

EDUCATION

University of Washington

Ph.D. Student in Computer Science & Engineering

Advisors: James Fogarty & Jacob Wobbrock

Seattle, WA

Sep. 2019–present

Tsinghua University

B. Eng. in Computer Science & Technology

Beijing, China

Aug. 2014–July 2019

PUBLICATIONS

- Junhan Kong, **Mingyuan Zhong**, James Fogarty, Jacob O. Wobbrock: Quantifying Touch: New Metrics for Characterizing What Happens During a Touch. (ASSETS '22, 🏆 Honorable Mention).
- Michael Cross, Leping Qiu, **Mingyuan Zhong**, Yuntao Wang, Yuanchun Shi: One-Dimensional Eye-Gaze Typing Interface for People with Locked-in Syndrome. (UIST '22, Poster).
- Raymond Fok, **Mingyuan Zhong**, Anne Spencer Ross, James Fogarty, Jacob O. Wobbrock: A Large-Scale Longitudinal Analysis of Missing Label Accessibility Failures in Android Apps. (CHI '22).
- Mingrui "Ray" Zhang, **Mingyuan Zhong**, Jacob O. Wobbrock: Ga11y: An Automated GIF Annotation System for Visually Impaired Users. (CHI '22).
- Junhan Kong, **Mingyuan Zhong**, James Fogarty, Jacob O. Wobbrock: New Metrics for Understanding Touch by People with and without Limited Fine Motor Function. (ASSETS '21, Poster).
- **Mingyuan Zhong**, Gang Li, Peggy Chi, Yang Li: HelpViz: Automatic Generation of Contextual Visual Mobile Tutorials from Text-Based Instructions. (UIST '21).
- **Mingyuan Zhong**, Gang Li, Yang Li: Spacewalker: Rapid UI Design Exploration Using Lightweight Markup Enhancement and Crowd Genetic Programming. (CHI '21).
- Yue Qin, Chun Yu, Zhaoheng Li, **Mingyuan Zhong**, Yukang Yan, Yuanchun Shi: ProxiMic: Convenient Voice Activation via Close-to-Mic Speech Detected by a Single Microphone. (CHI '21).
- **Mingyuan Zhong**, Chun Yu, Qian Wang, Xuhai Xu, Yuanchun Shi: ForceBoard: Subtle Text Entry Leveraging Pressure. (CHI '18).
- Chun Yu, Ke Sun, **Mingyuan Zhong**, Xincheng Li, Peijun Zhao, Yuanchun Shi: One-Dimensional Handwriting: Inputting Letters and Words on Smart Glasses. (CHI '16, 🏆 Honorable Mention).
- Chun Yu, Ke Sun, **Mingyuan Zhong**, Xincheng Li, Yuanchun Shi: One-Dimensional Handwriting Input Method and Apparatus. Chinese Patent, Pub No. CN105549890A.

RESEARCH EXPERIENCE

Mobile Accessibility Repair at Scale

- *University of Washington | Advisors: James Fogarty & Jacob Wobbrock* 2019–present
 - Periodically crawled over 300 Android apps for over one year to gather accessibility data.
 - Analyzed accessibility failures and utilized heuristics, neural networks, and the crowd to create repairs.
 - Designed a structure-based component discovery algorithm to provide more granular and robust interface element matching.

Improving Android Touch Accuracy

- *Google (Internship) | Hosts: Wenxin Feng & Shumin Zhai* Summer 2021
 - Developed algorithms to improve touch accuracy in different phases of a touch gesture by examining touch-related sensor data.

- **Automated GIF Annotation System for Visually Impaired Users**
University of Washington | Advisor: Jacob Wobbrock Spring 2021
 - Developed a mobile GIF annotation tool utilizing an interaction proxy approach.
- **Automatic Generation of Contextual Visual Mobile Tutorials**
Google Research (Internship) | Hosts: Yang Li & Gang Li Summer 2020
 - Created a pipeline that automatically generates visual tutorials for mobile tasks from raw text instructions.
 - Addressed errors and incompatibility from automatic tutorial generation using beam search and look-ahead.
- **UI Design Exploration Using Crowd Genetic Programming**
Google Research (Internship) | Hosts: Yang Li & Gang Li Summer 2020
 - Created an HTML markup extension that allows designers to specify alternatives for design search.
 - Designed an enhanced genetic algorithm that can efficiently explore a large design space using crowd responses.
 - Integrated general tool support that allows designers to improve web design quickly at a low cost.
- **Quantifying the User Perception of Janks in Transition Animations**
HCI Lab, Tsinghua University | Advisors: Chun Yu & Jingyu Zhang 2018–2019
 - Built a platform that automatically interacted with Android devices and captured their displays using a high-speed camera; developed a program that analyzed the captured footage to identify janks.
 - Designed an Android application that inserted janks during user interaction, which included four common scenarios, and gathered user feedback.
 - Conducted a large-scale *in-the-wild* experiment of over 3600 people.
- **ForceBoard: Subtle Text Entry Leveraging Pressure**
HCI Lab, Tsinghua University | Advisors: Yuanchun Shi & Chun Yu 2016–2017
 - Proposed and designed a one-dimensional pressure-based text entry method.
 - Conducted a user study to examine people’s ability of continuous pressure control.
 - Implemented a ForceBoard prototype, which enabled text entry by combining the pressure control model and statistical decoding; conducted a user study to evaluate its performance.
- **One-Dimensional Handwriting: Gesture-based Text Entry**
HCI Lab, Tsinghua University | Advisors: Yuanchun Shi & Chun Yu 2015–2016
 - Conducted a user-participatory study to solicit designs of one-dimensional gestures for text entry.
 - Developed a prototype 1D Handwriting keyboard on Google Glass, where users could use one-dimensional gestures that felt familiar to input letters and words, similar to handwriting.

TEACHING EXPERIENCE & SERVICE

- **Teaching Assistant:** *Embedded Systems Capstone* with Bruce Hemingway (UW CSE/EE 475). Autumn 2019
- **Peer Reviewer:** ACM CHI LBW 2020; CHI 2022; UIST 2021–2022; IUI 2019–2022.

SKILLS

- **Programming Language:** C++ · Python · Java · JavaScript · Swift · Golang · VHDL
- **Technology:** Android · iOS · Linux · Arduino · OpenCV · OptiTrack · Keras · Unity · Django · Flask · SQL · Azure
- **Data Analysis:** R · SPSS · JMP · MATLAB
- **Media:** Photoshop · Premiere Pro · Lightroom