

Zihan Wu

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Ph.D. student
University of Michigan, School of Information
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RESEARCH INTERESTS

Human-Computer Interaction, Educational Technology

EDUCATION

University of Michigan, Ann Arbor

Ph.D. in Information

Advisors: Barbara Ericson, Christopher Brooks

Ann Arbor, MI, USA

Aug. 2020 – Present

Tsinghua University

B.E. in Computer Science and Technology

B.S. in Psychology (Second Major)

Beijing, China

Sept. 2016 – Jul. 2020

Sept. 2017 – Jul. 2020

PROFESSIONAL EXPERIENCE

Google. LLC

Engineering Practicum Intern

Beijing, China

Jul.2018 – Sept. 2018

PUBLICATIONS

Zihan Wu, Barbara Ericson, Christopher Brooks. (2021)

Regex Parsons: Using Horizontal Parsons Problems to Scaffold Learning Regex. *Koli Calling International Conference on Computing Education Research (Koli Calling '21) (Poster, to appear)*

Zihan Wu, Chun Yu, Xuhai Xu, Tong Wei, Tianyuan Zou, Ruolin Wang, Yuanchun Shi. (2021)

LightWrite: Teach Handwriting to The Visually Impaired with A Smartphone. *CHI Conference on Human Factors in Computing Systems (CHI '21)*.

April Y. Wang, **Zihan Wu**, Christopher Brooks, Steve Oney. (2020)

Callisto: Capturing the "Why" by Connecting Conversations with Computational Narratives. *CHI Conference on Human Factors in Computing Systems (CHI '20)*.

Honourable Mention Award (top 5%)

SERVICE

Peer Reviewing

ACM Conference on Human Factors in Computing Systems (CHI'21), Late Breaking Work

RESEARCH EXPERIENCE

PI, School of Information, University of Michigan, Ann Arbor

Using Horizontal Parsons Problems to Scaffold Learning Regex Jan. 2021 – present

- Designed and implemented a web-based tool which uses horizontal Parsons problem (mixed-up code problem) to scaffold students in learning regex. For between-subjects study purposes, I also implemented a version with traditional write-regex problems. The tool enables real-time regex matching to assist learners to debug their solutions.
- Conducted a thinkaloud study to compare the thinking process when learners answers traditional text-entry regex problems and Parsons regex problems.
- Deployed the tool in an introductory data science MOOC and conducted between-subjects study based on the tool. We have collected data from more than 4,000 learners so far, and preliminary findings are presented in a poster in Koli Calling'21.

PI, Group of Pervasive Human Computer Interaction, Tsinghua University

LightWrite: Teach Handwriting to The Visually Impaired with A Smartphone Feb. 2020 – Sept. 2020

- To bridge the gap of communication and reduce the cost for blind and visually impaired (BLV) people to learn handwriting, we designed and implemented an application on smartphone that could teach handwriting to BLV users.
- Conducted a Wizard-of-Oz formative study to identify the obstacles for BLV users to learn handwriting. Based on the result, we designed a simplified font for BLV users to learn handwriting, which only consists of four basic strokes.
- Combined machine learning and rule-based algorithms to provide audio feedback for BLV learners to improve their writing.
- Designed and conducted a 7-day evaluation study with 15 BLV users. The result showed that users were able to learn handwriting with our application.
- The paper was accepted to CHI'21.

Research Assistant, School of Information, University of Michigan, Ann Arbor

Enhance Collaboration and Communication in Jupyter Notebook Jul. 2019 – Sept. 2019

- Our team extended Jupyter Notebook to enhance collaboration in data scientists.
- The tool enables collaborative editing to notebooks and includes a chat panel inside the Notebook, allowing users to refer to code blocks, pieces of code, notebook diffs and images in the chat. It also includes other supportive features such as displaying diffs of notebook versions, mark on output images, etc.
- The paper was accepted to CHI'20, and received an honorable mention award.

Research Assistant, Group of Pervasive Human Computer Interaction, Tsinghua University

Peripheral Menu in VR Feb. 2019 – Sept. 2019

- Our team designed a VR-based peripheral menu which can be selected only with eye movements.
- Designed and implemented studies to gather robust user data from common usage in four selected scenarios of different kinds of applications, and developed an algorithm to distinguish normal eye movement with peripheral menu selection.

TEACHING EXPERIENCE

SIADS 505 - Data Manipulation

Ann Arbor, MI, USA

Graduate Student Instructor

Fall 2021

Master of Applied Data Science (MADS) Program at UMSI

SIADS 631 - Experiment Design and Analysis

Ann Arbor, MI, USA

Graduate Student Instructor

Fall 2021

Master of Applied Data Science (MADS) Program at UMSI

RESEARCH AND TECHNICAL SKILLS

Programming Languages: Python, JavaScript, TypeScript, Java, C/C++, C#, MATLAB

Frameworks and Applications: Node.js, React.js, Flask, Django, Android, Unity, PyTorch

Research Methods: Mixed-methods research, design-based research, system building, usability testing, data analysis

SELECTED COURSEWORK

Selected Ph.D. Courses

Research Methods, Technologies to Optimize Human Learning, Human-Computer Interaction, Video games and Learning, Principles of Software Design for Learning

Selected Undergraduate Courses

Human Computer Interaction Theory and Technology, Software Engineering, Computer Organization, Theory of Computer Network, Data Structures, Introduction to Artificial Intelligence, Artificial Intelligence and Machine Learning

General Psychology, Experimental Psychology, Developmental Psychology, Cognitive Psychology, Psychological Statistics