

# Zhuohao Zhang

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## Research Interest

Human-Computer Interaction, Human-centered AI, AI-powered Accessibility, Computer-Supported Cooperative Work

## Education

- 2019-2021 **University of Illinois at Urbana-Champaign (UIUC)**, Urbana, IL  
M.S. in Computer Science (with thesis), GPA: 4.0/4.0  
Advisor: Ranjitha Kumar
- 2015-2019 **Zhejiang University (ZJU)**, Hangzhou, China  
B.Eng. in Computer Science (with Honors), GPA: 3.88/4.0, Ranking: Top5% of 181  
Advisor: Yingcai Wu

## Research Experiences

- 2019.08-now **University of Illinois at Urbana-Champaign**, Urbana, IL  
Research Assistant
- Data-Driven Design Group**, Supervisor: Ranjitha Kumar
- Leading a group of five developing and maintaining an iOS application “Opico” released in App Store, a social media mobile app of more than 1000 users allowing users to create and share reactions through Emoji
  - Conducting an ongoing research on using information theory framework to optimize the design of social reviewing systems, based on the social media application driven research; Extract information encoded in emoji sequences and empirically measure properties from emoji information channel as an instance; Plan to submit a full paper to CSCW 2020

- 2017.10-2018.12 **Cornell University (Cornell Tech)**, New York, NY  
Remote Collaborator and Research Assistant  
**Enhancing Abilities Lab**, Supervisor: Shiri Azenkot
- Designed an iOS application “Talkit++” to augment fabricated 3D models for blind people; Deployed in real use at several special education schools; Project released at: <https://www.interactiveprintedmodels.com>
  - Applied OpenCV based algorithms to detect 3D models and hand gestures; Customized native iOS to enable speech recognition and text-to-speech; Based on 3D model’s position and user’s input, Talkit++ utilized speaking textual information, playing audio recordings, and displaying visual animations for blind people. Results have been published at ASSETS 2018 and CHI 2019
- 2018.07-2018.09 **University of California, Davis (UCD)**, Davis, CA  
Research Assistant  
**Viz & Interface Design & Innovation (VIDI) Lab**, Supervisor: Kwan-Liu Ma
- Implemented an interactive AR visualization system to bridge the gap between large display walls and mobile devices
  - Used computer vision-based methods to build new interactions. Users could use smartphones as tools to walk freely in front of large display walls and perform interactions rather than using traditional keyboard and mouse.
- 2017-2019 **Zhejiang University**, Hangzhou, China  
Research Assistant  
**Interactive Data Group**, Supervisor: Yingcai Wu
- Devised a VR application in HTC Vive using 3D urban data of housing in Manhattan; Integrated visual data analytics and scalable interactions
  - Registered and funded as provincial innovation project and managed a research team of four
  - Adapted space partition, cluster analysis and data visualization techniques to preprocess 3D data points, and enabled collaborative immersive wandering experiences in a city-level
- Joint Research with Hong Kong University**, PI: Francis Chi Moon Lau
- Designed a universal plugin to support typing special symbols on physical keyboards using natural finger gliding
  - Implemented unique principles and algorithms similar to word2vec and K-means to process user’s input sequence and used statistical models and pattern recognition algorithms to recognize symbols, published at CHI 2019

## Academic Publications

### CONFERENCE PAPERS

- [C.4] **Zhuohao Zhang** et al. 2020. [On creating tools to protect privacy and security for people with visual impairments by seeking help from collaborators]. Plan to submit to CSCW 2020
- [C.3] **Zhuohao Zhang** et al. 2020. [On optimizing design under information theory framework]. Plan to submit to CSCW 2020
- [C.2] **Zhuohao Zhang**, Xiyuan He\*. 2019. GPK: An Efficient Special Symbol Input Method for Keyboards Using Glide. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI 2019). Glasgow, UK
- [C.1] Lei Shi, Holly M. Lawson, **Zhuohao Zhang**, Shiri Azenkot. 2019. Designing interactive 3D printed models with Teachers of the Visually Impaired. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI 2019). Glasgow, UK

### DEMOS

- [D.1] Lei Shi, **Zhuohao Zhang**, Shiri Azenkot. 2019. A Demo of Talkit++: Interacting with 3D Printed Models Using iOS Devices. In Proceedings of the 20th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '18), Galway, Ireland

### TECHNICAL REPORTS

- [T.1] Zhaoyuan Su, **Zhuohao Zhang**, Fan Lin, Zhou Yu. WeCARE: An Intelligent Tool to Support Retired Elder's Mental Wellness. Technical Report, December 2018
- [T.2] Tianxiang Gao, Xi Yang, **Zhuohao Zhang**, Linlin Li, Zhou Zhao. Relation Extraction for Chinese Medicine Using ResCNN and Attention. Technical Report, September 2018, Hangzhou, China. Deployed as part of the knowledge base system at Alibaba Inc

## Honors and Awards

- 2019 ACM CHI Student Research Competition, Second Prize
- 2018 Microsoft Imagine Cup 2018, United States National Finals Attendee
- 2016-2018 First-class Scholarship for 3 successive years (top 3% in 850 students)
- 2016 Zhejiang Provincial Government Scholarship

## Project Highlights

2018.12 **WeCare: An Intelligent Tool Enhancing Storytelling Experience**

Main Researcher

- An Intelligent Box Based on Bot and voice UI to Support the Retired People's Group Therapeutic Session
- Collaborated with students from UIUC, CCA and Princeton for a wider range of research

2018.03 **Menupedia: A Smart Restaurant Assistant**

Full Stack Developer

- An AR restaurant map and a smart menu that gives foreign visitors navigation and guidance to restaurants
- Finished in 36 hours as a hackathon competition (HackTech 2018 at Caltech) project with 3 students

## Work and Teaching Experiences

2019.08-now **University of Illinois at Urbana-Champaign, Urbana, IL**

Teaching Assistant

- TA for course CS107 Data Science Discovery, Responsible for 2 lab sessions. Worked with Prof. Wade Fagen-Ulmschneider and Karle Flanagan

2017-2018 **Zhejiang University, Hangzhou, China**

Teaching Assistant

- TA for course Digital Logic Design and Computer Organization. Worked with Prof. Qingsong Shi

2017.07-2017.08 **Zhejiang University, Hangzhou, CHina**

Teaching Assistant

- TA for course CS101 Introduction to Computer Systems. Worked with Prof. Yale N. Patt from UT-Austin

## Presentations and Talks

2019.05 **CHI 2019 Student Research Competition, Glasgow, UK**

Title: An Efficient Special Symbol Input Method for Keyboards Using Glide

- Two-round presentation competition of an undergraduate research project

2018.10 **Tactile Graphics in Education and Career Symposium, Baltimore, MD**

Title: Sensables: 3D Printed Models for Visually Impaired Students

- Presented with Ph.D. Lei Shi from Cornell Tech at National Federation of the Blind, Jernigan Institute

## Academic Services

### Assigned Reviewing

CHI 2019, Late Breaking Work

## Skills

### TECHNOLOGIES

Proficient in iOS, AR/VR frameworks, Unity, C#, C/C++, Java, Python, Git, JavaScript, HTML, CSS, SQL, PostgreSQL, React.js, D3.js, React Native, Django, etc.

Also familiar with theories and algorithms in Machine Learning, Information Retrieval, Computer Vision, Optimization, etc.

### LANGUAGE

English (Proficient), Chinese (Native)

### OTHERS

Adobe Photoshop, Illustrator, Microsoft Office, Video editing

## Other Experiences

**Champion of National Calligraphy Competition**, Beijing, China

Won the national calligraphy design Champion among all students in the nation

**Design of public posters and advertisement banners**, Hangzhou, China

Led a group designing posters and advertisements for 2 years in various of campus activities