MINGRUI ZHANG

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EDUCATION

University of Washington, Seattle *Sep. 2017 - Present*
Ph.D. student, the Information School
Advisor: Jacob O. Wobbrock

Tsinghua University, Beijing *Aug. 2013 - Jul. 2017*
Bachelor of Engineering, Department of Computer Science and Technology
GPA 91.0 (Rank 13/127)
Minor in journalism

Massachusetts Institute of Technology, Boston *Jun. 2016 - Sep. 2016*
Visiting student, the Fluid Interfaces Group, 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
Text Entry Models / Intelligent Text Entry Applications / Computer Mediated Communication

PUBLICATIONS

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. To appear.

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. To appear.

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. To appear.

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. To appear.

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.

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), Notes

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.

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.

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.

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*

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.

C.0 Xin Yi, Chun Yu, **Mingrui 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). ACM, New York, NY, USA, 539-548.

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. To appear.

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

HONORS & AWARDS

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*
Best note of Youdao Course Note Competition	*2015*

RESEARCH EXPERIENCE

User Empowered Lab, University of Washington *Jun. 2018 - Present*
Research Assistant. Develop mobile applications for conducting various experiments on virtual assistants with kids and families. Investigate the digital news consumption experience during the COVID pandemic. Conduct qualitative interviews and surveys to identify the dark patterns of mobile applications, design and develop alternative mobile clients to promote positive technology use.

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.

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.

WORK 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.

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

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.

PROJECTS

PAROCAM IOS APP @Chestnut Tech Inc. *Nov.2014 - Jan.2016*
· A funny iOS app transforming images of human faces (such as stretching the mouth) in real time, using multithread face-detection tech based on GPU.
· Developed functions of Chat Bubbles, Video Merge.
· 20,000 downloads in App Store (with overall rating 4+).

SPAM DETECTING ON Q-A COMMUNITY @NDBC CUP16 *May. 2016 - Jun. 2016*
· Designed a novel approach to detect spam answers in Q-A community.
· Using CNN and Word2Vec, with additional NLP data pre-processing. F-value 66.0%.
· Won first place in the competition.

PERSPECTIVE TRACKING VIDEO CHATTING *Jan. 2017 - Jun. 2017*
· Video Communication system supporting perspective tracking to imitate face-to-face scenario.
· Using panorama camera and head tracking to capture first-person view on the remote side. Made with Unity.

TALKS

2019
Stanford University, *Text Entry for the New Era*, Palo Alto, CA, USA

TEACHING

INFO 360 Design Thinking, UW Seattle	*2017 Fall, 2018 Winter*
INFO 498 Rapid Prototyping, UW Seattle	*2018 Spring*
INFO 449 iOS Programming, UW Seattle	*2019 Winter*
INFO 490 Undergraduate Capstone, UW Seattle	*2020 Winter, 2020 Spring*

PROFESSIONAL SERVICE

Assistant for early planning	CHI 20
Peer Reviewer	CHI 19, 20, 21; UIST 19, 20; EICS 2021; IEEE THMS 20

SKILLS

Programming	C/C++/C#/Java/JavaScript/Kotlin/MATLAB/Objective-C/Python
Journalism	Chinese writing/Interview
Art & Media	Adobe Photoshop/Adobe Premiere/Final Cut Pro