

JENNIFER L. CROSS

The Robotics Institute
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RESEARCH INTERESTS

- Human-robot interaction with a focus on educational applications of robotics
- Diversity and accessibility in robotics, engineering and computer science education
- Teacher and student robotic empowerment, technological fluency, and computational thinking
- Mixed-methods evaluation of educational robotics interventions

EDUCATION

- Ph.D. in Robotics** 2017
Carnegie Mellon University, Pittsburgh, PA
Dissertation: Creative Robotic Systems for Talent-Based Learning
Advisor: Illah Nourbakhsh
Committee: Mitchel Resnick, Jack Mostow, and Aaron Steinfeld
- M.S. in Robotics** 2013
Carnegie Mellon University, Pittsburgh, PA
Advisor: Illah Nourbakhsh
- B.S. in Electrical and Computer Engineering** 2010
Franklin W. Olin College of Engineering, Needham, MA
Member of Olin College's fifth graduating class

AWARDS & HONORS

- Program for Interdisciplinary Education Research Fellow** 2011 – 2017
Department of Education - Institute of Education Sciences
- Graduate Research Fellowship Program Fellow** 2011 – 2014
National Science Foundation
- Best Paper Award** 2013
IEEE Integrated STEM Education Conference
- Honorable Mention Award** 2017
ACM CHI Conference on Human Factors in Computing Systems
- Olin College Merit Scholarship** 2006 – 2010
Franklin W. Olin College of Engineering

PUBLICATIONS

- Hsu, Y.-C., Cross, J., Leiter, L., Grode, R., Dille, P., and Nourbakhsh, I. (2018). Community-Empowered Air Quality Monitoring System. In *Proceedings of 2018 ACM CHI Conference on Human Factors in Computing Systems*, Montréal, Canada. (in review)
- Cross, J., Hamner, E., Zito, L., and Nourbakhsh, I. (2017). Student Outcomes from the Evaluation of a Transdisciplinary Middle School Robotics Program. In *Proceedings of 2017 IEEE Frontiers in Education Conference (FIE)*, Indianapolis, Indiana.
- Hamner, E., Zito, L., Cross, J., Tasota, M., Dille, P., Fulton, S., Johnson, M., Nourbakhsh, I., and Schapiro, J. (2017). Development and Results from User Testing of a Novel Robotics Kit Supporting Systems Engineering for Elementary-Aged Students. In *Proceedings of 2017 IEEE Frontiers in Education Conference (FIE)*, Indianapolis, Indiana.
- Hsu, Y.-C., Dille, P., Cross, J., Dias, B., Sargent, R., and Nourbakhsh, I. (2017). Community-Empowered Air Quality Monitoring System. In *Proceedings of 2017 ACM CHI Conference on Human Factors in Computing Systems*, Denver, Colorado. (Honorable Mention Award)
- Cross, J., Hamner, E., Zito, L., Nourbakhsh, I., and Bernstein, D. (2016). Development of an Assessment for Measuring Middle School Student Attitudes towards Robotics Activities. In *Proceedings of 2016 IEEE Frontiers in Education Conference (FIE)*, Erie, Pennsylvania.
- Cross, J., Hamner, E., Zito, L., and Nourbakhsh, I. (2016). Engineering and Computational Thinking Talent in Middle School Students: a Framework for Defining and Recognizing Student Affinities. In *Proceedings of 2016 IEEE Frontiers in Education Conference (FIE)*, Erie, Pennsylvania.
- Hamner, E., Zito, L., Cross, J., Slezak, B., Mellon, S., Harapko, H., and Welter, M. (2016). Utilizing Engineering to Teach Non-Technical Disciplines: Case Studies of Robotics within Middle School English and Health Classes. In *Proceedings of 2016 IEEE Frontiers in Education Conference (FIE)*, Erie, Pennsylvania.
- Hamner, E., Cross, J., Zito, L., Bernstein, D., and Mutch-Jones, K. (2016). Training Teachers to Integrate Engineering into Non- Technical Middle School Curriculum. In *Proceedings of 2016 IEEE Frontiers in Education Conference (FIE)*, Erie, Pennsylvania.
- Bernstein, D., Mutch-Jones, K., Hamner, E., and Cross, J. (2015). Robots and Romeo and Juliet: Studying Teacher Integration of Robotics into Middle School Curricula. Paper presented at the 2016 Annual Meeting of the American Educational Research Association (AERA), Washington, DC.
- Cross, J., Hamner, E., Bartley, C., and Nourbakhsh, I. (2015). Arts & Bots: Application and Outcomes of a Secondary School Robotics Program. In *Proceedings of 2015 IEEE Frontiers in Education Conference (FIE)*, El Paso, Texas.
- Cross, J. and Hamner, E. (2014). Identifying and Cultivating Diverse STEM Talent through Creative Robotics. In *Proceedings of 2014 American Society for Engineering Education (ASEE) Annual Conference and Exposition*, Indianapolis, Indiana.
- Cross, J., Bartley, C., Hamner, E., and Nourbakhsh, I. (2013). A Visual Robot-Programming Environment for Multidisciplinary Education. In *Proceedings of 2013 IEEE International Conference on Robotics and Automation (ICRA)*, Karlsruhe, Germany.

- Hamner, E. and Cross, J. (2013). Arts & Bots: Techniques for distributing a STEAM robotics program through K-12 classrooms. *In Proceedings of the 2013 IEEE Integrated STEM Education Conference (ISEC)*, Princeton, NJ. (Best Paper Award)
- Brown, H. B., Nourbakhsh, I., Bartley, C., Cross, J., Dille, P., Schapiro, J., and Styler, A. (2012). ChargeCar Community Conversions: Practical, Electric Commuter Vehicles Now! *In Proceedings of the 2012 IEEE International Electric Vehicle Conference (IEVC)*, Greenville, SC.
- Mathews, J. D., Briczinski, S. J., Malhotra, A., and Cross, J. (2010). Extensive Meteoroid Fragmentation in V/UHF Radar Meteor Observations at Arecibo Observatory. *Geophysical Research Letters*, 37(4).

TEACHING

Principles of Human Robot Interaction (16-867)	2015 & 2017
<i>Guest Lecturer</i> , Carnegie Mellon University	
Topic: Robotics & Education	
New Literacies for Educational Leadership (EDL 730)	2017
<i>Guest Lecturer</i> , Miami University, Oxford, OH	
Topic: Integrating Instructional Technology	
Human Robot Interaction (16-467)	2016
<i>Guest Lecturer</i> , Carnegie Mellon University	
Topic: Experimental Design in Human Robot Interaction	
Methods & Materials for Elementary Teachers (EDUC 460)	2015
<i>Guest Lecturer</i> , West Liberty University, West Liberty, WV	
Topic: Transdisciplinary Integration of Creative Robotics	
Project Course: Mobile Robotics (Summer Academy for Math and Science)	2014
<i>Course Instructor</i> , Carnegie Mellon University	
Systems Engineering (16-650)	2012
<i>Teaching Assistant</i> , Carnegie Mellon University	
Educational Robotics for the Classroom (16-651)	2011
<i>Guest Lecturer</i> , Carnegie Mellon University	
Topic: Robot Programming with the CREATE Lab Visual Programmer	

OUTREACH & SERVICE

K-12 Teacher Professional Development Workshops	2011 – 2017
<i>Workshop Leader</i> , Various locations including: Pittsburgh, PA; Marshall, WV; Bristol, UK; and others	
Topic: Integrating Arts & Bots Robotics into Classrooms	
Audience: Teachers in K-12 Schools	
Over 200 teachers have participated in workshops to date	

Integrating the E in STEM Workshop Series	2016
<i>Workshop Leader, Erie, PA</i>	
Topic: Transdisciplinary Integration of Creative Robotics for Identification of Student STEM Affinities	
Audience: K-12 Educators	
OurCS: Opportunities for Undergraduate Research in Computer Science	2013 & 2015
<i>Graduate Organizer, Carnegie Mellon University</i>	
Audience: Women in Undergraduate Computer Science Programs	
Robotics Institute Ph.D. Admissions Committee	2012 – 2014
Women@SCS Creative Technology Nights	2012 – 2014
<i>Workshop Leader, Carnegie Mellon University</i>	
Topic: Robot Programming with Scratch	
Audience: Middle School Aged Women	
Women@SCS Computer Science Roadshows	2011 – 2013
<i>Graduate Student Presenter, Carnegie Mellon University</i>	
Audience: K-12 Students and Educators	

MENTORING

Master's Thesis Committee	
<i>Xunjie Zhang, Carnegie Mellon University</i>	2017
<i>Matthew Bernstein, Carnegie Mellon University</i>	2012
Ph.D. Qualifiers Committee	
<i>Yen-Chia Hsu, Carnegie Mellon University</i>	2015
<i>Eleanor Avrunin, Carnegie Mellon University</i>	2014

PROFESSIONAL ACTIVITIES & MEMBERSHIPS

Future Faculty Program	2011 – 2017
<i>Eberly Center for Teaching Excellence and Educational Innovation, Carnegie Mellon University</i>	
Women@SCS	2010 – 2017
<i>School of Computer Science, Carnegie Mellon University</i>	
American Society for Engineering Education	2013 – 2017
IEEE	2012 – 2017
Society of Women Engineers	2007 – 2017