

# Elena Leah Glassman

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## Areas of specialization

Human-Computer Interaction • Programming Systems • Data Science • Human & machine teaching

## Education

2016-2018	EECS Postdoctoral Scholar	Berkeley Institute of Design, EECS Department, UC Berkeley
	Funded by NSF Expeditions in Computer Augmented Program Engineering and the Berkeley Institute of Data Science Postdoctoral Fellowship	
	Supervised by Björn Hartmann, Associate Professor of EECS	
2012-2016	Graduate student	User Interface Design Group, EECS Department, CSAIL, MIT
	PhD Thesis: <i>Clustering and Visualizing Solution Variation in Massive Programming Classes</i>	
	Advised by Robert Miller, Distinguished Professor of CS	
2008-2011	Graduate student	Robot Locomotion Group, EECS Department, CSAIL, MIT
	M.Eng. Thesis: <i>A quadratic regulator-based heuristic for rapidly exploring state space</i>	
	Advised by Russ Tedrake, Professor of EECS	
2010-2011	Visiting researcher	Biomimetics & Dexterous Manipulation Lab, Stanford University
2006-2008	Undergraduate researcher	Robot Locomotion Group, CSAIL, MIT
2004-2006	Undergraduate researcher	Networks & Mobile Systems, CSAIL, MIT
2003-2004	Invited high school student researcher	Psychology Dept's EEG Lab, Princeton University

## Research Internships

2015	User experience research intern	Search, Google
	Advised by Dan Russell, Senior Research Scientist	
2014	Design research intern	Microsoft Research
	Advised by M.R. Morris, Principal Researcher, and A. Monroy-Hernández, Researcher	

## Selected fellowships and scholarships

2018-present	Radcliffe Assistant Professorship at the Radcliffe Institute for Advanced Study
2017-2018	Moore/Sloan Data Science Fellowship at the Berkeley Institute for Data Science (BIDS)
2014-2015	MIT Amar Bose Teaching Fellowship, for developing innovative tools for teaching CS at scale
2011-2014	NSF Graduate Research Fellow (NSF GRFP)
2008-2011	National Defense Science and Engineering Graduate Fellow (NDSEG)
2004	IEEE President's Scholarship (\$10,000)
2003	Intel Foundation Young Scientist Award (\$50,000)
	Awarded to the top 3 individual projects at the Intel International Science & Engineering Fair

## Publications

### JOURNAL ARTICLES AND REFEREED CONFERENCE PAPERS

Top-tier ACM conferences in human-computer interaction, i.e., CHI, CSCW, & UIST, are highly selective venues for archival papers only, comparable to many IEEE journals in their selectivity, visibility, and impact. \* indicates equal contribution.

- 2020 UIST Tianyi Zhang, London Lowmanstone, Xinyu Wang, **EL Glassman**  
[Interactive Program Synthesis by Augmented Examples](#)  
*ACM Symposium on User Interface Software & Technology*
- 2020 CHI Tianyi Zhang, Björn Hartmann, Miryung Kim, **EL Glassman**  
[Enabling Data-Driven API Design with Community Usage Data: A Need-Finding Study](#)  
*ACM Conference on Human Factors in Computing Systems*
- 2020 IUI **Best Paper Award**  
Zana Bucinca\*, Phoebe Lin\*, Krzysztof Gajos, **EL Glassman**  
[Proxy Tasks and Subjective Measures Can Be Misleading in Evaluating XAI Systems](#)  
*ACM Intelligent User Interfaces*
- 2019 VL/HCC J Cambronero, J Shen, J Cito, **EL Glassman**, M Rinard  
[Characterizing developer use of automatically generated patches](#)  
*IEEE Symposium on Visual Languages and Human-Centric Computing*  
31-33% acceptance rate
- 2018 CHI **EL Glassman\***, T Zhang\*, B Hartmann, and M Kim  
[Visualizing API Usage Examples at Scale](#)  
*ACM Conference on Human Factors in Computing Systems*  
25.8% acceptance rate
- 2018 CHI **Best of CHI Honorable Mention (top 5%)**  
A Head, **EL Glassman**, B Hartmann, and M Hearst  
[Interactive Extraction of Examples from Existing Code](#)  
*ACM Conference on Human Factors in Computing Systems*  
25.8% acceptance rate
- 2017 L@S A Head, **EL Glassman**, G Soares, R Suzuki, L Figueredo, L D'Antoni and B Hartmann  
[Writing Reusable Code Feedback at Scale with Mixed-Initiative Program Synthesis](#)  
*ACM Learning at Scale*  
13% acceptance rate
- 2017 VL/HCC R Suzuki, G Soares, A Head, **EL Glassman**, R Reis, M Mongiovi, L D'Antoni, and B Hartmann  
[TraceDiff: Debugging Unexpected Code Behavior Using Trace Divergences](#)  
*IEEE Symposium on Visual Languages and Human-Centric Computing*  
29% acceptance rate
- 2016 CSCW **EL Glassman**, A Lin, C Cai, R Miller  
[Learnersourcing Personalized Hints](#)  
*ACM Computer-Supported Cooperative Work and Social Computing*  
25% acceptance rate
- 2016 ASIST **EL Glassman**, D Russell  
[DocMatrix: Self-Teaching from Multiple Sources](#)  
*ASIS&T Annual Meeting*  
40% acceptance rate

- 2015 UIST     **EL Glassman**, L Fischer, J Scott, R Miller  
[Foobaz: Variable Name Feedback for Student Code at Scale](#)  
*ACM Symposium on User Interface Software & Technology*  
 23.6% acceptance rate
- 2015 CHI     **Best of CHI Honorable Mention (top 5%)**  
**EL Glassman**, J Kim, A Monroy-Hernández, MR Morris  
[Mudslide: A Spatially Anchored Census of Student Confusion for Online Lecture Videos](#)  
*ACM Conference on Human Factors in Computing Systems*  
 23% acceptance rate
- 2015 CHI     J Kim, **EL Glassman**, A Monroy-Hernández, MR Morris  
[RIMES: Embedding Interactive Multimedia Exercises in Lecture Videos](#)  
*ACM Conference on Human Factors in Computing Systems*  
 23% acceptance rate
- 2015 TOCHI   **EL Glassman**, J Scott, R Singh, P Guo, RC Miller  
[OverCode: visualizing variation in student solutions to programming problems at scale](#)  
*ACM Transactions on Computer-Human Interaction*, 22 (2), April 2015.
- 2013 ICER     **EL Glassman**, N Gulley, RC Miller  
[Toward Facilitating Assistance to Students Attempting Engineering Design Problems](#)  
*ACM International Computing Education Research*  
 33% acceptance rate
- 2012 ICRA     **EL Glassman**, A Desbiens, M Tobenkin, M Cutkosky, and R Tedrake  
[Region of attraction estimation for a perching aircraft: A Lyapunov method exploiting barrier certificates](#)  
*IEEE International Conference on Robotics and Automation*  
 40% acceptance rate
- 2010 ICRA     **EL Glassman** and R Tedrake  
[A quadratic regulator-based heuristic for rapidly exploring state space](#)  
*IEEE International Conference on Robotics and Automation*
- 2005 TBME     **EL Glassman**  
[A wavelet-like filter based on neuron action potentials for analysis of human scalp electroencephalographs](#)  
*IEEE Transactions on Biomedical Engineering* 52 (11), 1851-1862, Nov. 2005.
- MIT TECHNOLOGY REPORTS
- 2015 CSAIL     B Kim, **EL Glassman**, B Johnson, J Shah  
[iBCM: Interactive Bayesian Case Model Empowering Humans via Intuitive Interaction](#)  
 MIT CSAIL TR-2015-010, April 2015.
- BOOK CHAPTERS
- 2016           JJ Williams, J Kim, **EL Glassman**, A Rafferty, W Lasecki  
 “Making Static Lessons Adaptive through Crowdsourcing & Machine Learning”  
*Design Recommendations for Intelligent Tutoring Systems: Domain Modeling* Vol. 4,  
 US Army Research Laboratory, July 2016.

POSTERS, DEMOS, AND WORKSHOP PAPERS

- 2017 KDD S Tan, F Doshi-Velez, J Quiroz, **EL Glassman**  
 “Clustering LaTeX Solutions to Machine Learning Assignments for Rapid Assessment”  
 Machine Learning for Education Workshop  
*ACM Conference on Knowledge Discovery and Data Mining*
- 2017 CHI R Suzuki, G Soares, **EL Glassman**, A Head, L D’Antoni, and B Hartmann  
 “Exploring the Design Space of Automatically Synthesized Hints for Introductory Programming Assignments”  
*ACM Conference on Human Factors in Computing Systems*
- 2017 L@S A Ju, **EL Glassman**, A Fox  
 “Teamscope: Scalable Team Evaluation via Automated Metric Mining for Communication, Organization, Execution, and Evolution”  
*ACM Learning at Scale Conference*
- 2016 ICML **EL Glassman**  
 “Learning Latent Student Design Decisions in Python Programming Classes”  
 Workshop on Machine Learning for Digital Education and Assessment Systems  
*International Conference on Machine Learning*
- 2016 NEML **EL Glassman**  
 “Learning Latent Student Design Decisions in Massive Python Programming Classes”  
*New England Machine Learning Day*
- 2016 CSCW **EL Glassman** and R Miller  
 “Leveraging Learners for Teaching Programming and Hardware Design at Scale”  
*ACM Computer-Supported Cooperative Work and Social Computing*
- 2016 CSCW **EL Glassman**, B Kim, J Shah  
 “Scaling Up Qualitative Data Analysis With Interfaces Powered by Interpretable Machine Learning”  
 Human Centered Data Science Workshop  
*ACM Computer-Supported Cooperative Work and Social Computing*
- 2015 L@S **EL Glassman**, C Terman, R Miller  
 “Learner-Sourcing in an Engineering Class at Scale”  
*ACM Learning at Scale Conference*
- 2014 UIST **EL Glassman**  
 “Interacting with Massive Numbers of Student Solutions”  
*ACM Symposium on User Interface Software & Technology*
- 2014 L@S **EL Glassman**, R Singh, R Miller  
 “Feature Engineering for Clustering Student Solutions”  
*ACM Learning at Scale Conference*
- 2009 NIPS **EL Glassman**  
 “A quadratic regulator-based heuristic for rapidly exploring state space”  
 Women in Machine Learning Workshop (WIML)  
*Neural Information Processing Systems*
- 2006 EMBS **EL Glassman** and J Guttag  
 “Reducing the number of channels for an ambulatory patient-specific EEG-based epileptic seizure detector by applying recursive feature elimination”  
*IEEE Engineering in Medicine and Biology Society*

## Service

### FOUNDING CO-ORGANIZER

2020	PL+HCI Summer School
2020	CambridgeCHI, a regional virtual symposium of accepted CHI talks
2017	Program Synthesis Hackathon at UC Berkeley
2012	MIT edTech reading group

### CONFERENCE PROGRAM COMMITTEES

2020	ACM CSCW
2019	ACM UIST
2017, '19-'20	ACM CHI Engineering Interactive Systems and Technologies subcommittee
2017-present	ACM Learning at Scale (L@S)
2015	ACM CHI Works-in-Progress subcommittee

### WORKSHOP PROGRAM COMMITTEES

2020	Human Aspects of Types and Reasoning Assistants	SPLASH
2019	Workshop on Knowledge Representation & Reasoning Meets Machine Learning	NIPS
2019, 2020	Workshop on Intelligent Textbooks	AIED
2018, 2019	Live Programming Workshop (LIVE), for improving the usability of programming	SPLASH
2017, 2018	Workshop on Evaluation and Usability of Programming Languages and Tools	SPLASH

### ORGANIZING COMMITTEES

2020-2021	ACM UIST Publicity Co-Chair	
2019	ACM UIST Doctoral Consortium Co-Chair	
2017-2018	ACM UIST Registration Chair	
2013-2015	Middle East Education through Technology (President of MIT Student Group)	
<i>Session chairing</i>		
2017, 2019	ACM UIST "Code/Education Session" and "Software and Hardware Development"	
2015, 2017	ACM CHI "Social Media & Citizen Science" and "All About Data"	
<i>Workshops</i>		
2019, 2020	Workshop on Evaluation and Usability of Programming Languages and Tools	UIST, SPLASH
2017	Co-organizer, Text Across Domains (TextXD) Workshop	Berkeley Institute of Data Science

### INSTITUTE AND UNIVERSITY COMMITTEES

2020	Fall 2020 Enrollment Working Group member, planning for Harvard's reopening	Harvard
2005	Council on Educational Technology member	MIT

### DEPARTMENT AND SCHOOL COMMITTEES

2018-2019	PhD Diversity Admissions Committee member	SEAS, Harvard
2018-2019	Junior Faculty Search Committee member	CS, Harvard
2018-2019	Graduate Admissions Committee member	SEAS, Harvard

2018	Joint Degree Programs Committee member	CS, Harvard
2006-2008	Education Committee member	EECS, MIT

#### REVIEWING

	<i>Grants</i>	
2019	NSF	
	<i>Journals</i>	
2018	Empirical Software Engineering (EMSE)	
2017	ACM Transactions on Computer-Human Interaction (TOCHI)	
	<i>Conferences</i>	
2015-present	ACM CHI	
	ACM UIST	
	ACM CSCW	

## Teaching

#### EXPERIENCE

2020	Lecturer, Design of Useful & Usable Interactive Systems ( $\approx 75$ students)	Harvard CS
2019	Co-lecturer, PL/HCI Graduate Seminar ( $\approx 30$ students)	Harvard CS
2019	Co-lecturer, Design of Useful & Usable Interactive Systems ( $\approx 75$ students)	Harvard CS
2016	Co-lecturer, User Interface Design & Implementation ( $\approx 175$ students)	MIT EECS
2013	Instructor, introductory Python programming	MIT MEET, Jerusalem
2013	Video script writer & presenter, radio receiver technology	MIT Teaching & Learning Lab
2012-2014	Teaching assistant, Computation Structures	MIT EECS
2011	Teaching assistant, Introduction to EECS 1	MIT EECS
2006-2011	Tutor, Signals, Systems, & Probabilistic Systems Analysis	MIT EECS Honor Society

#### TEACHING COURSES AND CERTIFICATIONS

2020	Course Planning Workshop	Harvard OUE and Bok Center
2011	Graduate Student Teaching Certificate	MIT Teaching & Learning Lab

## Invited Keynote Talks

2020	ACM SIGPLAN conference on Systems, Programming, Languages, and Applications: Software for Humanity	
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## Invited Panelist

2020	Celebrating IUI's 25th anniversary, <i>canceled due to COVID-19</i>	ACM IUI
2019	MIT GW6 (Graduate Women in EECS) Research Summit conference	MIT EECS
2018	Rising Stars workshop for aspiring female EECS professors	MIT EECS
2016	SuperUROP (Undergraduate Research) Seminar	MIT EECS
2015	Women Techmaker's Summit	Google Cambridge

## Invited Seminar Talks

2020	CS Department Seminar, <i>to be rescheduled</i>	Wesleyan
2020	BostonCHI, <i>to be rescheduled</i>	Cambridge, MA
2019	Josh Tenenbaum's research group meeting	MIT
2019	Sumit Gulwani's research group meeting	MSR
2019	Real Colegio Complutense lecture	Harvard
2018	Computer Science Department seminar	UBC
2018	iSchool seminar	UWashington
2018	Computer Science & Engineering Department seminar	UMich
2018	Computer Science & Engineering Department seminar	UCSD
2018	Computer Science Department seminar	UIUC
2018	Computer Science Department seminar	UMaryland
2018	Human-Computer Interaction Institute	CMU
2018	Electrical Engineering & Computer Science Department seminar	UC Berkeley
2018	Computer Science Department seminar	Stanford
2018	Computer Science Department seminar	ETH Zürich
2018	Computer Science Department seminar	Brown
2018	Computing and Information Science Department seminar	Cornell
2018	School of Computer and Communication Sciences seminar	EPFL
2018	Computer Science Department seminar	Harvard
2018	Computer Science Department seminar	Princeton
2018	Computer Science Department seminar	UW-Madison
2018	Computer Science Department seminar	UChicago
2018	Computer Science Department seminar	UToronto
2018	Dan Schwartz and Carl Wieman's lab @ Stanford Graduate School of Education	Stanford
2017	NSF Expeditions in Computer Augmented Program Engineering (ExCAPE) PI Meeting	UPenn
2017	Stanford HCI summer seminar	Stanford
2017	MIT CSAIL Machine Learning Tea	MIT CSAIL
2016	Special Seminar for CS61a Staff, UC Berkeley's largest CS class	UC Berkeley
2016	Berkeley Institute of Design	UC Berkeley
2015	Harvard Berkman Center Cooperation Group	Harvard
2015	Computer Science Department seminar	Duke
2015	HCI summer seminar	Stanford
2015	Lunch seminar	HarvardX
2015	Computer Science Department seminar	Wellesley
2014	DUB Seminar on HCI & Design,	UWashington
2001	Special Seminar	Schlumberger-Doll Research Center

## Workshops Presentations

### ACADEMIC CONFERENCES

2020	SE4ML - Software Engineering for AI-ML-based Systems	Schloss Dagstuhl
2017, 2019	Approaches and Applications of Inductive Programming	Schloss Dagstuhl
2017	Workshop on Advancing Education with Data	ACM KDD
2017	Diverse Ways of Inferring Missions	DARPA
2017	Augmented Developers: Tools for Hybrid Human-Machine Software Eng.	DARPA

## DOCTORAL CONSORTIUMS

2015	Interacting with massive numbers of student solutions	ACM UIST
2013	Visualizing & classifying multiple solutions to engineering design problems	ACM ICER

## Selected honors & awards

2016	Audience Choice Award, MIT Can Talk speech competition
2009	Masterworks Oral Thesis Presentation Award, MIT EECS
2008	Vice President and member, Eta Kappa Nu, EECS Honor Society
2004	Valedictorian & commencement speaker, Central Bucks High School West
2004	National Gallery for America's Young Inventors
2003	Intel International Science and Engineering Fair – Best of Category: Computer Science (\$5,000)

## Selected Outreach

2020	Creator, Podcast “Design of Useful and Usable Interactive Systems”
2018	Invited lecturer, Google software engineering course of underrepresented college students
2016	Invited speaker, Bucknell HCI course
2015	Invited speaker, GirlTechPower summer camp for girls
2014, 2015	Invited speaker, MIT CSAIL Hour of Code event for local schools
2013	Mentor, Harvard Women in CS “Women Engineers Code Hackathon”
2008, 2011	Invited speaker, MIT Women's Technology Program
2008	Invited speaker, MIT CSAIL Campus Preview Weekend

## Selected press

2015	MIT News Homepage Spotlight, “Reviewing online homework at scale,” research profile
2015	MIT News, “It takes a network,” quoted
2015	Reddit's Upvoted podcast, guest
2004	New York Times, “Not Too Young for a Patent,” personal profile
2003	CNN, Lou Dobbs Tonight, “America's Bright Future,” personal profile
2003	CNN, American Morning, guest
2003	<i>Science</i> “Rising Stars” Vol. 300. Issue 5624, p. 1368, personal profile

## ATHLETIC ACHIEVEMENTS

2010,2012	US Olympic Wrestling Training Camp participant	Colorado Springs, CO
2009-2012	Competitor, regional & national women's wrestling tournaments	US & Canada
2010	All-American Wrestler, National Collegiate Wrestling Association	Hampton, VA
2008	Team Member, NCAA Div. III Varsity Wrestling Team	MIT

## References

### Robert Miller

Distinguished Professor of Computer Science  
*MIT CSAIL*

### Björn Hartmann

Associate Professor of Electrical Engineering  
& Computer Science  
*University of California, Berkeley*



**Dan Russell**  
Senior Research Scientist  
*Google*

**Scott Klemmer**  
Professor of Cognitive Science and  
Computer Science & Engineering  
*University of California, San Diego*

**Miryung Kim**  
Professor of Computer Science  
*University of California, Los Angeles*