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RAN ZHOU

RESEARCH INTERESTS

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

EDUCATION

ATLAS Institute, University of Colorado, Boulder   **Boulder, CO, USA**
Ph.D. in Creative Technology and Design (CTD) - GPA: 4.0/4.0   *Jan. 2021 - present*
Advisor: Daniel Leithinger
Committee: Laura Devendorf, Harpreet Sareen, Wendy Ju, Madeline Balaam

Parsons School of Design   **New York, NY, USA**
MFA Design and Technology (MFA DT) - GPA: 3.85/4.0   *Aug. 2018 - May 2020*
Thesis: *EmotiTactor: Emotional Expression of Robotic Physical Contact*
Advisor: Harpreet Sareen

Huazhong University of Science and Technology   **Wuhan, Hubei, China**
B.Eng in Urban and Rural Planning - GPA: 3.9/4.0   *Sept. 2013 - Jun. 2018*
School of Architecture and Urban Planning

RESEARCH EXPERIENCE

ATLAS Institute, University of Colorado, Boulder   **Boulder, CO, USA**
Research Assistant & Research Affiliate, THING Lab   *Jan. 2021 - present*
Advisor: Daniel Leithinger

- Create haptic design toolkit that supports the design of expressive robotic touch
- Conduct longitudinal out-of-lab design exploration and co-speculation with researchers, designers and artists
- Explore novel materials to design soft haptic wearables

University of Chicago   **Chicago, IL, USA**
Visiting Doctoral Researcher, AxLab   *Jan. 2024 - present*
Host Professor: Ken Nakagaki

- Create novel analog and digital haptic design platform to explore "crafting haptics"
- Design and conduct experiments to explore expressive haptic design
- Audit Prof. Pedro Lopes's PCB course

KTH Royal Institute of Technology   **Stockholm, Sweden**
Visiting Doctoral Researcher, Interaction Design Team   *Sep. 2023 - Dec. 2023*
Host Professor: Madeline Balaam

- Conducted a new autobiographical experiment to explore creative touch perceptions in daily life
- Learned Soma Design practices, Feminist theory, and many different design methodologies
- Collaborated and supported new haptic interface design and workshop running in the group

University of Calgary   **Calgary, AB, Canada**
Visiting Doctoral Researcher, Programmable Reality Lab   *Feb. 2023 - Mar. 2023*
Host Professor: Ryo Suzuki

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

Parsons School of Design   **New York, NY, USA**
Research Assistant   *Jan. 2020 - Dec. 2020*
Advisor: Harpreet Sareen

- 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   **Boulder, CO, USA**
Teaching Assistant   *Jan. 2023 - May. 2023*
ATLS 4519-5519: Physical Telepresence, Instructor: Daniel Leithinger (Undergrad & Grad Level)

- 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   **Boulder, CO, USA**
Teaching Assistant   *Aug. 2022 - Dec. 2022*
ATLS 5430: Design Method, Instructor: Joel Swanson (Grad Level)

- 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   **New York, NY, USA**
Teaching Assistant   *Jan. 2020 - May. 2020*
Experimental UX design studio collaborates with OnePlus, Instructors: Kyle Li, Crayon Hsieh (Grad Level)

- 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   **Shenzhen, Guangdong, China**
Interaction Design Intern   *May. 2019 - Aug. 2019*
Dextarobotics develops the world's first portable force feedback glove, Dexmo

- 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. *In Proceedings of the Eighteenth International Conference on Tangible, Embedded, and Embodied Interaction* (TEI'24) (*equal contribution)

[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. EmotiTactor: 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 *(EmotiTactor)*
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	**Stockholm, Sweden**
Emotional Design with Robotic Touch (Interaction Design Seminar)	*Dec. 2023*
University of Calgary	**Calgary, AB, CA**
Emotional Design with Robotic Touch (hosted by Ryo Suzuki)	*Mar. 2023*
University of Colorado, Boulder	**Boulder, CO, USA**
Emotional Design with Robotic Touch (Design Method Class, hosted by Joel Swanson)	*Sep. 2022*
Northeastern University	**Boston, MA, USA**
Emotional Design with Robotic Touch (invited by Bolor Amgalan)	*Mar. 2022*

Cornell Tech	**New York, NY, USA**
Designing Transformative Human Interfaces (with Daniel Leithinger, invited by Wendy Ju)	*Nov. 2021*
Parsons School of Design	**New York, NY, USA**
EmotiTactor: Emotional Expression of Robotic Physical Contact (Thesis Show)	*May. 2020*

EXHIBITIONS

The Museum of Science and Industry, Chicago - Robot Block Party	**Chicago, IL, USA**
Novel Haptic Design Platform	*Apr. 2024*
Axhibition 2024: RE-SHAPING	**Chicago, IL, USA**
Novel Haptic Design Platform	*Feb. 2024*
CHI 2023 Interactivity	**Hamburg, Germany**
TactorBots	*Apr. 2023*
ATLAS Research Open House	**Boulder, CO, USA**
EmotiTactor & TactorBots	*Oct. 2022*
Enter Playmode Game Showcase	**New York, NY, USA**
Blue Desert Disco	*Dec. 2019*
NYC Media Lab Demo Expo	**New York, NY, USA**
"Pat Me" Robot	*Sept. 2019*
Parsons Major Major	**New York, NY, USA**
Funeral for Robot	*May. 2019*

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: 35+
Recognized for Outstanding Review: UIST 2022, CHI 2024

Program Committee
DIS 2024 (Pictorial)

External Reviewer
CHI 2021-2024
UIST 2022-2023
DIS 2021, 2023
HRI 2023-2024
TEI 2023
ISWC 2023
IDC 2023
Frontiers in Physiology 2022

Student Volunteer
CHI 2021-2023
TEI 2021

MENTORING

Ben Erickson	**University of Colorado, Boulder**
On-going Haptics Research - selected for poster presentation in DLA Symposium at CU	*BS ME & CS Minor'24*
Eli Rachlin	**University of Colorado, Boulder**
Haptics Research	*MS CTD'24*
Yuzhen (Adam) Zhang	**Cornell Tech**
Mixed reality prototyping Tool - C3 co-author (Now PhD student at Yale University)	*MS IS'23*
Ruixiang (Albert) Han	**New York Univerisity**
Mixed reality prototyping Tool - C3 co-author (Incoming PhD student at Cornell Tech)	*BS CS'22*
Mathieu Halpin	**University of Colorado, Boulder**
Tangible Interaction Research	*BA Anthropology & CTD Minor'23*
Wayne Cai	**Parsons School of Design**
Artificial Intimacy (Thesis)	*MFA DT'22*
Wenjun Li	**Parsons School of Design**
I Am Drinking With You (Thesis)	*MFA DT'22*
Valerie Lin	**Parsons School of Design**
TAMED: An exploration of emotional delivery and spiritual healing (Thesis)	*MFA DT'21*
Rozi Zhu	**Parsons School of Design**
Dream Bubble: A typographic exploration of ephemerality (Thesis)	*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
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