

Daniel J. Szafir, Curriculum Vitae

ASSISTANT PROFESSOR · UNIVERSITY OF COLORADO BOULDER

ATLAS Institute & Department of Computer Science, 1111 Engineering Drive, Boulder, CO 80309

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Research Interests

Mission My goal is to advance knowledge regarding the design of new sensing, interface, and robotic technologies to improve user experience, productivity, and enjoyment

Interests Human-robot interaction (HRI); human-computer interaction (HCI); virtual, augmented, and mixed reality; user-centered design; human-centered computing (HCC); aerial robotics; robotic technologies for space exploration; human-robot coordination and collaboration; educational technologies; robotic technologies for manufacturing

Employment

Assistant Professor

2015 – Present

UNIVERSITY OF COLORADO BOULDER

Boulder, Colorado

Department of Computer Science & ATLAS Institute

Affiliate Appointments: Department of Aerospace Engineering; Department of Information Science; Institute of Cognitive Science; Research and Engineering Center for Unmanned Vehicles (RECUV); Center for Neuroscience; Culture, Language, and Social Practice (CLASP) Program

Research Intern

Summer 2013 & Spring 2015

INTELLIGENT ROBOTICS GROUP, NASA AMES RESEARCH CENTER

Mountain View, California

Graduate Research Fellow

2010 – 2015

DEPARTMENT OF COMPUTER SCIENCES, UNIVERSITY OF WISCONSIN–MADISON

Madison, WI

Software Development Intern

Summer 2007 & Summer 2009

INTERNATIONAL BUSINESS MACHINES (IBM), INC.,

Essex Junction, Vermont

Software Development Intern

Summer 2008

TYBRIN CORPORATION

Nashua, New Hampshire

Education

Ph.D., Computer Science

2012 – 2015

UNIVERSITY OF WISCONSIN–MADISON

Madison, Wisconsin

Dissertation: “Human Interaction with Assistive Free-Flying Robots”

Committee: Bilge Mutlu (co-chair), Terrence Fong (co-chair), John Lee, Kevin Ponto, and Tom Ristenpart

NASA Space Technology Research Fellow

Master of Science, Computer Science

2010 – 2012

UNIVERSITY OF WISCONSIN–MADISON

Madison, Wisconsin

Bachelor of Arts, Computer Science

2006 – 2010

BOSTON COLLEGE

Chestnut Hill, Massachusetts

Honor's Thesis: “Non-Invasive BCI through EEG: An Exploration of the Utilization of Electroencephalography to Create Thought-Based Brain-Computer Interfaces”

Bachelor of Arts, History

2006 – 2010

BOSTON COLLEGE

Chestnut Hill, Massachusetts

Honors & Awards

- 2017 **Forbes 30 Under 30: Science**
Named to the Forbes 30 Under 30 list of top innovators
- 2016 **NASA Early Career Faculty Award**
- 2015 **NSF CISE Research Initiation Initiative (CRII) Award**
- 2014 **Doctoral Consortia**
ACM/IEEE International Conference on Human-Robot Interaction (HRI 2014)
ACM SIGCHI Conference on Human Factors in Computing Systems (CHI 2014)
- 2012 – 2015 **NASA Space Technology Research Fellow (NSTRF)**
- 2010 **Boston College Computer Science Accenture Award**
Awarded to top graduating student in Computer Science for outstanding performance
- 2010 **Order of the Cross and Crown**
Boston College Honor Society for seniors demonstrating excellence in academics, service, and leadership
- 2010 **Phi Beta Kappa**
- 2010 **Graduated Summa Cum Laude**
Boston College

Publications

Major publications are listed below, with journal articles denoted by “J,” conference papers with “C,” short papers by “S,” workshop papers with “W,” demonstrations by “D,” theses with “T,” technical reports by “R,” and patents with “P.” For each publication, students under my supervision are denoted by ^(S), collaborators are indicated with ^(C), thesis advisors by ^(A), and students under the supervision of others with ^(O). Impact factors for journals and acceptance rates for conferences are provided where data is available. Note that conferences represent a primary publication venue in Computer Science.

JOURNAL ARTICLES

- J.1. **Daniel Szafir**, Bilge Mutlu^(A), and Terrence Fong^(C). (2017). [Designing Planning and Control Interfaces to Support User Collaboration with Flying Robots](#). *International Journal of Robotics Research (IJRR)*, 36 (5–7), 514–542. doi: [10.1177/0278364916688256](https://doi.org/10.1177/0278364916688256) *Impact factor: 5.30*

REFEREED FULL CONFERENCE PAPERS

- C.9. Catherine Diaz^(S), Michael Walker^(S), Danielle Albers Szafir^(C), and **Daniel Szafir**. (2017). [Designing for Depth Perceptions in Augmented Reality](#). In the *Proceedings of the IEEE International Symposium on Mixed and Augmented Reality (ISMAR 2017)*, Nantes, France. *Acceptance rate: 26%*
- C.8. Darren Guinness^(O), **Daniel Szafir**, and Shaun Kane^(C). (2017). [GUI Robots: Using Off-the-Shelf Robots as Tangible Input and Output Devices for Unmodified GUI Applications](#). In the *Proceedings of the ACM Conference on Designing Interactive Systems (DIS 2017)*, Edinburgh, United Kingdom. *Acceptance rate: 24%*
- C.7. **Daniel Szafir**, Bilge Mutlu^(A), and Terrence Fong^(C). (2015). [Communicating Directionality in Flying Robots](#). In the *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI 2015)*, Portland, Oregon. *Acceptance rate: 25%*
- C.6. Allison Sauppé^(C), **Daniel Szafir**, Chien-Ming Huang^(C), and Bilge Mutlu^(A). (2015). [From 9 to 90: Engaging Learners of All Ages](#). In the *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE 2015)*, Kansas City, Missouri. *Acceptance rate: 36%*
- C.5. **Daniel Szafir**, Bilge Mutlu^(A), and Terrence Fong^(C). (2014). [Communication of Intent in Assistive Free Flyers](#). In the *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI 2014)*, Bielefeld, Germany. *Acceptance rate: 24%*

- C.4. **Daniel Szafer** and Bilge Mutlu^(A). (2013). [ARTful: Adaptive Review Technology for Flipped Learning](#). In the *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI 2013)*, Paris, France. Acceptance rate: 20%
- C.3. Kevin Ponto^(C), Ross Tredinnick^(C), Aaron Bartholomew^(C), Carrie Roy^(C), **Daniel Szafer**, Daniel Greenheck^(C), and Joe Kohlmann^(C). (2013). [SculptUp: A Rapid, Immersive 3D Modeling Environment](#). In the *Proceedings of the IEEE Symposium on 3D User Interfaces (3DUI 2013)*, Orlando, Florida. doi: [10.1109/3DUI.2013.6550247](https://doi.org/10.1109/3DUI.2013.6550247) Acceptance rate: 27%
- C.2. **Daniel Szafer** and Bilge Mutlu^(A). (2012). [Pay Attention! Designing Adaptive Agents that Monitor and Improve User Engagement](#). In the *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI 2012)*, Austin, Texas. Acceptance rate: 23%
- C.1. **Daniel Szafer** and Robert Signorile^(A). (2011). [An Exploration of the Utilization of Electroencephalography and Neural Nets to Control Robots](#). In the *Proceedings of the IFIP TC.13 International Conference on Human-Computer Interaction (INTERACT 2011)*, Lisbon, Portugal. Acceptance rate: 22%

REFEREED SHORT CONFERENCE PAPERS AND ABSTRACTS

- S.3. **Daniel Szafer**. (2014). [Human Interaction with Assistive Free-Flyers](#). In *Doctoral Consortium Extended Abstracts of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI 2014)*, Toronto, Canada. Acceptance rate: 25%
- S.2. Steven Johnson^(C), Xiang Zhi Tan^(C), **Daniel Szafer**, and Bilge Mutlu^(A). (2014). Using At-A-Glance Displays to Enhance Student Attention. In the *McPherson Eye Research Institute (MERI) Symposium*, Madison, Wisconsin.
- S.1. **Daniel Szafer** and Robert Signorile^(A). (2010). Non-Invasive BCI through EEG. In the *New England Undergraduate Computing Symposium (NEUCS 2010)*, Boston, Massachusetts.

REFEREED WORKSHOP & SYMPOSIUM PAPERS

- W.5. **Daniel Szafer**. (2016). A Cognitive Basis for Human Interaction with Aerial Robots. In the *Proceedings of the Workshop on Human-Robot Interaction for Small and Personal Unmanned Aerial Vehicles held at the Robotics: Science and Systems Conference (RSS 2016)*, Ann Arbor, Michigan.
- W.4. Steve McGuire^(O), P. Michael Furlong^(C), Christoffer Heckman^(C), Simon Julier^(C), **Daniel Szafer**, and Nisar Ahmed^(C). (2016). Teamwork Across the Stars: Machine Learning to Overcome the Brittleness of Autonomy. In the *Proceedings of the Workshop on Human-Robot Collaboration: Towards Co-Adaptive Learning Through Semi-Autonomy and Shared Control held at the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2016)*, Daejeon, Korea.
- W.3. Danielle Albers Szafer^(C) and **Daniel Szafer**. (2016). Cognitive Load in Visualization: Myths and Misconceptions. In the *Proceedings of the Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization (C4PGV 2016)* held at *IEEE VIS*, Baltimore, Maryland.
- W.2. **Daniel Szafer**. (2014). Human Interaction with Assistive Free-Flyers. In the *Proceedings of the Human-Robot Interaction Pioneers Workshop held at the ACM/IEEE International Conference on Human-Robot Interaction (HRI 2014)*, Bielefeld, Germany.
- W.1. **Daniel Szafer** and Kevin Ponto^(C). (2012). Panoramic Imagery of Physical Locations Inside Immersive Environments. In the *Proceedings of the Midwest Graphics Conference (Midgraph 2012)*, Chicago, Illinois.

CONFERENCE DEMONSTRATIONS

- D.1. Kevin Ponto^(C), Ross Tredinnick^(C), Aaron Bartholomew^(C), Carrie Roy^(C), **Daniel Szafer**, Daniel Greenheck^(C), and Joe Kohlmann^(C). (2013). [SculptUp: A Rapid, Immersive 3D Modeling Environment](#). In the *IEEE Symposium on 3D User Interfaces (3DUI 2013) Contest*, Orlando, Florida.

THESES

- T.2. **Daniel Szafer**. (2015). [Human Interaction with Assistive Free-Flying Robots](#). *Doctoral Dissertation*, University of Wisconsin–Madison, Madison, WI, USA.
- T.1. **Daniel Szafer**. (2010). [Non-Invasive BCI through EEG: An Exploration of the Utilization of Electroencephalography to Create Thought-Based Brain-Computer Interfaces](#). *Bachelor Honors Thesis*, Boston College, Chestnut Hill, MA, USA.

TECHNICAL / POLICY REPORTS

- R.1. **Enhanced User Interface Working Group**. (2017). *Public Safety Enhanced User Interface R&D Roadmap*. *National Institute of Standards and Technology's (NIST) Public Safety Communications Research (PSCR) Program*.

PATENTS

- P.1. Bilge Mutlu^(A) and **Daniel Szafer**. (2012). [Teaching System for Improving Information Retention Based on Brain-State Monitoring](#). U.S. Patent Application # *US 13/437,699*, Publication # *US 20130260361 A1*.

Research Grants & Gifts

Federal Grants

National Science Foundation Research Initiation Initiative (NSF CISE CRII)
Award #1566612

LEVERAGING IMPLICIT HUMAN CUES TO DESIGN EFFECTIVE BEHAVIORS FOR COLLABORATIVE ROBOTS
Investigator: Daniel Szafer (PI)

Amount: \$174,300
Period: 2016 – 2018

National Aeronautics and Space Administration Early Career Faculty (NASA ECF)
Award NNX16AR58G

DEVELOPING PRINCIPLES FOR EFFECTIVE HUMAN COLLABORATION WITH FREE-FLYING ROBOTS
Investigator: Daniel Szafer (PI)

Amount: \$359,389
Period: 2016 – 2019

Corporate and Foundation Gifts & Grants

Intel Research Award #1553595

FUSING ROBOTICS AND CONSUMER DEVICES FOR NEW MULTIMEDIA
Investigator: Daniel Szafer (PI)

Amount: \$126,993
Period: 2016 – 2017

University Grants

University of Colorado Boulder Innovative Seed Grant Program

FIELDVIEW: USING MOBILE DEVICES TO BLEND DATA COLLECTION AND ANALYSIS FOR FIELD RESEARCH
Investigators: Danielle Albers Szafer (PI) and Daniel Szafer (Co-I)

Amount: \$30,000
Period: 2016 – 2017

Fellowships and Awards with UW-Madison Affiliation

National Aeronautics and Space Administration Space Technology Research
Fellowship (NSTRF) Award NNX12AN14H

EFFECTIVE HUMAN-ROBOT COLLABORATIVE WORK FOR CRITICAL MISSIONS
Investigator: Bilge Mutlu (PI)
Student Fellow: Daniel Szafer

Amount: \$264,000
Period: 2012 – 2015

Google Glass Award

IMPROVING EVERYDAY LEARNING USING GLASS
Investigators: Bilge Mutlu (PI) and Daniel Szafer

Amount: \$27,860
Period: 2013 – 2015

Selected Press Coverage

- 2017 **Forbes (US)**
Research highlighted as part of inclusion in the *Forbes 30 Under 30* list of top innovators
- 2017 **CU Engineering Magazine (US)**
Research covered in “*Getting to Know Your Robot*”
- 2016 **Daily Camera (US)**
Research covered in “*CU Student Meredith Burgess brings Tech to Pole Dance*”
- 2013 **Wisconsin State Journal (US)**
Research covered in “*Science Festival Mixes Learning, Fun*”
- 2012 **New Scientist (UK)**
Research covered in “*Mind-reading Robot Teachers Keep Students Focused*”
- 2012 **Discovery News (US)**
Research covered in “*Mind-reading Robot Teachers Head to Class*”
- 2012 **Engadget (US)**
Research covered in “*Mind-reading Robotic Teachers Are More... Anyone? Anyone? Attention-grabbing*”
- 2012 **La Repubblica (Italy)**
Research covered in “*U.S.: Robot Teacher Seeks Out Distracted Students*”

Talks

Invited Talks and Panels

- 2017 **Panelist**
Computing Research Association New Computing Faculty Workshop, San Diego, California
“Successes and Challenges as a new Assistant Professor”
- 2017 **Seminar Speaker**
NASA Ames Research Center, Intelligent Robotics Group, Mountain View, California
“Developing Principles for Effective Human Collaboration with Free-Flying Robots”
- 2017 **Workshop Opening Speaker**
Bridging the Gap in Space Robotics Workshop, RSS Conference, Boston, Massachusetts
“Bridging the Gap in Space Robotics”
- 2016 **Seminar Speaker**
NASA Ames Research Center, Intelligent Robotics Group, Mountain View, California
“Human-Robot Interaction at CU Boulder”
- 2016 **Invited Speaker**
Aerospace Ventures (ASV) Day, Boulder, Colorado
“Design Principles for Effective Human-Robot Collaboration”
- 2015 **Invited Speaker**
University of Iowa, Iowa City, Iowa
“Unlocking the Assistive Potential of Emerging Technologies”
- 2015 **Colloquium Speaker**
Arizona State University, Tempe, Arizona
“Unlocking the Assistive Potential of Emerging Technologies”
- 2015 **Colloquium Speaker**
University of Colorado Boulder, Boulder, Colorado
“Unlocking the Assistive Potential of Emerging Technologies”

Intramural Seminars

- 2016 **Seminar Speaker**
Aerospace Engineering Sciences, University of Colorado Boulder
“Leveraging Cognitive Engineering for Human-Robot Interaction”
- 2016 **Colloquium Speaker**
Institute of Cognitive Science (ICS), University of Colorado Boulder
“Leveraging Cognitive Engineering for Human-Robot Interaction”
- 2016 **Seminar Speaker**
Human-Centered Computing (HCC) Seminar, University of Colorado Boulder
“Human Interaction with Small Flying Robots”
- 2015 **Seminar Speaker**
Robotics, Controls, and Dynamic Systems (RCDS) Seminar, University of Colorado Boulder
“Human Interaction with Small Flying Robots”

Teaching

University of Colorado Boulder

CSCI 7000-008 / ATLS 5519 Human-Robot Interaction

OVERALL INSTRUCTOR EVALUATION: 5.2/6.0

Spring 2016 & 2017

Enrollment: 20 – 30

I designed and taught a graduate-level course that introduces students to the field of human-robot interaction (HRI). The course involves three key components: (1) a principles component that develops an understanding of the fundamental concepts of HRI through lectures and discussions of seminal and modern HRI research, (2) a methods component that helps students build a “toolbox” of essential qualitative and quantitative research methods, and (3) a project component in which students use their knowledge of HRI principles and methods to conduct a complete research inquiry, which encompasses posing a novel HRI research question, designing an empirical experiment, collecting and analyzing data, and reporting their findings.

CSCI 4830/7000-007 / ATLS 4519/5519 Introduction to Virtual Reality

OVERALL INSTRUCTOR EVALUATION: 5.8/6.0

Fall 2015, 2016, & 2017

Enrollment: 40 – 50

I designed and taught a combined undergraduate/graduate course to introduce students to the field of virtual reality. The course involves two key components: (1) developing an understanding of the fundamental principles of virtual reality such as presence, immersion, and engagement and (2) building technical skills for developing virtual reality applications using modern methods and tools, including WebGL and Unity. The course offers students an entry-level introduction to computer graphics and virtual reality using a combination of lectures, hands-on exercises, and team project assignments.

University of Wisconsin–Madison

CS302 Introduction to Programming

OVERALL INSTRUCTOR EVALUATION: 4.19/5.00 (47 RESPONSES)

Summer 2011

Enrollment: 88

I taught a summer section of an introductory programming course in Java. I was responsible for all aspects of the course including developing and delivering lectures, exams, and assignments and supervising TA graders.

CS302 Introduction to Programming

OVERALL INSTRUCTOR EVALUATION: 4.84/5.00 (65 RESPONSES)

Fall & Spring 2010 – 2012

Enrollment: 20 – 25

I taught four semester-long sections (~23 students/section) of an introductory programming course in Java. Responsible for preparing and presenting lectures, grading, and shared development of assignments and exams with other instructors. I received two awards for excellence in undergraduate education for my work in this course.

Advising & Mentoring

Ph.D. Student Advisees

- 2017 – Present **Connor Brooks**
Department of Computer Science, University of Colorado Boulder
- 2017 – Present **Daniel Prendergast**
Department of Computer Science, University of Colorado Boulder
- 2016 – Present **Madhur Atreya**
ATLAS Institute, University of Colorado Boulder
Co-advising with Mark Gross (CS/ATLAS)
- 2016 – Present **Hooman Hedayati**
Department of Computer Science, University of Colorado Boulder
- 2016 – Present **Michael Iuzzolino**
Department of Computer Science, University of Colorado Boulder
Co-advising with Danielle Albers Szafir (Information Science)

M.S. Student Advisees

- 2016 – Present **Bo “Bryan” Cao**
Department of Computer Science, University of Colorado Boulder
- 2016 – Present **Jordan Peters**
Department of Computer Science, University of Colorado Boulder
- 2016 – Present **Rohit Raje**
Department of Computer Science, University of Colorado Boulder
- 2016 – Present **Michael Walker**
Department of Computer Science, University of Colorado Boulder

Undergraduate Student Advisees

- 2016 – Present **Meredith Burgess**
Department of Computer Science, University of Colorado Boulder
- 2015 – Present **Catherine Diaz**
Department of Computer Science, University of Colorado Boulder
Lead author of ISMAR 2017 publication while an undergraduate

Graduated and Past Advisees

- 2015 – 2016 **Brandon Barrett**
Department of Computer Science, University of Colorado Boulder

Ph.D. Thesis Committee Member

- 2015 – Present **Darren Guinness**
Department of Computer Science, University of Colorado Boulder
Adviser: Shaun Kane
Dissertation Title: *TBD*
- 2015 – Present **Stephen McGuire**
Department of Aerospace Engineering Sciences, University of Colorado Boulder
Adviser: Nisar Ahmed
Dissertation Title: *TBD*

2016 **Christine Fanchiang**
Department of Aerospace Engineering Sciences, University of Colorado Boulder
Adviser: David M. Klaus
Dissertation Title: *A Quantitative Human Spacecraft Design Evaluation Model for Assessing Crew Accommodation and Utilization*

M.S. Thesis Committee Member

2017 **Rebecca Cox**
Department of Computer Science, University of Colorado Boulder
Adviser: Nikolaus Correll
Dissertation Title: *Merging Local and Global 3D Perception for Robotic Grasping and Manipulation*

2017 **John Lammie**
Department of Computer Science, University of Colorado Boulder
Adviser: Nikolaus Correll
Dissertation Title: *Gesture Recognition in Robotic Skin with Pressure and Proximity Information*

Professional Activities & Service

Program Committee Work

2017 **Videos and Demonstrations Tracks Co-Chair**
ACM/IEEE International Conference on Human-Robot Interaction (HRI)

2016 – Present **Program Committee Member**
ACM/IEEE International Conference on Human-Robot Interaction (HRI), 2018
Robotics: Science and Systems (RSS), 2017
ACM SIGCHI Conference on Human Factors in Computing Systems (CHI), 2017
IEEE Symposium on Robot and Human Interactive Communication (RO-MAN), 2016 & 2017
IEEE International Workshop on Advanced Robotics and its Social Impacts (ARSO), 2016

2014 – Present **Workshop Program Committee Member**
RSS Workshop on *Bridging the Gap in Space Robotics*, 2017
RSS Workshop on *HRI for Small and Personal Unmanned Aerial Vehicles*, 2016
HRI *Pioneers Workshop*, 2015
AAAI ITS Workshop on *Utilizing EEG Input in Intelligent Tutoring Systems*, 2014

2015 **Panel Chair**
HRI Pioneers at the ACM/IEEE International Conference on Human-Robot Interaction (HRI)

Referee Service

2016 **Funding Agency Panelist**
National Science Foundation (NSF)

2016 **Funding Agency Panelist**
National Aeronautics and Space Administration (NASA)

2016 & 2017 **Funding Agency External Reviewer**
National Science Foundation (NSF)

2012 – Present **Referee for Journal Articles**
International Journal of Robotics Research (IJRR)
ACM Transactions on Computer-Human Interaction (TOCHI)
ACM Transactions on Interactive Intelligent Systems (TiiS)
IEEE Transactions on Human-Machine Systems (THMS)
IEEE Transactions on Affective Computing (TAC)
IEEE Robotics and Automation Magazine (RAM)

- 2012 – Present **Referee for Conference Proceedings**
 ACM/IEEE International Conference on Human-Robot Interaction (HRI)
 ACM SIGCHI Conference on Human Factors in Computing Systems (CHI)
 ACM SIGCHI Symposium on User Interface and Software Technology (UIST)
 ACM SIGCHI Conference on Designing Interactive Systems (DIS)
 IEEE International Conference on Robotics and Automation (ICRA)
 IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)
 Robotics: Science and Systems Conference (RSS)
 IEEE International Symposium on Mixed and Augmented Reality (ISMAR)
 International Symposium on Robotics Research (ISRR)
Special Recognition for exceptional reviews: CHI 2016 (2 reviews), DIS 2016, UIST 2016

University Service

- 2017 – Present **Executive Committee**
 ATLAS Institute, University of Colorado Boulder
- 2017 – Present **Computing Curriculum Committee**
 ATLAS Institute, University of Colorado Boulder
- 2016 – Present **CU Boulder Human-Computer Interaction Consortium (HCIC) Committee**
 University of Colorado Boulder
- 2016 – Present **Faculty Adviser**
 Virtual Reality Club, University of Colorado Boulder
- 2015 – Present **Graduate Program Committee**
 ATLAS Institute, University of Colorado Boulder
- 2016 – 2017 **Faculty Search Committee**
 Department of Computer Science, University of Colorado Boulder
- 2016 – 2017 **Faculty Search Committee**
 ATLAS Institute, University of Colorado Boulder
- 2016 – 2017 **Faculty Inclusive Excellence Team**
 BOLD Center, University of Colorado Boulder
- 2016 – 2017 **Undergraduate Program Committee**
 Department of Computer Science, University of Colorado Boulder
- 2015 – 2016 **Graduate Program Committee**
 Department of Computer Science, University of Colorado Boulder

External Research Service

- 2017 **Workshop Organizer: *Bridging the Gap in Space Robotics***
 Workshop at the 2017 Robotics: Science and Systems (RSS) Conference
 Co-organizers: Christoffer Heckman (CU Boulder), Nisar Ahmed (CU Boulder), and Jay McMahon (CU Boulder)
- 2016 **Public Safety Communications Research (PSCR) User Interface R&D Working Group**
 National Institute of Standards and Technology (NIST) and the National Telecommunications and Information Administration (NTIA)
- 2014 **Student Volunteer**
 ACM/IEEE International Conference on Human-Robot Interaction (HRI)

Volunteering & Outreach

- 2017 **High School Outreach & Mentoring**
Worked with a high school student from the Dawson School, enabling the student to gain research experience while completing a senior project as a lab intern
- 2017 **Middle School Outreach**
Worked with teachers from the Logan School to create program for 11 middle school students to visit university research labs as part of STEM enrichment program
- 2016 – 2017 **Hosted Lab Visits**
Hosted open lab event for the public as part of National Robotics Week
Hosted open lab events for the public as part of annual ATLAS Expo
- 2015 – 2017 **Recruitment Representative**
Hosted “Robotics” table for graduate recruiting at CS Recruitment Day event
- 2016 **Computer Science Promotional Material Development**
Led creation of promotional video highlighting the University of Colorado Boulder Computer Science Department for use in graduate recruiting and department advertising.
- 2013 – 2014 **Grandparents University Instructor**
University of Wisconsin-Madison
Taught two sessions (~20 students/session) of a “Social Robotics” major to grandparents and grandchildren. Course used hands-on activities, multi-media presentations, and Lego Mindstorms robots to teach programming and robotics to young and senior students.

Professional and Academic Memberships

Association for Computing
Machinery (ACM)

Alpha Sigma Nu Jesuit
Honor Society

Institute of Electrical and
Electronics Engineers (IEEE)

Phi Alpha Theta National
Historical Honor Society

Phi Beta Kappa Honor
Society

Golden Key International
Honor Society