

Chien-Ming Huang, Ph.D.

Department of Computer Science
Johns Hopkins University
3400 North Charles Street
317 Malone Hall
Baltimore, MD 21218 USA

Phone: 410-516-4537
Email: cmhuang@cs.jhu.edu
Personal Website: cs.jhu.edu/~cmhuang
Lab Website: intuitivecomputing.jhu.edu

Current Position

2017–present John C. Malone Assistant Professor
Department of Computer Science, Johns Hopkins University, USA

Areas of Specialization

Human-Robot Interaction • Human-Computer Interaction • Collaborative Robotics

Professional Experience

2015–2017 Postdoctoral Associate
Department of Computer Science, Yale University, USA
Mentor: Brian Scassellati

2013 Research Intern
Intelligent Robotics and Communication Laboratory, ATR International, Japan
Mentor: Takayuki Kanda

2007–2008 Research Assistant
Institute of Information Science, Academia Sinica, Taiwan
Mentor: Chun-Nan Hsu

Education

2010–2015 Ph.D. in Computer Science
University of Wisconsin–Madison, USA
Thesis committee: Bilge Mutlu (Chair), Maya Cakmak, Mark Craven, Jerry Zhu, Michael Zinn

2008–2010 M.S. in Computer Science
Georgia Institute of Technology, USA
Thesis committee: Andrea Thomaz (Chair), Rosa Arriaga, Henrik Christensen

2002–2006 B.S. in Computer Science
National Chiao Tung University, Taiwan

Honors & Awards

| | |
|--------------|--|
| 2020 | Professor Joel Dean Excellence in Teaching Award |
| 2018–present | John C. Malone Assistant Professorship |
| 2018 | CHI Early Career Symposium |
| 2018 | New Educators Workshop, SIGCSE (Computer Science Education) |
| 2013 | Best paper award runner-up, Robotics: Science and Systems (RSS) |
| 2013 | Best student poster runner-up, Robotics: Science and Systems (RSS) |
| 2013 | ICMI doctoral consortium |
| 2012 | HRI Pioneer |
| 2012 | CHI doctoral consortium |

Honors & Awards to My Students

| | |
|------|---|
| 2020 | Amama Mahmood (CS PhD), Computer Science Departmental Fellowship |
| 2019 | Gopika Ajaykumar (CS PhD), Inaugural Joint Nursing/Engineering Fellowship |
| 2019 | Maia Stiber (CS PhD), Computer Science Departmental Fellowship |
| 2018 | Gopika Ajaykumar (CS PhD), NSF Graduate Research Fellowship |
| 2018 | Amrita Krishnaraj (Robotics MS), JHU Robotics Fellowship |
| 2018 | Xin Ren (Robotics MS), JHU Robotics Fellowship |

Publications

Note that conferences represent a primary publication venue in Computer Science.
[Google Scholar profile](#)

JOURNAL ARTICLES

| | |
|------|--|
| 2019 | Ramachandran, A., Huang, C.-M. and Scassellati, B. Toward Effective Robot-Child Tutoring: Intrinsic Motivation, Behavioral Intervention, and Learning Outcomes <i>ACM Transactions on Interactive Intelligent Systems</i> Invited to present at IUI'20 |
| 2018 | Scassellati, B., Boccanfuso, L.*, Huang, C.-M.* , Mademtzi, M.*, Qin, M.*, Salomons, N.*, Ventola, P., and Shic, F. Improving Social Skills in Children with ASD Using a Long-Term, In-Home Social Robot <i>Science Robotics</i> *Equal contribution |
| 2015 | Huang, C.-M. , Andrist, S., Sauppé, A., and Mutlu, B. Using Gaze Patterns to Predict Task Intent in Collaboration <i>Frontiers in Psychology – Cognitive Science</i> |
| 2014 | Huang, C.-M. and Mutlu, B. Multivariate Evaluation of Interactive Robot Systems <i>Autonomous Robots</i> |
| 2013 | Huang, C.-M. and Mutlu, B. The Repertoire of Robot Behavior: Enabling Robots to Achieve Interaction Goals through Social Behavior <i>Journal of Human-Robot Interaction (Now ACM Transactions on Human-Robot Interaction)</i> |

REFEREED/INVITED CONFERENCE FULL PAPERS

- 2020 Han, J., Ajaykumar, G., Li, Z., and **Huang, C.-M.**
[Structuring Human-Robot Interactions via Interaction Conventions](#)
In *Proceedings of the 29th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN'20)*
- 2020 Azimi, E., Niu, Z., Liu, R., Stiber, M., Greene, N., Molina, C., Huang, J., **Huang, C.-M.**, and Kazanzides, P.
[An Interactive Mixed Reality Platform for Bedside Surgical Procedures](#)
In *Proceedings of the 2020 Medical Image Computing and Computer Assisted Interventions (MIC-CAI'20)*
- 2020 **Huang, C.-M.**
[Contextual Programming of Collaborative Robots](#)
In *Proceedings of the 2020 International Conference on Human-Computer Interaction (HCI'20)*
Invited paper
- 2020 Katyal, K., Popek, K., Hager, G., Wang, I-J., and **Huang, C.-M.**
[Prediction-Based Uncertainty Estimation for Adaptive Crowd Navigation](#)
In *Proceedings of the 2020 International Conference on Human-Computer Interaction (HCI'20)*
- 2020 Katyal, K., Hager, G., and **Huang, C.-M.**
[Intent-Aware Pedestrian Prediction for Adaptive Crowd Navigation](#)
In *Proceedings of the 2020 IEEE International Conference on Robotics and Automation (ICRA'20)*
Acceptance rate: 42%
- 2020 Wang, Y., Ajaykumar, G., and **Huang, C.-M.**
[See What I See: Enabling User-Centric Robotic Assistance Using First-Person Demonstrations](#)
In *Proceedings of the 2020 ACM/IEEE International Conference on Human-Robot Interaction (HRI'20)*
Acceptance rate: 24%
- 2019 Gao, Y. and **Huang, C.-M.**
[PATI: A Projection-based Augmented Table-Top Interface for Robot Programming](#)
In *Proceedings of the 2019 ACM International Conference on Intelligent User Interface (IUI'19)*
Acceptance rate: 25%
- 2018 Ramachandran, A., **Huang, C.-M.**, and Scassellati, B.
[Thinking Aloud with a Tutoring Robot to Enhance Learning](#)
In *Proceedings of the 2018 ACM/IEEE International Conference on Human-Robot Interaction (HRI'18)*
Acceptance rate: 23%
- 2017 Ramachandran, A., **Huang, C.-M.**, and Scassellati, B.
[Give Me a Break! Personalized Timing Strategies to Promote Learning in Robot-Child Tutoring](#)
In *Proceedings of the 2017 ACM/IEEE International Conference on Human-Robot Interaction (HRI'17)*
Acceptance rate: 24%
- 2016 **Huang, C.-M.** and Mutlu, B.
[Anticipatory Robot Control for Efficient Human-Robot Collaboration](#)
In *Proceedings of the 2016 ACM/IEEE International Conference on Human-Robot Interaction (HRI'16)*
Acceptance rate: 25%
- 2015 **Huang, C.-M.**, Cakmak, M., and Mutlu, B.
[Adaptive Coordination Strategies for Human-Robot Handovers](#)
In *Proceedings of the 2015 Robotics: Science and Systems Conference (RSS'15)*
Acceptance rate: 26%
Invited presentation at AAI'16 (Robotics special track)

- 2015 Sauppé, A., Szafir, D., **Huang, C.-M.**, and Mutlu, B.
[From 9 to 90: Engaging Learners of All Ages](#)
 In *Proceedings of ACM SIGCSE*.
 Acceptance rate: 36%
- 2014 **Huang, C.-M.**, Iio, T., Satake, S., and Kanda, T.
[Modeling and Controlling Friendliness for an Interactive Museum Robot](#)
 In *Proceedings of the 2014 Robotics: Science and Systems Conference (RSS'14)*
 Acceptance rate: 32%
- 2014 **Huang, C.-M.** and Mutlu, B.
[Learning-based Modeling of Multimodal Behaviors for Humanlike Robots](#)
 In *Proceedings of the 2014 ACM/IEEE International Conference on Human-Robot Interaction (HRI'14)*
 Acceptance rate: 24%
- 2013 **Huang, C.-M.** and Mutlu, B.
[Modeling and Evaluating Narrative Gestures for Humanlike Robots](#)
 In *Proceedings of the 2013 Robotics: Science and Systems Conference (RSS'13)*
 Acceptance rate: 30%
 Best paper award runner-up (5/183)
- 2012 **Huang, C.-M.** and Mutlu, B.
[Robot Behavior Toolkit: Generating Effective Social Behaviors for Robots](#)
 In *Proceedings of the 2012 ACM/IEEE International Conference on Human-Robot Interaction (HRI'12)*
 Acceptance rate: 25%
- 2011 **Huang, C.-M.** and Thomaz, A. L.
[Effects of Responding to, Initiating and Ensuring Joint Attention in Human-Robot Interaction](#)
 In *Proceedings of the 20th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN'11)*

DOCTORAL CONSORTIA

- 2013 **Huang, C.-M.**
[Designing Effective Multimodal Behaviors for Robots: A Data-Driven Perspective](#)
 In *Proceedings of the 15th ACM on Interaction Conference on Multimodal Interaction (ICMI'13)*
- 2012 **Huang, C.-M.**
[Designing Effective Behaviors for Educational Embodied Agents](#)
 In *Extended Abstracts of the ACM/SIGCHI Conference on Human Factors in Computing Systems (CHI'12)*
 Acceptance rate: 23%
- 2012 **Huang, C.-M.**
[Generating Effective Social Behaviors for Robots](#)
 In *Proceedings of the HRI Pioneers Workshop*
 Acceptance rate: 28%

REFEREED/INVITED SYMPOSIUM, WORKSHOP, & CONFERENCE SHORT PAPERS

- 2020 Ajaykumar, G. and **Huang, C.-M.**
[User Needs and Design Opportunities in End-User Robot Programming](#)
2020 HRI Late-Breaking Report
- 2019 Katyal, K., Wang, I-J., Hager, G., and **Huang, C.-M.**

[Intent-Aware Human Motion Prediction using Deep Generative Neural Networks](#)
Do Good Robotics Symposium

- 2019 Paulhamus, B., Staley, E., Rivera, C., Katyal, K., and **Huang, C.-M.**
[Amplified Control for Robotic Systems](#)
Do Good Robotics Symposium
- 2019 Gao, Y. and **Huang, C.-M.**
[Robot Programming by Situated Illustration](#)
Do Good Robotics Symposium
- 2018 Azimi, E., Molina, C., Chang, A., Huang, J., **Huang, C.-M.**, and Kazanzides, P.
[Interactive Training and Operation Ecosystem for Surgical Tasks in Mixed Reality](#)
OR 2.0 Context-Aware Surgical Theaters (MICCAI'18)
- 2016 Strohkorb, S., **Huang, C.-M.**, Ramachandran, A., and Scassellati, B.
[Establishing Sustained, Supportive Human-Robot Relationships: Building Blocks and Open Challenges](#)
2016 AAAI Spring Symposium
- 2015 Sauppé, A. and **Huang, C.-M.**
[Teaching Human-Robot Interaction Using the CSTA Recommendations](#)
In HRI Education Workshop: How to design and teach courses in Human-Robot Interaction (HRI'15)
- 2014 **Huang, C.-M.** and Mutlu, B.
[Modeling Human-Robot Interactions as Systems of Distributed Cognition](#)
In AAAI Fall Symposium on Artificial Intelligence and Human-Robot Interaction (AI-HRI)
- 2013 Mutlu, B., Terrell, A., and **Huang, C.-M.**
[Coordination Mechanisms in Human-Robot Collaboration](#)
In Proceedings of the Workshop on Collaborative Manipulation (HRI'13)
Invited paper
- 2010 **Huang, C.-M.** and Thomaz, A. L.
[Joint Attention in Human-Robot Interaction](#)
In AAAI Fall Symposium on Dialog with Robots

THESES

- 2015 **Huang, C.-M.**
[Human-Robot Joint Action: Coordinating Attention, Communication, and Actions](#)
Doctor of Philosophy (Ph.D.) Thesis. Department of Computer Sciences, University of Wisconsin-Madison
- 2010 **Huang, C.-M.**
[Joint Attention in Human-Robot Interaction](#)
Master of Science (M.S.) Thesis. College of Computing, Georgia Institute of Technology

PATENT

Jung, H.-R., Lee, J. K., Moshkina, L., Arkin, R., Park, S. H., and **Huang, C.-M.**
[Affective Model Device and Method for Deciding the Behavior of an Affective Model Device](#)
USA patent US8458112 B2

Research Awards

- 2020–2022 **Toward Human-Centered Assured Autonomy: Socially-Aware Robot Navigation in Human Environments**
Source: Johns Hopkins University Institute for Assured Autonomy
Investigators: Chien-Ming Huang (PI), I-Jeng Wang
Period: 2020–2022
Amount: \$ 676,000 (My portion: \$374,000)
- 2019 **Human-Robot Co-Navigation**
Source: JHU Applied Physics Laboratory (APL)
Investigator: Chien-Ming Huang (PI)
Period: 2019
Amount: \$30,000
- 2019 Equipment Award – [Quori Robot](#)
Investigators: Chien-Ming Huang (PI), Gregory Hager, John Krakauer
- 2019–2024 **FW-HTF: Human-Machine Teaming for Medical Decision Making**
Source: National Science Foundation 1840088
Investigators: Suchi Saria (PI), Chien-Ming Huang, Martin Makary, William Padula, David Newman-Toker
Period: 2019–2024
Amount: \$1,500,000 (My portion: \$295,467)

Teaching

- Instructor, **EN.601.490/690 Introduction to Human-Computer Interaction**
Department of Computer Science, Johns Hopkins University
- Fall 2018 Overall quality: 4.39/5.00 (n=45)
Fall 2019 Overall quality: 4.19/5.00 (n=52)
- Instructor, **EN.601.491/691 Human-Robot Interaction**
Department of Computer Science, Johns Hopkins University
- Spring 2018 Overall quality: 4.19/5.00 (n=16)
Spring 2019 Overall quality: 4.70/5.00 (n=23)
Spring 2020 Overall quality: 4.65/5.00 (n=26)
- Spring 2011 Teaching Assistant, **CS 302 Introduction to Programming**
Department of Computer Science, University of Wisconsin–Madison
- Fall 2010 Teaching Assistant, **CS 367 Introduction to Data Structures**
Department of Computer Science, University of Wisconsin–Madison

Advising

PHD STUDENTS

- 2020–present Amama Mahmood
Department of Computer Science, Johns Hopkins University
[Computer Science Departmental Fellowship](#), 2020
- 2019–present Maia Stiber
Department of Computer Science, Johns Hopkins University

Co-advised with Russ Taylor
Jay D. Samstag Engineering Fellowship, 2019
Computer Science Departmental Fellowship, 2019

2019–present Yuxiang Gao
Department of Computer Science, Johns Hopkins University

2018–present Gopika Ajaykumar
Department of Computer Science, Johns Hopkins University
Joint Nursing/Engineering Fellowship, 2019
Howard and Jacqueline Chertkof Endowed Fellowship, 2018
NSF Graduate Research Fellowship, 2018

DENG (DOCTOR OF ENGINEERING) STUDENTS

2018–present Bart Paulhamus
Whiting School of Engineering, Johns Hopkins University

MASTER'S STUDENTS (RESEARCH/PROJECT)

2019 Brandon Tran (Robotics, Next: CS PhD at the University of Southern California)
2019 Yeping Wang (Robotics, Next: CS PhD at the University of Wisconsin–Madison)
2019 Xingli Han (CS, Next: Robotics PhD at Worcester Polytechnic Institute)
2019 Jindan Huang (CS, Next: CS PhD at Tufts University)
2019 Amama Mahmood (Robotics, Next: CS PhD at Johns Hopkins University)
2018–2019 Amrita Krishnaraj (Robotics, Next: Van Robotics)
2018–2019 Ruiqing Yin (Robotics, Next: Galen Robotics)
2018 Ji Han (Robotics, Next: Tusimple)
2018 Yuxiang Gao (Robotics, Next: CS PhD at Johns Hopkins University)
2018 Xin Ren (Robotics, Next: Pony.ai)

UNDERGRADUATE STUDENTS (RESEARCH/PROJECT)

2020–present Fanjun (Frank) Bu (CS)
2019–present Julia Oppenheim (CS, CogSci)
2019–2020 Brandon Lax (ECE)

PHD THESIS COMMITTEE

2020 Ehsan Azimi (CS, Johns Hopkins University)
Interactive Platform for Medical Procedures in Mixed Reality

GRADUATE BOARD ORAL EXAM COMMITTEE

Mohit Singhala (ME, 2020), Gaungyu Yang (CS, 2019), Ehsan Azimi (CS, 2018), Kapil Katyal (CS, 2018)

VISITING STUDENTS

Summer 2018 Junlin Wu (Wuhan University)
Summer 2018 Ze Li (Tsinghua University)
Summer 2018 Yuxn Xu (Peking University, Next: CS MS at Columbia University)

Invited Talks

- 2018 **Socially Assistive Robots for Autism Research**
Center for Neurodevelopmental and Imaging Research, Kennedy Krieger Institute
- 2017 **Empowering People Using Socially Intuitive Robots**
Intelligent Systems Center Seminar, Applied Physics Laboratory
- 2017 **Designing Intuitive Interactions for Human-Robot Teams**
Southwest Texas Asian Symposium, University of Texas Rio Grande Valley
2017 Laboratory for Computational Sensing and Robotics, Johns Hopkins University
- 2017 **Building Socially Cooperative Human-Robot Teams**
2017 Department of Computer Science, Johns Hopkins University
2017 Department of Computer Science, University of South Carolina
2017 Department of Computer Science, University of North Carolina at Charlotte
2017 Department of Computer Science, University of Illinois at Urbana-Champaign
2017 School of Computing, Clemson University
- 2016 **Designing Interactive Robots for Everyday People**
Department of Computer Science, University of North Carolina at Chapel Hill
- 2016 **Adaptive Coordination Strategies for Human-Robot Handovers**
[Invited RSS Early Career Spotlight Talk at AAAI'16](#)
- 2015 **User Study on Hand-Over**
Human-Robot Hand-Over Workshop, RSS'15
- 2015 **Designing Robotic Systems to Assist Everyday Users**
2015 Microsoft Research
2015 Department of Computer Science, University of Minnesota, Twin Cities

Professional Service & Leadership

ORGANIZATION SERVICE FOR CONFERENCES & WORKSHOPS

- 2018 Registration Chair, HRI'18
2018 Co-Organizer, Workshop on Towards a framework for Joint Action, RSS'18
2017 Co-Organizer, Workshop on Synergies between Learning and Interaction, IROS'17
2016 Co-Organizer, Workshop on Socially and Physically Assistive Robotics for Humanity, RSS'16
2016 Co-Organizer, Workshop on Long-Term Child-Robot Interaction, RO-MAN'16

EDITORIAL SERVICE

- 2018-present Associate Editor
ACM Transactions on Human-Robot Interaction
- 2018-2019 Guest Editor
Frontiers in Robotics and AI
Towards Real World Impacts: Design, Development, and Deployment of Social Robots in the Wild

FUNDING AGENCY REFEREE

- 2020 Panelist, National Science Foundation (NSF)
2019 External reviewer, National Science Foundation (NSF)

PROGRAM COMMITTEE

| | |
|------------|---|
| 2018–2019 | International Conference on Human-Robot Interaction (HRI) |
| 2019 | International Conference on Human Factors in Computing Systems (CHI) |
| 2017–2018 | AAAI Conference on Artificial Intelligence (AAAI) |
| 2016 | International Symposium on Robot and Human Interactive Communication (RO-MAN) |
| 2014, 2016 | International Conference on Human-Agent Interaction (HAI) |
| 2016 | International Conference on Social Robotics (ICSR) |
| 2020 | International Conference on Biomedical Robotics and Biomechatronics (BioRob) |

CONFERENCE PAPER REFEREE

| | |
|-----------------|---|
| 2012-2017, 2020 | International Conference on Human-Robot Interaction (HRI) |
| 2017, 2019-2020 | International Conference on Robotics and Automation (ICRA) |
| 2014, 2017 | International Conference on Intelligent Robots and Systems (IROS) |
| 2017 | International Symposium on Robotics Research (ISRR) |
| 2013-2015, 2017 | International Symposium on Robot and Human Interactive Communication (RO-MAN) |
| 2014 | International Conference on Humanoid Robots |
| 2012, 2016-2017 | International Conference on Human Factors in Computing Systems (CHI) |
| 2012 | International Conference on Multimodal Interaction (ICMI) |
| 2014 | International Conference on Human-Agent Interaction (HAI) |
| 2016 | International conference on Tangible, Embedded and Embodied Interaction |
| 2018 | IEEE Conference on Virtual Reality and 3D User Interfaces (VR) |
| 2018 | International Symposium on Experimental Robotics (ISER) |

JOURNAL ARTICLE REFEREE

International Journal of Social Robotics
Journal of Human-Robot Interaction
International Journal of Robotics Research
Pattern Recognition Letters
Interaction Studies
International Journal of Human-Computer Interaction
IEEE Transactions on Affective Computing
IEEE Transactions on Human-Machine Systems
IEEE Transactions on Autonomous Mental Development
IEEE Robotics and Automation Letters
Journal of Intelligent and Robotic Systems
International Journal of Developmental Disabilities
Cognitive Systems Research
Robotica
Frontiers in Robotics and AI
British Journal of Educational Technology

UNIVERSITY SERVICE

| | |
|--------------|--|
| | Department of Computer Science, Johns Hopkins University |
| 2019–present | HCI Initiative Committee |
| 2018–present | Faculty Search Committee |
| 2017–present | Student Awards Committee |
| | Whiting School of Engineering, Johns Hopkins University |

2020–present Multidisciplinary Design Search Committee
2018–present Multidisciplinary Design Course Advisor
2019 IAA Workshop Technical Committee
2019 Design Day Planning Committee

Alpha Phi Omega (APO), Johns Hopkins University
2018–present Academic Advisor

Selected Outreach

2019 Girl scouts robotics workshop, Maryland Science Center, Baltimore, MD, USA
2019 WISE STEM mentor program for high school women, Garrison Forest School & Johns Hopkins University, Baltimore, MD, USA
2019 JHU WSE Dean’s Alumni Networking Brunch in New York City, NY, USA
2019 JHU WSE Alumni Week Engagement, Baltimore, MD, USA
2014 Social Robotics Summer Program, Grandparents University (Wisconsin Alumni Association), Madison, WI, USA

Selected Press

2019 [Plays well with humans \(JHU Magazine\)](#)
2019 [Robots are becoming classroom tutors. But will they make the grade? \(Science News\)](#)
2015 [UW professor develops robotic dishwashing arm \(The Badger Herald\)](#)
2015 [A new robot helper could make daily chores astronomically more fun \(Tech Insider\)](#)
2015 [Teach Your Robot to Do the Dishes \(MIT Technology Review\)](#)
2014 [Nao Robot Serves ‘Sushi’ \(AZoRobotics\)](#)
2014 [Bridging the uncanny valley between humans, robots \(UW–Madison News\)](#)
2012 [Developing Robots That Can Teach Humans \(Science Nation\)](#)

Last updated: June 30, 2020