fall '08 Served as a student representative during a significant department-wide curriculum redesign. • MIT Council on Educational Technology Spring '05
Selected Press	<ul style="list-style-type: none"> • Co-Authoring WIRED article: "MIT Computer Scientists Demonstrate the Hard Way That Gender Still Matters" Dec. '14 • Appeared in <i>Science</i>: "Rising Stars" (30 May 2003), <i>Science</i> 300 (5624), 1368d. • Profiled on CNN's <i>Lou Dobbs Tonight</i>, in a segment titled "America's Bright Future" Fall '03 • Guest on CNN's <i>American Morning</i> May '03

Outreach

-
- Reddit AMA with Jean Yang and Neha Nerula, on behalf of MIT CSAIL Dec. '14
 - Guest speaker for MIT CSAIL's Hour of Code event Dec. '14
 - Mentor for Harvard Women in CS's "Women Engineers Code Hackathon" Dec. '13
 - New Hampshire TechFest, agile robotics representative Nov. '11
 - Cambridge Science Festival, agile robotics representative May '11
 - MIT Women's Technology Program July '08, '11
- Guest spoke twice to gifted high school girls interested in EECS

**Other interests
and activities****Wrestler**

- 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 Colorado Springs, CO Aug. '10, Sep '12
- Board member of the Massachusetts Chapter of USA Wrestling 2012