MINGRUI ZHANG

I still remember what my Ph.D. advisor, Professor Jacob O. Wobbrock, told me in our first meeting: "The true joy of being a professor is not only about publishing and doing research; it is about mentoring my students, witnessing their success, and having a lasting relationship with them." My passion for teaching over the last nine years has led me from serving as a high-school tutor to a graduate lecturer with hundreds of students. As a human-computer interaction (HCI) researcher, I believe it is critical to educate a diverse student body and equip them with **both engineering and design skills to address practical challenges**.

Teaching & Lecturing

I started formal teaching through giving lectures on programming to high school students as an undergraduate student at Tsinghua University. Fascinated by the usefulness of programming, I wanted to expose this same learning opportunity to students in my high school, as there was no CS-related class offered back then. Together with a friend, I initiated the course proposal, designed the full curriculum, and delivered weekly online lectures to four students. Constantly seeking to improve my teaching, I consulted with professors and iterated upon the course materials based on students' feedback. As a result, one student subsequently applied to Tsinghua and decided to major in CS. This rewarding experience has ignited my motivation to teach ever since.

At the University of Washington, I have been a **TA for seven courses** in different areas, from user interface design to mobile app development. During my first year as a graduate student, I was the TA for INFO 499 Rapid Prototyping, a project-centric class for undergraduate students to design and build prototypes for real-world problems. I actively participated in the discussion with each team, and viewed myself as their teammate in all steps of the project, from initial brainstorming to the final usability study. Students constantly contacted me when they got blocked and invited me to their team activities outside class hours. I received a lot of "thank you" cards and videos even after months of the class, and had kept in touch with some of the students over multiple years.

Mentoring & Writing

I have also been pursuing my passion for having a positive influence on others through mentoring and writing. Throughout my Ph.D. journey, I have **mentored five undergraduate students and two junior Ph.D. students**, all of whom contributed significantly to my research projects. I was involved in the whole process, acting as the proxy advisor, from conducting weekly 1:1s, to assisting these students with paper writing. For students with limited prior experience, I provided hands-on guidance from study design to data analysis, offering them perspectives on what research looks like. Those collaborations have led to **two publications in HCI conferences and another three under review**.

In 2018, Jacob Burke, an informatics major, designed user studies with me on the emoji suggestion system project. As I had to return to China to renew my VISA, Jacob conducted the studies independently. To make him feel confident and prepared, I held mock interview sessions, regularly checked in with him and provided support during my time in China. The work was published at iConference 2021, and Jacob later **decided to pursue a Master's degree in HCI and invited me to write his recommendation letter**. Two years later, I worked with Ashley Boone on a project investigating people's news consumption behaviors in the COVID-19 pandemic. Ashley helped construct research questions, conducted remote interviews and performed thematic coding of study results. The work is under review of CHI 2022 and Ashley decided to **pursue a Ph.D. in Human-Centered Computing at Georgia Tech**.

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Beyond direct mentorship, I am also enthusiastic at sharing professional knowledge and my own experience through writing. I have been **blogging for 10 years, covering various topics including tutorials on computer vision algorithms and my experiences as a graduate student**. My WeChat newsletter has over 500 subscribers from all over the world. In the future, I would like to continue the practice of writing accessible scientific articles, thereby promoting HCI research to a broader audience.

Pedagogical Philosophy and Lab Culture

I hold three pedagogical beliefs: (1) motivating student learning through *relatable projects that address practical issues*, (2) encouraging *early research participation* for undergraduate students, and (3) making knowledge accessible by *creating tools and lively examples*. Project-based courses give students opportunities to develop skills such as team communication and independent learning, which are essential for their professional development. I am also committed to providing early research opportunities to create a diverse and inclusive lab culture. Lastly, I believe that there is no "hard" knowledge, but only "inaccessible" knowledge. From my experience of writing popular science articles, I would like to incorporate my instruction with lively examples to make concepts and algorithms accessible and create tools to facilitate students' own exploration.

I deeply believe in the power of collaboration. As a research advisor, I want to best support my advisees' work through weekly lab meetings, team-based projects, and encourage them to work across different areas with different professors. Developing industrial connections will be another important aspect of my lab culture. I encourage students to apply their expertise to practical problems through internships, which gives their work the potential to impact millions of users, as mine has.

Teaching Plans

My teaching experience has prepared me to lead courses of different levels on a variety of topics. I would be happy to teach introductory levels of computer science classes, as well as specific topics including web development, mobile programming, and interaction design. I also look forward to teaching HCI related classes, listed as follows:

Introduction to Human-Computer Interaction. This undergraduate-level class will focus on introducing the field of HCI by connecting the literature with real-world problems. Students will learn and practice skills, including user-centered design, rapid prototyping and evaluation techniques, to deliver a final project.

Natural Language Processing for Interactive Systems. This class introduces practical NLP techniques that are used in interactive systems such as conversational agents, language translators, and assistive writing systems. Through weekly assignments and a final project, it also offers hands-on opportunities for students to apply the techniques to develop their own intelligent systems.

Quantitative and Qualitative Research Methods. This graduate-level class will cover essential research methods for HCl, including quantitative methods (e.g., hypothesis testing, experimental design, Frequentist and Bayesian statistics), and qualitative methods (e.g., interviews, surveys, code-analysis). Students will acquire fundamental skills to design, conduct, and analyze HCl research.

Accessibility Seminar. A graduate-level reading seminar focused on accessibility research. Students read and prepare discussions for weekly literature on histories, sociological understandings and assistive technologies for people with disabilities (sensory, motor, cognitive, etc.).