MINGRUI ZHANG

Meta Reality Labs
Meta Platforms, Inc
New York, NY, USA 10001

Email: z1m6r3@gmail.com
https://www.drustz.com

EDUCATION

University of Washington, Seattle *Sep. 2017 - June 2022*
Ph.D. in Information Science, The Information School
Focus: Human-Computer Interaction
Advisor: Jacob O. Wobbrock

Tsinghua University, Beijing *Aug. 2013 - Jul. 2017*
B.Eng. with Honors, Department of Computer Science and Technology
Minor in journalism

Massachusetts Institute of Technology, Boston *Jun. 2016 - Sep. 2016*
Visiting student, the Fluid Interfaces Group, MIT Media Lab
Advisor: Pattie Maes

The Chinese University of Hong Kong, Hong Kong *Sep. 2015 - Dec. 2015*
Exchange student, Department of Computer Science and Engineering

RESEARCH INTEREST

Human-Computer Interaction

My research interests are in **Human-Computer Interaction**, specifically in evaluating and inventing **AI-mediated interactions** to facilitate the **input and understanding of information**, as well as to create equal information access for **people with disabilities**.

PROFESSIONAL EXPERIENCE

Meta Reality Labs. New York, NY *Oct. 2022 - Present*
Research Scientist. Text input interaction design in AR.

ACE Lab, University of Washington *Oct. 2017 - Jun. 2022*
Lab Director: Jacob O. Wobbrock
Research Assistant. AI-Mediated information interaction techniques.

User Empowerment Lab, University of Washington *Jun. 2018 - Jun. 2022*
Lab Director: Alexis Hiniker
Research Assistant. Mobile applications for conducting various experiments on virtual assistants with kids and families. Investigation on digital news consumption experience during the COVID pandemic. Qualitative interviews and surveys to identify the dark patterns of social media, designing and developing alternative mobile clients to promote positive technology use.

Apple Inc. Seattle, WA *Jun. 2021 - Sep. 2021*
Advised by Huy Viet Le and Tim Paek
Research Intern. Prototyping and behavior modeling on novel input experience.

Facebook Reality Labs. New York, NY *Jun. 2020 - Oct. 2020*
Advised by Adam Berenzweig
Research Intern. EMG-based text entry interaction. Designed, implemented and evaluated multiple prototypes with the wearable device to enable text entry on any surface. Improved the neural network model performance on gesture classification with new loss functions.

Google Inc. Mountain View, CA *Oct. 2019 - Dec. 2019*
Advised by Shumin Zhai
Research Intern. Modification and exploration on Google Gboard auto-correction features.

Momenta.ai Inc. Beijing *Dec. 2016 - Jun. 2017*
Advised by Ji Liang
Research Intern. Freespace road segmentation. Modified Full Convolutional Network base model on Caffe and PyTorch. Boosted recall & accuracy about 5%. Speeded up framework from 8fps to 100fps.

Fluid Interfaces Group, MIT Media Lab *Jun. 2016 - Sep. 2016*
Visiting Student. Developed the hardware and algorithm of project Fluxa. Led the project Shoulder Muscle-Computer Interface. Programmed with Myo armband. Signal processing and pattern recognition with EMG.

MailTime Inc. Beijing *Feb. 2016 - Jun. 2016*
iOS Intern. Redesigned interaction logic and UI, user tutorial and feedback, increased 25% of the user retention.

Multimedia Lab, the Chinese University of Hong Kong *Jun. 2015 - Aug. 2015*
Research Assistant. Write experimental codes on machine learning, modified the CXXNET (a framework of deep learning). code and revised the convolution layer of it. The result proved not applicable.

Chestnut Tech Inc. Beijing *Oct. 2014 - Jan. 2016*
Co-founder, iOS Developer. Main developer of Parocam application, Face transform algorithm, UI design and product operation.

PEER-REVIEWED CONFERENCE PAPERS

C.18 **Mingrui "Ray" Zhang**, Shumin Zhai, Jacob O. Wobbrock. (2022) TypeAnywhere: A QWERTY-Based Text Entry Solution for Ubiquitous Computing. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '22).* New Orleans, USA (April 30 - May 6, 2022). New York: ACM Press.

C.17 **Mingrui "Ray" Zhang**, Kai Lukoff, Raveena Rao, Amanda Baughan, Alexis Hiniker. (2022) Monitoring Screen Time or Redesigning It? Two Approaches to Supporting Intentional Social Media Use. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '22).* New Orleans, USA (April 30 - May 6, 2022). New York: ACM Press.

C.16 Amanda Baughan, **Mingrui "Ray" Zhang**, Raveena Rao, Kai Lukoff, Anastasia Schaadhardt, Lisa Butler, Alexis Hiniker. (2022) "I Don't Even Remember What I Read": How Design Influences Dissociation on Social Media. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '22).* New Orleans, USA (April 30 - May 6, 2022). New York: ACM Press.

C.15 **Mingrui "Ray" Zhang**, Mingyuan Zhong, Jacob O. Wobbrock. (2022) Ga11y: an Automated GIF Annotation System for Visually Impaired Users. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '22).* New Orleans, USA (April 30 - May 6, 2022). New York: ACM Press.

C.14 Alexis Hiniker, Amelia Wang, Jonathan Tran, **Mingrui "Ray" Zhang**, Jenny Radesky, Kiley Sobel, Sungsoo Ray Hong. (2021). Can Conversational Agents Change the Way Children Talk to People? *Proceedings of the 20th Annual ACM Conference on Interaction Design and Children (IDC '21).* Athens, Greece (June 24-30, 2021). New York: ACM Press.

C.13 Ruolin Wang, Zixuan Chen, **Mingrui "Ray" Zhang**, Zhaoheng Li, Zhixiu Liu, Zhihan Dang, Chun Yu, Xiang "Anthony" Chen. (2021) Revamp: Enhancing Accessible Information Seeking Experience of Online Shopping for Blind or Low Vision Users. *Proceedings of the ACM Conference*

on Human Factors in Computing Systems (CHI '21). Yokohama, Japan (May 8-13, 2021). New York: ACM Press. [26%]

C.12 **Mingrui "Ray" Zhang**, Ruolin Wang, Xuhai Xu, Qisheng Li, Ather Sharif and Jacob O. Wobbrock. (2021). Voicemoji: Emoji entry using voice for visually impaired people. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '21)*. Yokohama, Japan (May 8-13, 2021). New York: ACM Press. [26%]

C.11 **Mingrui "Ray" Zhang**, Shumin Zhai. (2021). PhraseFlow: Designs and Empirical Studies of Phrase-Level Input. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '21)*. Yokohama, Japan (May 8-13, 2021). New York: ACM Press. [26%]

C.10 **Mingrui "Ray" Zhang**, Alex Mariakakis, Jacob Burke and Jacob O. Wobbrock. (2021). A comparative study of lexical and semantic emoji suggestion systems. *Proceedings of iConference 2021. Beijing, China (March 17-31, 2021)*. Lecture Notes in Computer Science. Switzerland: Springer. [31%]

C.9 Wenzhe Cui, Suwen Zhu, **Mingrui "Ray" Zhang**, H. Andrew Schwartz, Jacob O. Wobbrock, Xiaojun Bi. (2020). JustCorrect: Intelligent post hoc text correction techniques on smartphones. *Proceedings of the ACM Symposium on User Interface Software & Technology (UIST '20)*. Minneapolis, Minnesota (October 20-23, 2020). New York: ACM Press. [22%]

C.8 Zhihang Dong, Tongshuang Wu, Sicheng Song, **Mingrui "Ray" Zhang**. (2020). Interactive Attention Model Explorer for NLP Tasks with Unbalanced Data Sizes. *2020 IEEE Pacific Visualization Symposium (PacificVis)*. Tianjin, China (Jun 3-5, 2020). IEEE Computer Society. [24%]

C.7 **Mingrui "Ray" Zhang**, Jacob O. Wobbrock. (2020). Gedit: Keyboard gestures for mobile text editing. *Proceedings of Graphics Interface (GI '20)*. Toronto, Ontario (May 21-22, 2020). Toronto, Ontario: Canadian Information Processing Society.

C.6 Erin Beneteau, Yini Guan, Olivia K. Richards, **Mingrui "Ray" Zhang**, Julie A. Kientz, Jason Yip, Alexis Hiniker. (2020). Assumptions Checked: How Families Learn About and Use the Echo Dot. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT 2020)*. New York: ACM Press.

C.5 **Mingrui "Ray" Zhang**, He Wen, Jacob O. Wobbrock. (2019). Type, Then Correct: Intelligent Text Correction Techniques for Mobile Text Entry Using Neural Networks. *Proceedings of the 32nd Annual ACM Symposium on User Interface Software & Technology (UIST '19)*. New York: ACM Press. [24%]

C.4 **Mingrui "Ray" Zhang**, Jacob O. Wobbrock. (2019). Beyond the Input Stream: Making Text Entry Evaluations More Flexible with Transcription Sequences. *Proceedings of the 32nd Annual ACM Symposium on User Interface Software & Technology (UIST '19)*. New York: ACM Press. [24%]

C.3 **Mingrui "Ray" Zhang**, Shumin Zhai, Jacob O. Wobbrock. (2019). Text entry throughput: Towards unifying speed and accuracy in a single performance metric. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 19)*. New York: ACM Press. [24%]

C.2 Alexis Hiniker, Jon Froehlich, **Mingrui "Ray" Zhang**, Erin Beneteau. (2019). Anchored Audio Sampling: A Seamless Method for Exploring Childrens Thoughts and Reactions During Deployment Studies. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 19)*. New York: ACM Press. *Best Paper Award (Top 1%)*

C.1 Erin Beneteau, Olivia K. Richards, **Mingrui "Ray" Zhang**, Julie A. Kientz, Jason Yip, Alexis Hiniker. (2019). Communication Breakdowns Between Families and Alexa. *Proceedings of the*

ACM Conference on Human Factors in Computing Systems (CHI 19). New York: ACM Press. [24%]

C.0 Xin Yi, Chun Yu, **Mingrui "Ray" Zhang**, Sida Gao, Ke Sun, Yuanchun Shi. (2015). ATK: Enabling Ten-Finger Freehand Typing in Air Based on 3D Hand Tracking Data. *Proceedings of the 28th Annual ACM Symposium on User Interface Software & Technology (UIST '15).* New York: ACM Press. [24%]

OTHER PUBLICATIONS

P.2 **Mingrui "Ray" Zhang**, Ashley Boone, Sara M Behbakt, Alexis Hiniker. (2022). Understanding the Digital News Consumption Experience During the COVID Pandemic, *arXiv*

P.1 **Mingrui "Ray" Zhang**, Shumin Zhai. (2020). Partial-Candidate Commit for Chinese Pinyin Text Entry, *Technical Disclosures Commons*

P.0 **Mingrui "Ray" Zhang**, Shumin Zhai. (2021) Two-handed Typing Method on an Arbitrary Surface. *Technical Disclosures Commons*

BOOK CHAPTERS

B.1 **Mingrui "Ray" Zhang**, He Wen, Wenzhe Cui, Suwen Zhu, H.Andrew Schwartz, Xiaojun Bi and Jacob O. Wobbrock. (2021). AI-driven Intelligent Text Correction Techniques for Mobile Text Entry. Chapter 6 in Yang Li & Otmar Hilliges (eds.), *Artificial Intelligence for Human Computer Interaction: A Modern Approach.* Switzerland: Springer.

B.0 **Mingrui "Ray" Zhang**. (2015 - present). *When Rocket Launches.* on Gitbook

HONORS & AWARDS

Ford Fellowship, University of Washington *2022*
Special Recognition, CHI paper reviews *2021*
Best Paper Award, ACM CHI *2019*
Excellent Graduate of the CST Department, Tsinghua *2017*
The National Scholarship of China (Top 1%) *2016*
1st Winner of the National Database Conference Cup *2016*

TEACHING

Teaching Assistant
INFO 201 Foundational Skills for Data Science, UW Seattle *2021 Fall*
INFO 490 Undergraduate Capstone, UW Seattle *2020 Winter, 2020 Spring*
INFO 449 iOS Programming, UW Seattle *2019 Winter*
INFO 360 Design Thinking, UW Seattle *2017 Fall, 2018 Winter*
INFO 498 Rapid Prototyping, UW Seattle *2018 Spring*
Guest Lecturer
INFO 463 Input and Interaction, UW Seattle *2020 Fall*

STUDENTS MENTORED

Jiahao Tim Li (UW Undergraduate) *Oct. 2021 - Nov. 2021*
Raveena Rao (UW Undergraduate) *Feb. 2021 - Jun. 2021*
Sara Behbakht (UW Undergraduate) *Apr. 2020 - Jun. 2020*
Ashley Boone (UW Undergraduate, now a PhD student at Georgia Tech) *Feb. 2021 - Jun. 2020*
Jacob Burke (UW Undergraduate, now at Microsoft) [*C*.11] *June. 2018 - Sep. 2018*

INVITED TALKS

2022
Towards Humanlike Communication with Computers
NYU Shanghai, Shanghai, China
Boston University, Boston, MA, USA
Purdue University, West Lafayette, IN
Meta Reality Labs, New York, NY, USA
Apple, Seattle, WA, USA
Google Research, Mountain View, CA, USA

2021
Intelligent Text Input Methods and Metrics
University of Washington, Seattle, WA, USA

2019
Text Entry for the New Era
HCI Seminar, Stanford University, Palo Alto, CA, USA
Text Entry for the New Era
Google Android UX Group, Mountain View, CA, USA

PROFESSIONAL SERVICE

Demo Co-chair	UIST '22
UW DUB Seminar Coordinator	2021
Assistant for early planning	CHI '20
Peer Reviewer	CHI '19 - '22; UIST '19 - '22; MobileHCI '21; AutomobileUI '21; IEEE EICS '21; THMS '20;