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- Interests** Intelligent Tutoring Systems, Massive Open Online Courses (MOOCs), and websites like Khan Academy and Codecademy are now used to teach programming courses at a massive scale. A single programming exercise may produce thousands of solutions from learners. Understanding solution variation is important for providing appropriate feedback to students at scale. The wide variation among these solutions can be a source of pedagogically valuable examples, and can be used to refine the autograder for the exercise by exposing corner cases. I work on systems for visualizing and exploring thousands of programming solutions that help teachers more quickly develop a high-level view of students' understanding and misconceptions, and to provide feedback that is relevant to more students.
- Keywords** Human-computer interaction, information visualization, learning sciences, educational technology, machine learning.
- Education**
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| Massachusetts Institute of Technology | Cambridge, MA |
| Ph.D., Electrical Engineering and Computer Science | Expected 2015 |
| 4.8/5.0 GPA (Cumulative Graduate GPA; includes Master's) | |
| Massachusetts Institute of Technology | Cambridge, MA |
| Master of Eng., Electrical Engineering and Computer Science | February 2010 |
| Massachusetts Institute of Technology | Cambridge, MA |
| B.S., Electrical Science and Engineering | June 2008 |
| 4.8/5.0 GPA | |
- Publications and Patent Applications**
- Elena L. Glassman, Jeremy Scott, Rishabh Singh, Philip J. Guo, and Robert C. Miller. "OverCode: Visualizing Variation in Student Solutions to Programming Problems at Scale." Submitted for publication in the Online Learning at Scale Special Issue of the *ACM Trans. Comput.-Hum. Interact.*
 - Elena L. Glassman, Ned Gulley, and Robert C. Miller. Toward Facilitating Assistance to Students Attempting Engineering Design Problems. In *Proceedings of the Ninth Annual ACM Conference on International Computing Education Research (ICER '13)*. ACM, New York, NY, USA, p. 41-46, 12-14 Aug. 2013.
 - Elena Glassman. Visualizing and Classifying Multiple Solutions to Engineering Design Problems. Extended Abstract. In *Proceedings of the Ninth Annual ACM Conference on International Computing Education Research (ICER '13)*. ACM, New York, NY, USA, p. 175-176, 12-14 Aug. 2013.
 - Elena Glassman, Alexis Lussier Desbiens, Mark Tobenkin, Mark Cutkosky, and Russ Tedrake. "Region of Attraction Estimation for a Perching Aircraft: A Lyapunov Method Exploiting Barrier Certificates," In *Proceedings of the 2012 IEEE International Conference on Robotics and Automation (ICRA '12)*. p. 2235-2242, 14-18 May 2012.
 - Elena L. Glassman and Russ Tedrake. "A quadratic regulator-based heuristic for rapidly exploring state space." In *Proceedings of the 2010 IEEE International Conference on Robotics and Automation (ICRA '10)*. p. 5021-5028, 3-7 May 2010.

	<ul style="list-style-type: none"> Elena L. Glassman. “A wavelet-like filter based on neuron action potentials for analysis of human scalp electroencephalographs.” <i>IEEE Transactions on Biomedical Engineering</i> 52, no. 11 (2005). Elena L. Glassman and John V. Gutttag. “Reducing the number of channels for an ambulatory patient-specific EEG-based epileptic seizure detector by applying recursive feature elimination.” In <i>Proceedings of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society</i> (EMBS '06). p. 2175-2178, 30 Aug. - 3 Sept. 2006. Elena L. Glassman, John V. Gutttag, Eugene I. Shih, and Ali Shoeb. “Method and apparatus for reducing the number of channels in an eeg-based epileptic seizure detector.” US Patent App. 12/196,690, 2008.
Teaching Certifications and Experience	<ul style="list-style-type: none"> Computer Science Instructor for Middle East Education through Technology (MEET), teaching Israeli and Palestinian high school students Summer '13 Created a short educational video on radio receiver technology for the Singapore University of Technology and Design, funded and produced by the MIT Teaching and Learning Lab Released Summer '13 Recitation Instructor for 6.004: Computation Structures Spring '12 - Fall '13 Teaching Assistant for 6.01: Introduction to EECS 1 Fall '11 Completed the MIT Teaching and Learning Lab's Graduate Student Teaching Certificate Program Co-taught EECS Department's Review of Signals and Systems IAP '11, '12, '13 Tutor for 6.003: Signals and Systems and 6.041: Probabilistic Systems Analysis through the MIT EECS/HKN tutoring service '06 - '11
Leadership	<ul style="list-style-type: none"> Co-President of the MIT Middle East Education through Technology (MEET) student group, recruiting MIT students as summer instructors Fall '13 - present MIT EdTech Reading Group Co-Organizer Fall '12 Vice-President, MIT Chapter of Eta Kappa Nu, an EECS honor society Apr. '08 - Apr. '09
Professional Activities and Honors	<p>Fellowships</p> <ul style="list-style-type: none"> Amar Bose Teaching Fellowship Jan. '14 - Dec '14 NSF Graduate Research Fellowship Sept. '11 - Sept. '14 National Defense Science and Engineering Graduate Fellowship Sept. '08 - Sept. '11 <p>Selected Scholarships and Awards</p> <ul style="list-style-type: none"> EECS Masterworks Oral Thesis Presentation Award May 2009 Intel Foundation Young Scientist Award, given to the top 3 out of 1300 projects at Intel International Science and Engineering Fair May 2003 <p>Appearances in Popular and Scientific Media</p> <ul style="list-style-type: none"> 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 2003 Guest on CNN's <i>American Morning</i> May 2003 <p>Committee Memberships</p> <ul style="list-style-type: none"> MIT Council on Educational Technology Spring 2005

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- EECS Department Education Committee

Dec. '06 - Fall '08

Selected Research Experiences

Graduate Research Assistant Feb '13 - present
User Interface Design Group, MIT Computer Science and Artificial Intelligence Lab
Cambridge, MA

- Building systems for visualizing and exploring thousands of programming solutions that help teachers more quickly develop a high-level view of students' understanding and misconceptions, and to provide feedback that is relevant to more students.

Visiting Researcher

Fall '10

Biomimetics and Dexterous Manipulation Lab, Stanford University
Stanford, CA

- As a representative of the MIT Robot Locomotion Group, I collaborated with Stanford University's Biomimetics and Dexterous Manipulation Lab, focusing on control algorithms for future dexterous autonomous aerial vehicles.

Graduate Research Assistant

June '08 - May '12

Robot Locomotion Group, MIT Computer Science and Artificial Intelligence Lab
Cambridge, MA

- Designed and published optimal control-based distance metrics for use in Rapidly-Exploring Random Trees (RRTs), which can increase the tractability of kinodynamic planning.

Undergraduate Researcher

Feb. '05 - June '06

Networks and Mobile Systems Group, MIT Computer Science and Artificial Intelligence Lab
Cambridge, MA

- Created a data-analysis algorithm for determining the smallest patient-specific subsets of electrodes that still allow an EEG-based epileptic seizure detector to perform at its most accurate level.