Teaching Statement

Tzu-Sheng Kuo

I am the first person in my family to attend high school and university. As a first-generation student, I learned firsthand how education can transform a person's life. This transformative experience shapes my approach as an educator, with the goal of supporting students from all backgrounds as they pursue their dreams.

1. Teaching Experience

I have been a teaching assistant for eight courses, as detailed in my CV, ranging from technical ones like *Machine Learning* and *Signals & Systems* to core HCI courses. Below, I highlight the three most relevant to my HCI research.

Stanford CS347: HCI Foundations & Frontiers — Instructors: Prof. Parastoo Abtahi and Prof. Danaé Metaxa
This course provided an advanced survey of HCI research for senior and graduate students. It covered topics including ubiquitous computing, social computing, design methods, human cognition, human-AI interaction, and more. Instructors shared classic and frontier research in lectures, while I led weekly paper discussions and hosted office hours. We also guided students through projects with the goal of submitting them as posters to top HCI venues.

In course evaluations, students wrote that "Tzu-Sheng always had thoughtful questions on hand when the discussion came to a stalling point. When the discussions were lively, Tzu-Sheng took a step back and allowed the students to lead. I really enjoyed how sections flowed." Other students commented on my teaching style, noting my "passion for the subject matter" and that I was "friendly and encouraging to students." They described me as "helpful during office hours," citing my "broad knowledge of HCI and providing helpful reference papers," and sharing how I enabled them to "think critically about research." I received **Stanford's Outstanding Course Assistant Award** for this course.

Stanford CS147: Introduction to HCI — Instructor: Prof. James Landay
This course is designed for junior undergraduate students new to HCI. In lectures, the instructor introduced fundamental HCI principles and methods, such as user-centered design, rapid prototyping, and heuristic evaluation. In weekly design studios, I guided students in applying these concepts to their projects, which they showcased at a final project expo that was open to design professionals from the Bay Area.

In course evaluations, students wrote how I clarified lectures and guided projects, noting "Tzu-Sheng was an amazing section leader and every section was extremely informative and clarified lecture material," as well as "helping us dive deeper into the design methodology, and giving really constructive feedback!" Others wrote about my balance of rigor and support, sharing that "I love Tzu-Sheng‼ He's wonderful at providing constructive criticism and keeping you on track," and "He was friendly, but also constructive with his evaluations and teaching." Overall, they described my teaching style as "very kind and responsive," "attentive to detail," and "very fair, and willing to help."

CMU 05430: Programming Usable Interfaces — Instructor: Prof. Dominik Moritz
This course is designed for HCI master's students pursuing industry careers. The instructor covered core UI design concepts in lectures, and I taught students how to code in weekly labs. While CMU did not have student evaluations for TAs, the instructor wrote in his review: "Tzu-Sheng was fantastic. He delivered all his work on time, all the feedback from students was that they appreciated their TA, was proactive about finding ways to improve the class and how we run things, and was empathetic to difficulties students in the class had."

2. Mentorship Experience

When it comes to research mentorship, my goal is to help mentees become independent researchers. I prioritize developing their research skills and taste, rather than having them implement my ideas. I work alongside each mentee to formulate research questions, design systems and studies, and interpret the results. I have **mentored and co-authored publications with five BS and MS students** across CMU, Columbia, Tsinghua, and UC Berkeley.

Beyond mentoring students at the individual level, I **co-led the Graduate Application Support Program** at CMU's School of Computer Science from 2022 to 2025. In this role, I recruited PhD students to mentor applicants who lack guidance from people familiar with the process, such as first-generation students or those from under-resourced backgrounds. Over four years, we **mentored 478 such applicants worldwide** in applying to CS PhD programs.

3. Building Academic Communities

Education is also nurtured within the communities we participate in and actively build. For example, I am deeply engaged in the HCI community, serving as **Student Volunteer Co-Chair for ACM CHI 2025 and 2026, where I led over 400 student volunteers**. Since most of them are new to HCI, my co-chairs and I prioritized helping them

connect with both senior researchers and their peers. Having made lifelong friends at these conferences myself, I wanted newcomers to find the same supportive academic home that shaped my own growth.

My expertise in building academic communities stems from my undergraduate experience **co-founding Taiwan's first student-run makerspace and hardware hackathon**. With these initiatives, I cultivated a community where students could explore interests beyond the classroom, grow together by learning from peers, and become capable of tackling open-ended problems through teamwork. Both initiatives remain actively run by students today, building on the legacy of the **$70,000 USD we raised from the Taipei City Government and 22 companies** in 2017.

4. Teaching Philosophy

My background as a first-generation student and my experiences described above shape my teaching philosophy.

First, I meet students where they are. I believe in the potential of every student, regardless of their background or current academic achievements. I tailor my teaching materials and mentoring style to their starting point and the challenges they face, supporting them to grow into their aspirations.

Second, I teach students *how* to learn and research, rather than providing direct answers or telling them what to do. In a rapidly changing world, training students to become independent learners and researchers is more important than ever. Today's knowledge may quickly fade, but the skills to acquire and create new knowledge will never expire.

Finally, I build communities to enable collective growth. Across the HCI and maker communities, I have seen students elevate each other by sharing knowledge and supporting peers. I will continue fostering these environments, from my classroom and research group to society, because I believe we achieve far more together than alone.

5. Future Courses

My academic training spans the entire technology stack, from my BS and MS in Electrical Engineering to my PhD in Computer Science and HCI. Combined with my recent experience working on frontier AI at Google DeepMind, this foundation equips me to teach everything from the silicon to the human aspects of computing, remaining highly adaptable to the department's needs. Below are a few examples of courses I am well prepared to teach.

Undergraduate Courses

Introduction to HCI: Students will learn foundational HCI concepts and methods in lectures, including needfinding, ideation, prototyping, critique, and evaluation. Students will then apply them through team projects during hands-on design studios. The teaching materials will build on my experience TAing the equivalent class at Stanford.

Human-Centered AI: This course is tailored to students interested in the human factors of AI, such as UX design for AI, explainable AI, and responsible AI. Through lectures, programming assignments, and final projects, students will learn to design effective human-AI interactions while integrating human-centered values into their designs.

Applied Machine Learning: This course equips students with the practical skills to apply ML algorithms. It covers supervised learning (e.g., decision trees, neural networks), unsupervised learning (e.g., k-means), reinforcement learning (e.g., Q-learning), and frontier AI. Through programming assignments and a final project, students will learn to train, evaluate, and apply AI to real-world problems.

Graduate Courses

Social Computing: This course focuses on the social aspects of HCI, studying technologies that affect groups, organizations, communities, and networks. Lectures cover the foundational concepts underpinning these technologies, such as social norms, moderation, anonymity, strong and weak ties, and collective intelligence. Students will review literature on existing social computing systems and prototype new ones through a final project.

AI Agents & Simulation: This course centers on frontier research exploring the use of AI agents for simulating human behavior, cognition, and social interactions, which is the focus of my work at Google DeepMind. Students will review the latest literature and work on a project applying agent simulation to novel use cases, while critically reflecting on the ethical implications of their work.

FATE in Sociotechnical Systems: This course takes a critical perspective, examining the structural injustices embedded within today's sociotechnical systems, including topics around fairness, accountability, transparency, and ethics (FATE). Students will read and discuss literature on weekly themes, while working on a project that reimagines alternative designs for today's systems.