Daniel J. Szafir, Curriculum Vitae

Assistant Professor · University of Colorado Boulder

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

+1-303-735-7892 | daniel.szafir@colorado.edu | **Homepage:** www.danszafir.com | **Lab Website:** www.atlas.com/iron

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 (VR/AR/MR); 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

2018 **Best Paper Award** (Top 4 of 217), *ACM/IEEE Human-Robot Interaction (HRI 2018)*
Walker, Hedayati, Lee, & Szafir: *Communicating Robot Intent with Augmented Reality*

2018 **Best Paper Award Nominee** (Top 10 of 217), *ACM/IEEE Human-Robot Interaction (HRI 2018)*
Hedayati, Walker, & Szafir: *Improving Collocated Robot Teleoperation with Augmented Reality*

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.2. Steve McGuire[(O)], Michael Furlong[(C)], Christoffer Heckman[(C)], Simon Julier[(C)], **Daniel Szafir**, and Nisar Ahmed[(C)] (2018). Failure is Not an Option: Policy Learning for Adaptive Recovery in Space Operations. *IEEE Robotics and Automation Letters* (RA-L), 3(3), 1639–1646. doi: 10.1109/LRA.2018.2801468

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 *Impact factor: 5.30*

Refereed Full Conference Papers

C.11. Michael Walker[(S)], Hooman Hedayati[(S)], Jennifer Lee[(O)], and **Daniel Szafir**. (2018). Communicating Robot Intent with Augmented Reality. In the *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI 2018)*, Chicago, Illinois. *Acceptance rate: 23%*
Best Paper Award (Top 4 in 217 submissions)

C.10. Hooman Hedayati[(S)], Michael Walker[(S)], and **Daniel Szafir**. (2018). Improving Collocated Robot Teleoperation with Augmented Reality. In the *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI 2018)*, Chicago, Illinois. *Acceptance rate: 23%*
Best Paper Award Nominee (Top 10 in 217 submissions)

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 Szafir** 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 Szafir**, 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 *Acceptance rate: 27%*

C.2. **Daniel Szafir** 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 Szafir** 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 Szafir**. (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 Szafir**, 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 Szafir** 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.10. Hooman Hedayati[S], Akriti Kaput[O], Bradley Hayes[C], and **Daniel Szafir**. (2018). Robot Navigation for Space Station Environments. In the *Proceedings of the Workshop on Autonomous Space Robotics held at the Robotics: Science & Systems Conference (RSS 2018)*, Pittsburgh, Pennsylvania.

W.9. Steve McGuire[O], Michael Walker[S], Jamison McGinley[O], Nisar Ahmed[C], Torin Clark[C], and **Daniel Szafir**. (2018). TRAADRE: TRust in Autonomous ADvisors for Robotic Exploration. In the *Proceedings of the Workshop on Autonomous Space Robotics held at the Robotics: Science & Systems Conference (RSS 2018)*, Pittsburgh, Pennsylvania.

W.8. Connor Brooks[S], Madhur Atreya[S], and **Daniel Szafir**. (2018). Proactive Robot Assistants for Freeform Collaborative Tasks through Multimodal Recognition of Generic Subtasks. In the *Proceedings of the Workshop on Longitudinal Human-Robot Teaming held at the IEEE/ACM International Conference on Human-Robot Interaction (HRI 2018)*, Chicago, Illinois.

W.7. Michael Iuzzolino[S], Michael Walker[S], and **Daniel Szafir**. (2018). Virtual-to-Real-World Transfer Learning for Robot Navigation. In the *Proceedings of the Workshop on Virtual, Augmented and Mixed Reality for Human-Robot Interaction held at the IEEE/ACM International Conference on Human-Robot Interaction (HRI 2018)*, Chicago, Illinois.

W.6. Michael Walker[S], Jack Burns[C], and **Daniel Szafir**. (2018). VR Simulation Testbed: Improving Surface Telerobotics for the Deep Space Gateway. In the *Proceedings of the Deep Space Gateway Science Workshop*, Denver, Colorado.

W.5. **Daniel Szafir**. (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 Szafir**, 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 Szafir[C] and **Daniel Szafir**. (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 Szafir**. (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 Szafir** 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 Szafir**, 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 Szafir**. (2015). Human Interaction with Assistive Free-Flying Robots. *Doctoral Dissertation*, University of Wisconsin–Madison, Madison, WI, USA.

T.1. **Daniel Szafir**. (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.2. **Daniel Szafir**, Michael Walker[S], and Hooman Hedayati[S]. (2018). Augmented Reality Coordination of Human-Robot Interaction. U.S. Provisional Patent Application. Submitted March 5, 2018.

P.1. Bilge Mutlu[A] and **Daniel Szafir**. (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
Amount: $174,300
Period: 2016 – 2018
Leveraging Implicit Human Cues to Design Effective Behaviors for Collaborative Robots
Investigator: Daniel Szafir (PI)

National Aeronautics and Space Administration Early Career Faculty (NASA ECF) Award NNX16AR58G
Amount: $359,389
Period: 2016 – 2019
Developing Principles for Effective Human Collaboration with Free-Flying Robots
Investigator: Daniel Szafir (PI)

Corporate and Foundation Gifts & Grants

Intel Research Award #1553595
Amount: $126,993
Period: 2016 – 2017
Fusing Robotics and Consumer Devices for New Multimedia
Investigator: Daniel Szafir (PI)

University Grants

University of Colorado Boulder Autonomous Systems Interdisciplinary Research Thread Seed Grant
Amount: $15,000
Period: 2018
Robotic Chemists: Automating the Synthesis of Multifunctional Materials
Investigators: Daniel Szafir (PI) and Carson Bruns (Co-I)

University of Colorado Boulder Multifunctional Materials Interdisciplinary Research Thread Seed Grant
Amount: $15,000
Period: 2018
Robotic Chemists: Automating the Synthesis of Multifunctional Materials
Investigators: Carson Bruns (PI) and Daniel Szafir (Co-I)

University of Colorado Boulder Autonomous Systems Interdisciplinary Research Thread Seed Grant
Amount: $6,782
Period: 2018
Autonomous Virtual Assistant for Crewed Space Missions
Investigators: Torin Clark (PI), Nisar Ahmed (Co-I), and Daniel Szafir (Co-I)

University of Colorado Boulder Innovative Seed Grant Program
Amount: $30,000
Period: 2016 – 2017
FieldView: Using Mobile Devices to Blend Data Collection and Analysis for Field Research
Investigators: Danielle Albers Szafir (PI) and Daniel Szafir (Co-I)

Fellowships and Awards with UW-Madison Affiliation

National Aeronautics and Space Administration Space Technology Research Fellowship (NSTRF) Award NNX12AN14H
Amount: $264,000
Period: 2012 – 2015
Effective Human-Robot Collaborative Work for Critical Missions
Investigator: Bilge Mutlu (PI)
Student Fellow: Daniel Szafir

Google Glass Award
Amount: $27,860
Period: 2013 – 2015
Improving Everyday Learning Using Glass
Investigators: Bilge Mutlu (PI) and Daniel Szafir

Selected Press Coverage

2018 **NASA Technology Innovation (US)**
Quoted and research covered in *"University Expertise Advancing NASA Robotics"* in Issue 18.1

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

2018 **Panelist**
Workshop on Virtual, Augmented, and Mixed Reality for Human-Robot Interaction at HRI 2018, Chicago, Illinois
"Virtual, Augmented and Mixed Reality in Robotics: Progress, Opportunities, Challenges"

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 — *Spring 2016, 2017, & 2018*
Overall Instructor Evaluation: 5.2/6.0 — *Enrollment: 10 – 20*
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 — *Fall 2015, 2016, & 2017*
Overall Instructor Evaluation: 5.8/6.0 — *Enrollment: 30 – 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 — *Summer 2011*
Overall Instructor Evaluation: 4.19/5.00 (47 responses) — *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

Fall & Spring 2010 – 2012

Overall Instructor Evaluation: 4.84/5.00 (65 responses)

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 **Michael Walker**
Department of Computer Science, University of Colorado Boulder

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)

Undergraduate Student Advisees

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

2018 – Present **Brian Sullivan**
Department of Computer Science, University of Colorado Boulder

Graduated and Past Advisees

2016 – 2018 **Bo "Bryan" Cao**
M.S., Department of Computer Science, University of Colorado Boulder
Master's Thesis: DiffFrameNet: A Deep Learning Method for Intuitive Robot Navigation

2016 – 2017 **Rohit Raje**
M.S., Department of Computer Science, University of Colorado Boulder

2016 – 2018 **Meredith Burgess**
B.S., Department of Computer Science, University of Colorado Boulder
Senior Thesis: Graphic Impulse 2.0: Constructing an improvised call and response dance system with unsupervised cluster analysis

Ph.D. Thesis Committee Member

2017 – Present **Brett Israelsen**
Department of Aerospace Engineering Sciences, University of Colorado Boulder
Adviser: Nisar Ahmed
Dissertation Title: *TBD*

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 Evalaution 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 & 2019
Robotics: Science and Systems (RSS), 2017 & 2018
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**
HRI Workshop on *Virtual, Augmented, and Mixed Reality for Human-Robot Interaction*, 2018
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 & 2018 **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**
ACM Transactions on Human-Robot Interaction (THRI)
International Journal of Robotics Research (IJRR)
ACM Transactions on Computer-Human Interaction (TOCHI)
IEEE Transactions on Visualization and Computer Graphics (TVCG)
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)
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR)
International Symposium on Robotics Research (ISRR)
Special Recognition for outstanding reviews: CHI 2018, CHI 2016 (2 reviews), DIS 2016, UIST 2016

University Service

2017 – Present **Executive 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
Committee Chair 2018 – Present

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

2018 **Workshop Organizer: *Virtual, Augmented and Mixed Reality for HRI***
Workshop at the 2018 ACM/IEEE International Conference on Human-Robot Interaction (HRI)
Co-organizers: Tom Williams (Colorado School of Mines), Tathagata Chakraborti (ASU), and Heni Ben Amor (ASU)

2018 **Workshop Organizer: *Autonomous Space Robotics***
Workshop at the 2018 Robotics: Science and Systems (RSS) Conference
Co-organizers: Steve McGuire (CU Boulder), Christoffer Heckman (CU Boulder), Torin Clark (CU Boulder), and Jay McMahon (CU Boulder)

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)

Institute of Electrical and Electronics Engineers (IEEE)

Phi Beta Kappa Honor Society

Alpha Sigma Nu Jesuit Honor Society

Phi Alpha Theta National Historical Honor Society

Golden Key International Honor Society