Yifei (Rena) Zhu

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Research Statement

I am a Ph.D. candidate in Robotics, conducting research in the Mines Interactive Robotics Research Lab under the guidance of Dr. Tom Williams. My research vision is to enable intelligent, efficient, and user-centered Augmented/Mixed Reality-based (AR/MR) tools for Human-Robot Interaction (HRI). I utilize an interdisciplinary approach to investigate the effect of implementation and techniques used in Human-Robot systems, including both quantitative experimentation and qualitative investigations. Moreover, I'm passionate about the intersection of technology and society, in particular, what roles can and should automation play in people's everyday lives.

Education

Colorado School of Mines   *Expected 2026*
Doctor of Philosophy in Robotics

Colorado School of Mines   *2023*
Master of Science in Computer Science

University of California, San Diego Extended Studies   *2020*
Digital Marketing Certificate, ABA-approved Paralegal Certificate

University of California, San Diego   *2018*
Bachelor of Science in Cognitive Science

Professional Experience

Research Assistant   *Golden, CO*
Mines Interactive Robotics Research   *2022 – Present*

- Develop, test, and evaluate user-centered AR/MR applications for HRI. Ideate effective AI and Robotics curricula. Lead production of research manuscripts, teaching, mentoring, and other research activities.

STEM Communication Designer   *Golden, CO*
Colorado School of Mines Writing Center   *2024 – Present*

- Design and develop open-source education content to support technical communication skills, including video instruction, written handouts, and exercises.

Digital Marketing Specialist   *Los Angeles, CA*
EsVata LLC.   *2019 – 2020*

- Lead production of digital marketing material including website, social media, online catalog, and coordinate online and offline marketing effort.

Case/Patient Relationship Coordinator   *San Diego, CA*
Gen5 Fertility Center   *2018 – 2019*

- Host on-site consultation, manage patient-provider relationship, support administrative needs of patients.

Selected Publications

- **Crossing Reality: Comparing Physical and Virtual Robot Deixis, HRI 2023**
  Zhao Han*, **Yifei Zhu***, Albert Phan, Fernando Sandoval Garza, Amia Castro, Tom Williams **co-first authors*

  [10.1145/3568162.3576972](https://doi.org/10.1145/3568162.3576972)

- **Robots for Social Justice (R4SJ): Toward a More Equitable Practice of Human-Robot Interaction, HRI 2024**
  Yifei Zhu, Ruchen Wen, Tom Williams

  [10.1145/3610977.3634944](https://doi.org/10.1145/3610977.3634944)

- **Early Adoption of Generative Artificial Intelligence in Computing Education: Emergent Student Use Cases and Perspectives in 2023, ITiCSE 2024**

  C. Estelle Smith, Kylee Shiekh, Hayden Cooreman, Sharfi Rahman, **Yifei Zhu**, et al.

  [10.1145/3649217.3653575](10.1145/3649217.3653575)

- **FETCH: Fostering and Enhancing Teamwork, Communication, and Healthy Community Among Animal Shelter Volunteers through Mobile Technology, CHI EA 2024**

  Yifei Zhu, Joe Peak, Eryn Kelsey Adkins, C. Estelle Smith

  [10.1145/3613905.3650865](10.1145/3613905.3650865)

- **Designing Augmented Reality Robot Guidance Interactions through the Metaphors of Re-embodiment and Telepresence, RO-MAN 2024**

  Yifei Zhu, Colin Brush, Tom Williams

  [10.1109/RO-MAN60168.2024.10731244](10.1109/RO-MAN60168.2024.10731244)

- **That's Iconic! Designing Augmented Reality Iconic Gestures To Enhance Multi-modal Communication For Morphologically Limited Robots, IROS 2025**

  Yifei Zhu, Alexander Torres, Zane Aloia, Tom Williams

  mirrorlab.mines.edu/publications/zhu2025iros/

Awards, Invited Talks and Memberships

Runner-up and People's Choice, Colorado School of Mines Three Minute Thesis	*2025*
Invited Talk, Understanding Multi-modal communication in Multi-task context, IEEE	*2024*
Keynote Speaker, Third workshop on Inclusive HRI at the International Conference on Human-Robot-Interaction	*2024*
First place in Mines Graduate Research Symposium, Theoretical and Social Sciences Oral Session	*2023*
Nominee, Colorado School of Mines Student Employee of The Year	*2022*
Lambda Epsilon Chi, paralegal honor society member, AAfPE	*2021*

Service, Engagement and Volunteer

Peer reviewer, AAAI/ACM Conference on AI, Ethics, and Society (AIES)	*2025*
Peer reviewer, Springer book on Next Generation AI-Driven Education (AIEDU)	*2025*
Peer reviewer, IEEE/RSJ International Conference on Intelligent Robots and Systems	*2025*
Math circle at Boulder County Jail	*2024-present*
○ Facilitate math circle activity for incarcerated people.	
Committee member, Generataive AI Guideline Committee, Mines	*2023-2024*
○ Collaborate with Trefney Center as the Graduate Student Representative, attend meetings, collect data, and share insights with board members and administrators.	
President, Director of Communications, Director of Academic Affairs, Mines Graduate Student Government	*2021-2024*
○ Lead advocacy, organize events, and facilitate communication between leadership and student body	
Webchair, Peer reviewer (5 papers), ACM/IEEE International Conference on Human-Robot Interaction	*2023*

○ Help with the conference organization and peer review process

Instructor, Summer Multicultural Engineering Training Program *2023*

○ Organize and present workshops for middle-school students to introduce them to robotics research

Mentor, CS@Mines Hidden Talents: Google Explore CSR (Computer Science Research) *Spring 2023*

○ Mentor two Undergraduate STEM students on a semester-long research project

Animal shelter volunteer, San Diego Humane Society (2016-2019), Foothills Animal Shelter (2022-present) *2016-present*

○ Assist animal care, guest service and administrative procedure