

# Rebecca Pierce Khurshid, Ph.D.

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Curriculum vitae last updated on September 21, 2017

## EDUCATION

### **2015 Ph.D. in Mechanical Engineering and Applied Mechanics**

University of Pennsylvania, Philadelphia, Pennsylvania, USA

*Dissertation:* Increasing Transparency & Presence in Teleoperation Through Human-Centered Design

*Advisor:* Katherine J. Kuchenbecker Ph.D.

### **2013 M.S. in Mechanical Engineering and Applied Mechanics**

University of Pennsylvania, Philadelphia, Pennsylvania, USA

### **2010 B.S. in Mechanical Engineering**, Johns Hopkins University

Baltimore, Maryland, USA

## POSITIONS HELD

effective 1/1/18 Assistant Professor, Department of Mechanical Engineering, Boston University

7/1/17-present Assistant Research Professor, Department of Mechanical Engineering, Boston University

7/1/17-present Secondary Appointment, Division of Systems Engineering, Boston University

2015-2017 Postdoctoral Associate, Interactive Robotics Group, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology

*Advisor:* Julie A. Shah, Ph.D.

2010-2015 Research and Teaching Assistant, Department of Mechanical Engineering and Applied Mechanics, University of Pennsylvania

## SELECTED AWARDS AND HONORS

2011-2015 National Science Foundation Graduate Research Fellowship

2011-2015 Ashton Fellowship, University of Pennsylvania

2014 AWIS Robert E. Davies Student Travel Award

2013 Outstanding Teaching Assistant in Mechanical Engineering and Applied Mechanics, University of Pennsylvania

2009 Robert G. Gerstmeier Award for Academic Excellence, Johns Hopkins University

2008 Tau Beta Pi Engineering Honor Society, elected Junior Year

2008 Pi Tau Sigma Mechanical Engineering Honor Society, elected Junior Year

## SCIENTIFIC AND PROFESSIONAL SOCIETIES

IEEE Institute for Electrical and Electronic Engineers, Robotics and Automation Society

AWIS Association for Women in Science

SWE Society of Women Engineers

## PUBLICATIONS

### *Journal Articles*

- [J1] Rebecca P Khurshid, Naomi T Fitter, Elizabeth A Fedalei, and Katherine J Kuchenbecker. Effects of grip-force, contact, and acceleration feedback on a teleoperated pick-and-place task. *Transactions on Haptics*, 10(1):40–53, 2017.
- [J2] Rebecca P. Khurshid and Katherine J. Kuchenbecker. Data-driven motion mappings improve transparency in teleoperation. *Presence: Teleoperators and Virtual Environments (Impact Factor = 0.912)*, 24(2):132–154, 2015.

*Peer-Reviewed Conference Papers*

- [C1] Rebecca M. Pierce, Elizabeth A. Fedalei, and Katherine J. Kuchenbecker. A wearable device for controlling a robot gripper with fingertip contact, pressure, vibrotactile, and grip force feedback. In *Proc. IEEE Haptics Symposium*, pages 19–25, 2014.
- [C2] Rebecca M. Pierce and Katherine J. Kuchenbecker. A data-driven method for determining natural human-robot motion mappings in teleoperation. In *Proc. IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics*, pages 169–176, 2012.

*Short Peer-Reviewed Conference Papers and Abstracts (Acceptance Rates Rarely Known)*

- [S1] Rebecca P. Khurshid, Claudia Pérez D’Arpino, and Julie A. Shah. Shared control for teleoperation with time delay. Presented at *RSS Workshop on Planning for Human-Robot Interaction: Shared Autonomy and Collaborative Robotics*, June 2016.

*Hands-On Demonstrations*

- [D1] Rebecca M. Pierce, Elizabeth A. Fedalei, and Katherine J. Kuchenbecker. Control of a virtual robot with fingertip contact, pressure, vibrotactile, and grip force feedback. Hands-on demonstration presented at IEEE Haptics Symposium, Houston, Texas, USA, February 2014.

INVITED RESEARCH PRESENTATIONS

*Universities, Institutes, and Industry*

1. “Robots: From Tools to Teammate.” Invited seminar, Schlumberger-Doll Research, Cambridge, Massachusetts. September 20, 2017.
2. “Robots: From Tools to Teammate.” Invited seminar, Department of Mechanical Engineering, University of Massachusetts Lowell, Lowell, Massachusetts. March 23, 2017.
3. “Robots: From Tools to Teammate.” Invited seminar, Department of Mechanical Engineering, Boston University, Boston, Massachusetts. March 3, 2017.
4. “Robots: From Tools to Teammate.” Invited seminar, Robotics Engineering Program, Worcester Polytechnic Institute, Worcester, Massachusetts. February 27, 2017.
5. “Robots: From Tools to Teammate.” Invited seminar, The Robotics Institute, Carnegie Mellon University, Pittsburgh, Pennsylvania. February 22, 2017.
6. “Robots: From Tools to Teammate.” Invited seminar, Olin College of Engineering, Needham, Massachusetts. February 13, 2017.
7. “Human-Centered Design in Teleoperation.” Invited seminar, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology, Cambridge, Massachusetts. February 13, 2015.

EDUCATIONAL PRESENTATIONS AND WORKSHOPS

1. “Careers in STEM.” Panel presentation for Boston University’s Summer Pathways outreach program, College of Engineering, Boston University. July 14, 2014.
2. “Academic Integrity.” Center for Teaching and Learning (CTL) workshop for graduate students and postdocs, University of Pennsylvania. March 3, 2014.
3. “Getting Students To Focus on the Process of Solving Problems: Beyond Plug and Chug.” Center for Teaching and Learning (CTL) workshop for graduate students and postdocs, University of Pennsylvania. November 15, 2013.

4. “How Do Motors Work?” Hands-on activity for PennGEARS: Girls in Engineering and Related Sciences Day, University of Pennsylvania. Given with Heather Culbertson: April 2, 2011.
5. “Mechanical Engineering in Action!” Hands-on design activities for PennGEMS: Girls in Engineering Math and Science Camp, University of Pennsylvania. Given 5 times with Katherine J. Kuchenbecker and other members of The Penn Haptics Group: July 30 and 31, 2015, July 30 and August 1, 2014, July 30 and August 2, 2012, August 2 and 3, 2011, August 3 and 4, 2010.
6. “Mechanical Engineering” Presentation to Johns Hopkins Robo Challenge, April 16, 2011.

## ADVISING

### *Doctoral Students*

Ramón Sánchez Cruz, 2017 through present. Anticipated graduation May 2022.  
Ph.D. Student in Mechanical Engineering at Boston University

### *Non-thesis Graduate Students*

Dawei Zhang: Mechanical Engineering Master’s Student at BU, July 2017 – present.

## TEACHING EXPERIENCE

### *Massachusetts Institute of Technology*

**16.422 – Human Supervisory Control of Automated Systems** Guest Lecturer, Fall 2015.

### *University of Pennsylvania*

**MEAM 321: Vibrations of Mechanical Systems** Teaching Assistant, Fall 2012 *Awarded Outstanding Teaching Assistant in MEAM.*

**MEAM 211: Engineering Mechanics: Dynamics** Teaching Assistant, Spring 2012.

**MEAM 410/510: Design of Mechatronic Systems** Teaching Assistant, Fall 2011.

### *Johns Hopkins University*

**ME 530.241: Electronics and Instrumentation** Teaching Assistant, Spring 2010.

**GE 500.101: What is Engineering?** Teaching Assistant, Fall 2009.

## PROFESSIONAL SERVICE

### *Program Committees and Conference Organization*

2018 Publicity Chair, IEEE Haptics Symposium.

### *Reviews*

Journal paper reviews: International Journal of Robotics Research, IEEE Transactions on Neural Systems and Rehabilitation Engineering, Autonomous Robotics

Conference paper reviews: ACM/IEEE International Conference on Human-Robot Interaction  
Robotics: Science and Systems

## UNIVERSITY SERVICE AND OUTREACH

### *Boston University*

Faculty Advisor for Tau Beta Pi Mechanical Engineering Honor Society (2017–present)

### *Massachusetts Institute of Technology*

Board Member of the Postdoctoral Organization for Women Engaged in Research (POWER) (2016–2017)

Exhibitor at the MIT Centennial Open House (2016)

Exhibitor at the MIT Hour of Code (2015)

### *University of Pennsylvania*

Board Member of Advancing Women in Engineering (AWE) (2011–2015)

Outreach Volunteer for the Penn GRASP Lab (2010–2015)

Volunteer Penn Girls in Engineering, Math, and Science (GEMS) Camp (2010–12,14,15)

Activity Coordinator for Penn Girls in Engineering and Related Sciences (GEARS) Day (2011)