

RAN ZHOU

RESEARCH INTERESTS

Human-Computer Interaction, Expressive Haptics, Tangible Interface, Design Research, Human-Robot Interaction, Soma Design, Mixed Reality

EDUCATION

ATLAS Institute, University of Colorado, Boulder

Ph.D. in Creative Technology and Design (CTD) - GPA: 4.0/4.0

Research focus: haptics, tangible interface, design research, human-robot interaction

Advisor: Daniel Leithinger

Committee: Laura Devendorf, Harpreet Sareen, Wendy Ju, Madeline Balaam

Boulder, CO, USA

Jan. 2021 - present

Parsons School of Design

MFA Design and Technology (MFA DT) - GPA: 3.85/4.0

Thesis: EmotiTactor: Emotional Expression of Robotic Physical Contact

Advisor: Harpreet Sareen

New York, NY, USA

Aug. 2018 - May 2020

Huazhong University of Science and Technology

B.Eng in Urban and Rural Planning - GPA: 3.9/4.0

School of Architecture and Urban Planning

Wuhan, Hubei, China

Sep. 2013 - Jun. 2018

RESEARCH EXPERIENCE

ATLAS Institute, University of Colorado, Boulder

Research Assistant

Advisor: Daniel Leithinger

Boulder, CO, USA

Jan. 2021 - present

- Develop wearable haptic toolkit that supports the design of emotional robotic touch
- Conduct longitudinal out-of-lab design exploration and co-speculation with researchers, designers and artists
- Explore novel materials for designing soft haptic wearables

KTH Royal Institute of Technology

Visiting Doctoral Researcher

Host Professor: Madeline Balaam

Stockholm, Sweden

Sep. 2023 - Dec. 2023

- Develop new interactive interfaces to provide different sensations of touch on the human body
- Take new experiments to explore creative touch perceptions
- Learn Soma Design practices, Feminist theory, and different design methodologies

University of Calgary

Visiting Doctoral Researcher

Host Professor: Ryo Suzuki

Calgary, AB, Canada

Feb. 2023 - Mar. 2023

- Built 3D-printed prototypes for novel haptic interfaces
- Brainstormed, discussed and provided design critics on the on-going research projects in lab
- Gave a guest lecture in human-robot interaction class

Parsons School of Design

Research Assistant

Advisor: Harpreet Sareen

New York, NY, USA

Jan. 2020 - Dec. 2020

- Designed robotic interface using mechanical tactors driven by servo motors that create tactile sensations to communicate primary emotions to humans
- Developed VR game to demonstrate application of wearable haptic robot that performs affective touch stimuli in sync with behaviors of companion agent, to complement visual and auditory feedback in VR

TEACHING EXPERIENCE

ATLAS Institute, University of Colorado, Boulder

Teaching Assistant

ATLS 4519-5519: Physical Telepresence, Instructor: Daniel Leithinger (Undergrad & Grad Level)

Boulder, CO, USA

Jan. 2023 - May. 2023

- Collaborated on the curriculum design
- Curated and managed the course website
- Supported the lab session by providing mentoring in physical computing and critics in design

ATLAS Institute, University of Colorado, Boulder

Teaching Assistant

ATLS 5430: Design Method, Instructor: Joel Swanson (Grad Level)

Boulder, CO, USA

Aug. 2022 - Dec. 2022

- Graded weekly assignments with constructive feedback
- Held office hours to answer questions and provide design critiques
- delivered a guest lecture and designed in-class haptic design activity

Parsons School of Design

Teaching Assistant

Experimental UX design studio collaborates with OnePlus, Instructors: Kyle Li, Crayon Hsieh (Grad Level)

New York, NY, USA

Jan. 2020 - May. 2020

- Supported head of UX design at OnePlus with curriculum design to permit students to explore the UX design on the mobile platform in the speculative future
- Prepared educational materials for weekly lessons, including in-class activities and assignments
- Assisted teaching of Figma through one-on-one tutoring

WORK EXPERIENCE

DextaRobotics

Interaction Design Intern

Dextarobotics develops the world's first portable force feedback glove, Dexmo

Shenzhen, Guangdong, China

May. 2019 - Aug. 2019

- Created 3D assets by Maya and Substance Painter for polished VR demo
- Redesigned branding strategy and visual identity
- Led team of 6 to exhibit Dexmo in the business track at SIGGRAPH 2019 in Los Angeles
- Represented DextaRobotics for demos and hiring at Harvard Startup Career Fair and Parsons School of Design

PEER-REVIEWED CONFERENCE PUBLICATIONS

[C3] Yuzhen Zhang*, Ruixiang Han*, **Ran Zhou***, Peter Gyory, Clement Zheng, Patrick C. Shih, Ellen Yi-Luen Do, Malte F Jung, Wendy Ju, Daniel Leithinger. 2024. Wizard of Props: Mixed Reality Prototyping with Physical Props to Design Responsive Environments (Pictorial Accepted to TEI'24)

[C2] **Ran Zhou**, Zachary Schwemler, Akshay Baweja, Harpreet Sareen, Casey Hunt, and Daniel Leithinger. 2023. TactorBots: A Haptic Design Toolkit for Out-of-lab Exploration of Emotional Robotic Touch. *In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* (CHI'23)

[C1] **Ran Zhou**, Harpreet Sareen, Yufei Zhang and Daniel Leithinger. 2022. EmotiTactor: Exploring How Designers Approach Emotional Robotic Touch. *In Proceedings of the 2022 ACM Designing Interactive Systems Conference* (DIS '22)

🏆 **Best Pictorial Award Honorable Mention (Top 5%)**

PEER-REVIEWED JOURNAL PUBLICATIONS

[J1] Sandra Bae, Rishi Vanukuru, Ruhan Yang, Peter Gyory, **Ran Zhou**, Ellen Do, Danielle Szafir. 2022. Cultivating Visualization Literacy for Children Through Curiosity and Play. *IEEE Transactions on Visualization and Computer Graphics* (IEEE VIS'22)

PEER-REVIEWED DEMO AND WIP PUBLICATIONS

[D3] **Ran Zhou**, Zachary Schwemler, Akshay Baweja, Harpreet Sareen, Casey Hunt, and Daniel Leithinger. 2023. Demonstrating TactorBots: A Haptic Design Toolkit for Exploration of Emotional Robotic Touch. In *Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (CHI EA '23)*

🏆 **Best Demo Award Runner Up (Top 5%)**

[D2] **Ran Zhou**, Yanzhe Wu and Harpreet Sareen. 2020. HexTouch: A Wearable Haptic Robot for Complementary Interactions to Companion Agents in Virtual Reality. In *SIGGRAPH Asia 2020 Emerging Technologies (SA '20)*

[D1] **Ran Zhou**, Yanzhe Wu and Harpreet Sareen. 2020. HexTouch: Affective Robot Touch for Complementary Interactions to Companion Agents in Virtual Reality. In *26th ACM Symposium on Virtual Reality Software and Technology (VRST '20)*

🏆 **Best Demo Award (Top 1%)**

[WIP1] **Ran Zhou** and Harpreet Sareen. 2020. EmotiFactor: Emotional Expression of Robotic Physical Contact. In *Companion Proceeding of the 2020 ACM Designing Interactive Systems Conference (DIS' 20 Companion)*

WORKSHOP ORGANIZATION

[W1] Daniel Leithinger, **Ran Zhou**, Eric Acome, Ahad Mujtaba Rauf, Teng Han, Craig Shultz, Joe Mullenbach. 2023. Electro-actuated Materials for Future Haptic Interfaces. In *The 36th Annual ACM Symposium on User Interface Software and Technology (UIST '23 Adjunct)*

AWARDS

DESIGN AWARDS

Finalist - IxDA's 2023 Interaction Awards (*TactorBots*)

Honorable Mention - Fast Company's 2022 Innovation by Design Award (*TactorBots*)

RESEARCH AWARDS

Best Demo Award Runner Up - CHI 2023 (*TactorBots*)

Best Pictorial Award Honorable Mention - DIS 2022 (*EmotiFactor*)

Best Demo Award - VRST 2020 (*HexTouch*)

TRAVEL AWARDS

Gary Marsden Travel Award (*CHI'23*)

ATLAS Travel Award (*CHI'23*)

TALKS

KTH Royal Institute of Technology

Emotional Design with Robotic Touch (Interaction Design Seminar)

Stockholm, Sweden

Dec. 2023

University of Calgary

Emotional Design with Robotic Touch (hosted by Ryo Suzuki)

Calgary, AB, CA

Mar. 2023

University of Colorado, Boulder

Emotional Design with Robotic Touch (Design Method Class, hosted by Joel Swanson)

Boulder, CO, USA

Sep. 2022

Northeastern University

Emotional Design with Robotic Touch (invited by Bolor Amgalan)

Boston, MA, USA

Mar. 2022

Cornell Tech

Designing Transformative Human Interfaces (with Daniel Leithinger, invited by Wendy Ju)

New York, NY, USA

Nov. 2021

Parsons School of Design

EmotiFactor: Emotional Expression of Robotic Physical Contact (Thesis Show)

New York, NY, USA

May. 2020

EXHIBITIONS

CHI 2023 Interactivity <i>TactorBots</i>	Hamburg, Germany <i>Apr. 2023</i>
ATLAS Research Open House <i>EmotiTactor & TactorBots</i>	Boulder, CO, USA <i>Oct. 2022</i>
Enter Playmode Game Showcase <i>Blue Desert Disco</i>	New York, NY, USA <i>Dec. 2019</i>
NYC Media Lab Demo Expo <i>"Pat Me" Robot</i>	New York, NY, USA <i>Sept. 2019</i>
Parsons Major Major <i>Funeral for Robot</i>	New York, NY, USA <i>May. 2019</i>

PROFESSIONAL ACTIVITIES

Organizing Committee

SIGCHI Publications Committee Member (2022 - present)

DIS 2022 Publications Co-Chair

DIS 2022 Ask-Me-Anything Co-host (Speakers: Liang He, Wendy Ju, Nicolai Marquardt, Nik Martelaro)

DIS 2021 Volunteers & Publications Co-Chair

Reviewer

Reviewed Paper Amount: 25+

Recognized for Outstanding Review: UIST 2022, CHI 2024

CHI 2021-2024

UIST 2022-2023

DIS 2021, 2023

HRI 2023-2024

TEI 2023

ISWC 2023

IDC 2023

Frontiers 2022

Student Volunteer

CHI 2021-2023

TEI 2021

MENTORING

Ben Erickson

On-going Haptics Research

University of Colorado, Boulder

BS ME & CS Minor '24

Eli Rachlin

On-going Haptics Research

University of Colorado, Boulder

MS CTD '24

Yuzhen (Adam) Zhang

Mixed reality prototyping Tool - C3 co-author (Now PhD student at Yale University)

Cornell Tech

MS IS '23

Ruixiang (Albert) Han

Mixed reality prototyping Tool - C3 co-author (Now PhD student at IU Bloomington)

New York University

BS CS '22

Mathieu Halpin

Tangible Interaction Research

University of Colorado, Boulder

BA Anthropology & CTD Minor '23

Wayne Cai
Artificial Intimacy (Thesis)

Wenjun Li
I Am Drinking With You (Thesis)

Valerie Lin
TAMED: An exploration of emotional delivery and spiritual healing (Thesis)

Rozi Zhu
Dream Bubble: A typographic exploration of ephemerality (Thesis)

Parsons School of Design
MFA DT'22

Parsons School of Design
MFA DT'22

Parsons School of Design
MFA DT'21

Parsons School of Design
MFA DT'21

SKILLS

Design Adobe Photoshop, Illustrator, After Effects, Premiere, Onshape, 3ds Max, Maya, AutoCAD, SketchUp

Program C++, Physical Computing (Arduino), p5.js, Processing, openFrameworks, Unity, HTML/CSS

Fabrication 3D Printing, Laser Cutting, Casting, Ceramics, Cardboard and Wood Prototyping, Hand/Machine Sewing

SELECTED PRESS

Arduino TactorBots is a complete toolkit for robotic touch. May. 2023

Geeky Gadgets TactorBots robotic touch haptic design toolkit. May. 2023

IxDA Awards TactorBots: A Haptic Design Toolkit for Exploration of Emotional Robotic Touch. Mar. 2023

Fast Company TactorBots: A Haptic Design Toolkit for Exploration of Emotional Robotic Touch. Sept. 2022

NYC Media Lab "Pat Me" Robot, Emotional Robot Comes To Heal Loneliness. Sept. 2019

REFERENCES

Daniel Leithinger
Assistant Professor
ATLAS Institute, University of Colorado, Boulder
daniel.leithinger@colorado.edu

Harpreet Sareen
Assistant Professor
Parsons School of Design
sareen@newschool.edu

Wendy Ju
Associate Professor
Jacobs Technion-Cornell Institute, Cornell Tech
wendyju@cornell.edu

Madeline Balaam
Professor
KTH Royal Institute of Technology
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