# Ruei-Che Chang

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## 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.**

## Awards and Honors

2024 Weinberg Cognitive Science Fellowship.

2023 Rackham International Students Chia-Lun Lo Fellowship.

2023 Special Recognition for Outstanding Reviews for UIST'23, CHI'23, CHI'24*2.

2022-2023 Rackham Travel Grant Award for UIST'22, UIST'23.

2022 University of Michigan CSE Departmental First-Year Fellowship 2022.

2020 Best Paper Honorable Mention at ACM CHI 2020. [Top 5% of 3126 submissions]

2019 Dartmouth College 75% Tuition Scholarship.

## Peer-Reviewed Conference Papers

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." *To appear at 2024 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

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.

## Research Experience

Sep 2022 – present **Human-AI Lab, University of Michigan**
*Graduate Student Research Assistant, advised by Anhong Guo.*
- Designing a real-time caption system using omnidirectional camera [work in progress].
- Deploying a website allowing end users to access OmniScribe-generated 360-degree videos and leave feedback [work in progress].
- Exploring sound manipulations for accessible mixed-reality awareness [C.12].

Sep 2021 – Apr 2022 *Remote research intern, advised by Anhong Guo.*
Developed OmniScribe for authoring immersive audio descriptions for 360° videos [C.8].

Jun 2020 – Jul 2022 **Interactive Graphics Lab, National Taiwan University**
*Visiting Student, advised by Bing-Yu Chen and Tom Yeh (Univ. 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 – Aug 2019 *Research Assistant, advised by Bing-Yu Chen.*
Developed Unity applications for Glissade[C.2] and Masque [C.1].
- Developed TanGo for expressive haptic interaction on VR headset [C.4].

Sep 2018 – Apr 2019 **Mobile and Ubiquitous Interaction Lab, National Yang Ming Chiao Tung University**
*Research Assistant, advised by Yung-Ju (Stanley) Chang.*

- Designed and conducted an experiment to understand the communication between human and smart home agent [C.3].

## Work Experiences

2018    **Mandatory Military Service**, Taiwan.

2018    **Undergraduate research intern** at *Industrial Technology Research Institute* (*ITRI*), Hsinchu, Taiwan.

## Teaching Experiences

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

## Academic Services

**60+ papers reviewed, special recognition for outstanding reviews in UIST'23, CHI'23, CHI'24**

**Programm Committee Associate Chair** CHI'23 LBW, CHI'24 LBW

**Reviewer** CHI('22 '23 '24), UIST('21 '22 '23), CSCW('23), TOHCI('23), TEI('23), SUI('23), DIS('22), ISS('22), MobileHCI('22), IEEE VR('23 '24), VRST('23), CHI LBW('20 '21 '22)

**Student Volunteer** UIST'22

## Students Mentored

2023–present    **Yuxuan Liu**, *Undergrad student* at University of Michigan.

2024–present    **Zian Zhong**, *Undergrad student* at University of Michigan.

2023–2024    **Linfeng Song**, *Undergrad student* at University of Michigan.

2023–2024    **Hyeji Han**, *Master student* at University of Michigan.

2023–2024    **Andi Xu**, *Undergrad student* at University of Michigan.

2022–2023    **Minyu Cai**, *Undergrad student* at University of Michigan.

2022–2023    **Dier Hou**, *Undergrad student* at University of Michigan.

2022–2023    **Chia-Sheng Hung**, *Master student* at National Taiwan University.

2021–2022    **Fang-Ying Liao**, *Master student* at National Taiwan University.

2021–2022    **Chao-Hsien Ting**, *Master student* at National Taiwan University.

2021    **Chih-An Tsao**, *Master student* at National Taiwan University.

## Skills

Programming    Java, C#, Python, JavaScript, ROS, OpenCV, MongoDB, Swift, LaTeX

Prototyping    Arduino, 3D-printing, Fusion 360, Laser-cutting

Platforms/IDE    Unity3D, Android Studio, Fusion 360, Xcode

## References

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