

# Ruei-Che Chang

## Education

- 2022–Present **University of Michigan, Ann Arbor, Michigan**  
**Ph.D. Candidate in Computer Science & Engineering.**  
*Human-AI Lab, advised by Anhong Guo*
- 2020–2022 **National Taiwan University, Taipei, Taiwan**  
**Visiting Student and Research Assistant.**  
*Interactive Graphics Lab, advised by Bing-Yu Chen*
- 2019–2021 **Dartmouth College, Hanover, New Hampshire**  
**M.S. in Computer Science.**
- 2014–2018 **National Cheng Kung University, Tainan, Taiwan**  
**B.S. in Electrical Engineering.**

## Professional Experiences

- 2025 **Adobe Research, Seattle, Washington**  
May – Aug **Research Scientist Intern.** Host: Bryan Wang and Dingzeyu Li  
- Explored peripheral communication between human and computer use agent.
- 2024 **Meta Reality Labs Research, Toronto, Ontario, Canada**  
May – Aug **Research Scientist Intern.** Host: Hemant Surale  
- Explored visual-audio modality transitions for mobile tasks on the go [C.18].

## Honors, Awards and Fellowships

- 2025 **Apple Scholars in AI/ML PhD Fellowship (AI for Accessibility)**  
Full tuition and stipend coverage, and travel fund (2025-2027)  
**UIST 2025 Doctoral Symposium, Busan, Korea**  
**ASSETS 2025 Doctoral Consortium, Denver, Colorado**
- 2024 **Best Paper Award at ACM UIST 2024 for WorldScribe [C.15]**  
Top 1% out of 608 submissions  
**Weinberg Cognitive Science Fellowship**  
Full tuition and stipend coverage for one semester  
**Finalist, CSE Honors Competition, University of Michigan**  
One of the five finalists recognized as “top research done by PhD students” at CSE.
- 2023 **Rackham International Students Chia-Lun Lo Fellowship**  
\$13,770 for stipend in Summer 2024
- 2022 **University of Michigan CSE Departmental Fellowship**  
Full tuition and stipend coverage for first-year PhD Study
- 2020 **Best Paper Honorable Mention at ACM CHI 2020 for Glissade [C.2]**  
Top 5% out of 3216 submissions
- 2019 **Dartmouth College Tuition Scholarship**  
75% tuition coverage for master’s study for two years
- 2023-2026 **Special Recognition for Outstanding Reviews \* 10**  
CHI ‘23 ‘24 ‘25 ‘26, UIST ‘23 ‘24 ‘25, DIS ‘24
- 2022-2025 **Rackham Travel Grant Awards**  
UIST’22, UIST’23, ASSETS’24, UIST’25

## Peer-Reviewed Full Papers

- 2026 [C.20] **Ruei-Che Chang**, Rosiana Natalie, Trista Xu, Jovan Zheng Feng Yap, Tiange Luo, Venkatesh Potluri, Anhong Guo. "TouchScribe: Augmenting Hand-Object Interaction with Automated Live Visual Descriptions." *In Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems (CHI'26)*. Barcelona, Spain. 2026. [Acceptance Rate: 25.3%]
- 2025 [C.19] **Ruei-Che Chang**, Rosiana Natalie, Trista Xu, Jovan Zheng Feng Yap, Anhong Guo. "Probing the Gaps in ChatGPT Live Video Chat for Real-World Assistance for People who are Blind or Visually Impaired." *In Proceedings of the 27th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'25)*. Denver, Colorado. 2025. [Acceptance Rate: 29.7%]
- [C.18] **Ruei-Che Chang**, Tovi Grossman, Carine Rognon, Michael Glueck, Christopher Collins, Amy Karlsson, Hemant Bhaskar Surale. "Viago: Exploring Visual-Audio Modality Transitions for Social Media Consumption On the Go." *In The 38th Annual ACM Symposium on User Interface Software and Technology (UIST'25)*. Busan, Korea. 2025. [Acceptance Rate: 22%]
- [C.17] Rosiana Natalie, Wenqian Xu, **Ruei-Che Chang**, Rada Mihalcea, Anhong Guo. "Not There Yet: Evaluating Vision Language Models in Simulating the Visual Perception of People with Low Vision." **Preprint available at:** <https://arxiv.org/abs/2508.10972>
- [C.16] Yu-Ting Yen, Fang-Ying Liao, Chi-Lan Yang, **Ruei-Che Chang**, Fu-Yin Cherng, Bing-Yu Chen. "Strange Familiars: Exploring the Design of Avatars and Virtual Environments for Reconnecting Dormant Ties in Virtual Reality." *IEEE Transactions on Visualization and Computer Graphics* 2025. (TVCG'25)
- 2024 [C.15] **Ruei-Che Chang**, Yuxuan Liu, Anhong Guo. "WorldScribe: Towards Context-Aware Live Visual Descriptions." *In The 37th Annual ACM Symposium on User Interface Software and Technology (UIST'24)*. Pittsburgh, PA, USA. 2024. [Acceptance Rate: 24%]  **Best Paper Award**
- [C.14] **Ruei-Che Chang**, Chia-Sheng Hung, Bing-Yu Chen, Dhruv Jain, Anhong Guo. "SoundShift: Exploring Sound Manipulations for Accessible Mixed-Reality Awareness." *In Proceedings of the 2024 ACM Conference on Designing Interactive Systems (DIS'24)*. Copenhagen, Denmark. 2024.
- [C.13] **Ruei-Che Chang**, Yuxuan Liu, Lotus Zhang, Anhong Guo. "EditScribe: Non-Visual Image Editing with Natural Language Verification Loop." *In Proceedings of the 26th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'24)*. St. John's, Newfoundland, Canada. 2024. [Acceptance Rate: 30%]
- [C.12] Rosiana Natalie, **Ruei-Che Chang**, Smitha Sheshadri, Anhong Guo, Kotaro Hara. "Audio Description Customization." *In Proceedings of the 26th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'24)*. St. John's, Newfoundland, Canada. 2024. [Acceptance Rate: 30%]
- [C.11] Andi Xu, Minyu Cai, Dier Hou, **Ruei-Che Chang**, Anhong Guo. "ImageExplorer Deployment: Understanding Text-Based and Touch-Based Image Exploration in the Wild." *In Proceedings of the 21st Web for All Conference (W4A 2024)*. Sentosa, Singapore. 2024.
- [C.10] Hao-Ping Lee, Wei-Lun Kao, Hung-Jui Wang, **Ruei-Che Chang**, Yi-Hao Peng, Fu-Ying Cherng, Shang-Tse Chen. "AdvCAPTCHA: Creating Usable and Secure Audio CAPTCHA with Adversarial Machine Learning." *NDSS Symposium on Usable Security and Privacy (USEC'24)*. San Diego, California. 2024.
- 2023 [C.9] **Ruei-Che Chang\***, Seraphina Yong\*, Fang-Ying Liao, Chih-An Tsao, Bing-Yu Chen. "Understanding (Non-)Visual Needs of the Design of Laser Cut Architecture." *In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI'23)*. Hamberg, Germany. 2023. [Acceptance Rate: 28.39%]
- 2022 [C.8] **Ruei-Che Chang**, Chao-Hsien Ting, Chia-Sheng Hung, Wan-Chen Lee, Liang-Jin Chen, Yu-Tzu Chao, Bing-Yu Chen, Anhong Guo. "OmniScribe: Authoring Immersive Audio Descriptions for 360° Videos." *In The 35th Annual ACM Symposium on User Interface Software and Technology (UIST'22)*. Bend, Oregon. 2022. [Acceptance Rate: 26.3%]

- [C.7] Ching-Wen Hung, **Ruei-Che Chang**, Hong-Sheng Chen, Chung-Han Liang, Liwei Chan, Bing-Yu Chen. "Puppeteer: Exploring Intuitive Hand Gestures and Upper-Body Postures for Manipulating Human Avatar Actions." *In The 28th Annual ACM Symposium on Virtual Reality Software and Technology (VRST'22)*. Tsukuba, Japan. 2022. [Acceptance Rate: 26.7%]
- 2021 [C.6] **Ruei-Che Chang**, Chih-An Tsao, Fang-Ying Liao, Seraphina Yong, Tom Yeh, Bing-Yu Chen. "Daedalus in the Dark: Designing for Non-Visual Accessible Construction of Laser-Cut Architecture." *In The 34th Annual ACM Symposium on User Interface Software and Technology (UIST'21)*. Virtual Event. 2021. [Acceptance Rate: 21%]
- [C.5] **Ruei-Che Chang\***, Wen-Ping Wang\*, Chi-Huan Chiang, Te-Yen Wu, Zheer Xu, Justin Luo, Bing-Yu Chen, Xing-Dong Yang. "AccessibleCircuits: Adaptive Add-On Circuit Components for People with Blindness or Low Vision." *In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI'21)*. Virtual Event, Japan. 2021. [Acceptance Rate: 26.3%]
- 2020 [C.4] **Ruei-Che Chang\***, Chi-Huan Chiang\*, Shuo-wen Hsu, Chih-Yun Yang, Da-Yuan Huang, Bing-Yu Chen. 2020. "TanGo: Exploring Expressive Tangible Interactions on Head-Mounted Displays." *In Symposium on Spatial User Interaction (SUI'20)*. Virtual Event. 2020. [Acceptance Rate: 31%]
- [C.3] **Ruei-Che Chang\***, Yi-Shyuan Chiang\*, Yi-Lin Chuang, Shih-Ya Chou, Hao-Ping Lee, I-Ju Lin, Jian Hua Jiang Chen, Yung-Ju Chang. "Exploring the Design Space of User-System Communication for Smart home Routine Assistants." *In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI'20)*. Virtual Event. 2020. [Acceptance Rate: 24.3%]
- [C.2] Kai-Chieh Huang, Chen-Kuo Sun, Da-Yuan Huang, Yu-Chun Chen, **Ruei-Che Chang**, Shuo-wen Hsu, Chih-Yun Yang, Bing-Yu Chen. "Glissade: Generating Balance Shifting Feedback to Facilitate Auxiliary Digital Pen Input." *In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems. (CHI'20)*. Virtual Event. 2020. [Acceptance Rate: 24.3%]  **Best Paper Honorable Mention (Top 5% of 3126 submissions)**
- 2019 [C.1] Chi Wang, Da-Yuan Huang, Shuo-Wen Hsu, Chu-En Hou, Yeu-Luen Chiu, **Ruei-Che Chang**, Jo-Yu Lo, Bing-Yu Chen. "Masque: Exploring Lateral Skin Stretch Feedback on the Face with Head-Mounted Displays." *In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology (UIST'19)*. New Orleans, LA. 2019. [Acceptance Rate: 24.4%]

## Posters and Demos

- 2025 [A.6] **Ruei-Che Chang**. "Enabling Real-World Assistive Agents: From Live Vision to Proactive Context-Aware Information Delivery." *In Adjunct Proceedings of the 38th Annual ACM Symposium on User Interface Software and Technology. (UIST'25 Doctoral Symposium)*. Busan, Korea. 2025.
- [A.5] **Ruei-Che Chang**. "Enabling Real-World Assistive Agents: From Live Vision to Proactive Context-Aware Information Delivery." *Accepted to 27th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'25 Doctoral Consortium)*. Denver, Colorado. 2025.
- [A.4] Rosiana Natalie, Wenqian Xu, **Ruei-Che Chang**, Anhong Guo. "How Well Can Language Models Simulate the Vision Perception of People with Low Vision?" *In Proceedings of the 27th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'25 Poster)*. Denver, Colorado. 2025.
- 2024 [A.3] **Ruei-Che Chang**, Yuxuan Liu, Anhong Guo. "Demonstration of WorldScribe: Towards Context-Aware Live Visual Descriptions." *In The 37th Annual ACM Symposium on User Interface Software and Technology (UIST'24)*. Pittsburgh, PA, USA. 2024.
- 2023 [A.2] **Ruei-Che Chang**, Chia-Sheng Hong, Dhruv Jain, Anhong Guo. "SoundBlender: Exploring Sound Manipulations for Mixed-Reality Awareness." *In The 36th Annual ACM Symposium on User Interface Software and Technology (UIST'23 Demo)*. San Francisco, California. 2023.

- 2022 [A.1] Ching-Wen Hung, **Ruei-Che Chang**, Hong-Sheng Chen, Chung-Han Liang, Liwei Chan, Bing-Yu Chen. "Puppeteer: Manipulating Human Avatar Actions with Intuitive Hand Gestures and Upper Body Postures." In *The 35th Annual ACM Symposium on User Interface Software and Technology (UIST'22 Poster)*. Bend, Oregon. 2022.

## Past Research Experiences

- Sep 2021 – **Human-AI Lab, University of Michigan**  
 Apr 2022 **Research Intern, advised by Anhong Guo.**
  - Developed OmniScribe for authoring immersive audio descriptions for 360° videos [C.8].

Jun 2020 – **Interactive Graphics Lab, National Taiwan University**  
 Jul 2022 **Visiting Student, advised by Bing-Yu Chen and Tom Yeh (University of Colorado).**
  - Developed Daedalus for non-visual accessible construction of laser-cut architecture [C.6].
  - Conducted study to understand (non-)visual needs for laser-cut model design [C.9].

Feb 2019 – **Research Assistant, advised by Bing-Yu Chen.**  
 Aug 2019 Developed Unity applications for Glissade[C.2] and Masque [C.1].
 
  - Developed TanGo for expressive haptic interaction on VR headset [C.4].

Sep 2018 – **Mobile and Ubiquitous Interaction Lab, National Yang Ming Chiao Tung University**  
 Apr 2019 **Research Assistant, advised by Yung-Ju (Stanley) Chang.**
  - Designed and conducted a study to understand the friction between humans and smart home [C.3].

## Academic Services

- 100+ papers reviewed & 10 special recognitions at CHI '23 '24 '25 '26 | UIST '23 '24 '25 | DIS '24**  
**Programm Committee Associate Chair CHI'23 LBW, CHI'24 LBW, CHI'25 LBW**  
**Reviewer CHI('22 '23 '24 '25 '26), UIST('21 '22 '23 '24), TACCESS('25) CSCW('23), TOHCI('23), TEI('23), SUI('23), DIS('22 '24), ISS('22), MobileHCI('22), IEEE VR('23 '24), VRST('23), CHI LBW('20 '21 '22)**  
**Student Volunteer UIST'22**  
**Reviewer, Michigan AI Lab PhD Admission, 2025-2026**

## Invited Talk

- Dec 2025 **Adobe HCI Seminar.** "Supporting Context Switching When Multitasking with Computer Use Agents"  
 Nov 2024 **CMU Accessibility Lunch Seminar.** "Building a Real-World Assistant Agent for People who are blind"  
 Nov 2024 **UMich CSE Honor Competition.** "WorldScribe: Towards Context-Aware Live Visual Descriptions"

## Media Coverage

- Nov 2024 **University of Michigan Engineering News.** "CSE Graduate Honors Competition showcases exceptional research by PhD students"  
 Oct 2024 **Health Tech World.** "AI tool gives blind person 'picture of the real world'"  
 Oct 2024 **University of Michigan Engineering News.** "Real-time descriptions of surroundings for people who are blind"

## Teaching Experiences

- Winter 2024 **EECS493 User Interface Development,** Graduate Student Instructor.

## Mentorship

- 2025-present **Xirui Jiang**, Undergrad student at UMich.  
 2024-present **Wenqian Trista Liu**, MS student at UMich.  
 2024–2025 **Jovan Zheng Feng Yap**, Undergrad at UMich. (*First Position:* MS student at UC Berkeley)  
 2023–2024 **Yuxuan Liu**, Undergrad at UMich. (*First Position:* PhD student at UMich)  
 2023–2024 **Linfeng Song**, Undergrad at UMich. (*First Position:* MS student at UPenn)  
 2023–2024 **Andi Xu**, Undergrad at UMich. (*First Position:* MS Student at Stanford)

- 2022–2023 **Minyu Cai**, Undergrad at UMich. (*First Position:* MS student at CMU)
- 2022–2023 **Dier Hou**, Undergrad at UMich. (*First Position:* MS student at UCSD)
- 2022–2023 **Chia-Sheng Hung**, MS student at National Taiwan University. (*First Position:* Amazon, Taiwan)
- 2021–2022 **Fang-Ying Liao**, MS student at National Taiwan University. (*First Position:* Syntec, Taiwan)
- 2021–2022 **Chao-Hsien Ting**, MS student at National Taiwan University. (*First Position:* Realtek, Taiwan)
- 2021 **Chih-An Tsao**, MS student at National Taiwan University. (*First Position:* Sony, Taiwan)