Anhong Guo   Teaching Statement

Throughout my academic development, I have been extremely fortunate to learn from my teachers, mentors, peers and students. As an educator, my goal is to apply these experiences to create interactive and constructive learning environments to assist students at all levels in their education. Through teaching and mentoring, I want to cultivate the next generation of researchers and practitioners who understand the fundamental challenges in society, and create solutions to address those challenges in an ethical way.

My approach to teaching and mentoring students recognized (i) the individuality and evolving capabilities of students, (ii) the importance of deliberate practice and constant feedback for both my teaching and my students, and (iii) the value of engaging students before, during and after their time in my classes and their universities.

Teaching

The common characteristics of the teachers and mentors who impacted my career have been the passion they displayed for their work, as well as their encouragement and support for the people around them. Computing in general, and human-computer interaction (HCI) in particular, are fascinating fields that are transforming every aspects of the human society. In my teaching and mentoring, I strive to convey my passion to inspire others.

At Carnegie Mellon University, I have participated in various aspects of teaching in several courses. As a co-instructor of User Centered Research & Evaluation (05-410/610) in Fall 2018, I was responsible for teaching the weekly recitation sessions for 20 students (16 graduate and 4 undergraduate) on User Experience (UX) methods, including contextual inquiry, think-aloud, interview, design speed dating, evaluation, etc. I also hosted weekly office hours, helped design team projects and final exam questions, as well as graded student materials. During my teaching, I often reminded my students to take a step back and think about how the methods fit into real-world scenarios and ways to adapt them, beyond just practicing the specifics of the methods themselves. My teaching evaluation was 4.75/5, and students commented: *"Anhong is this Buddha looking person that is super nice, super talented, super care about his students, and clams us down every time by his peaceful smile. My team and I all feel extremely lucky to have him as our TA. Thank you!! This might be the nicest review I have ever given so far"*; and *"You're awesome! Thank you for being so supportive, encouraging, and knowledgeable."*

In Spring 2018, I assisted with teaching the Accessibility Project course (05-899). I gave lectures on applied computer vision for accessibility, and prepared a boilerplate iOS app allowing students to quickly prototype vision-based applications. I also mentored a team of students to work with the Blind & Vision Rehabilitation Services of Pittsburgh, and designed a prototype LightProbe that helps blind people interpret appliance states by detecting LED color and flash patterns. For many students in this course, it was their first experience working with people with disabilities, and many reflected it as one of their most eye-opening and meaningful learning experiences.

Additionally, I was the TA of Designing Human-Centered Systems (05-391/891) in Spring 2017, in which I graded and provided feedback on student projects on mouse-based selection, text entry, mobile sensor-based input, etc. I have also routinely given guest lectures in a wide range of courses, including Crowd Programming, Human Factors, Prototyping & Fabrication, Computational Ethics for NLP, etc.

Experience can be enhanced by structured training, so I enrolled in CMU Eberly Center's future faculty program. I participated in three teaching workshops on teaching inclusively and leveraging team work, and acquired one-on-one feedback on several teaching sessions. I have integrated many techniques into my teaching, such as providing hands-on opportunities in class, and fostering safe class environments for every student to contribute ideas.

Mentorship

I have been fortunate to mentor over 10 undergraduate and master's students on various research projects. Jun-

han Kong worked on a computer vision pipeline for reverse engineering state diagrams of existing touchscreen interfaces from usage videos, which resulted in a second-author full paper at UIST 2019, and an undergraduate research competition award (The Boeing Blue Skies Award: Game Changer). She has been working on extending that work to support older adults in using complex user interfaces with visual overlays, which resulted in a first-author demo paper at ASSETS 2019, and an upcoming full paper submission. She is applying for PhD programs this year, and looking to continue these directions. Anuraag Jain worked on deploying a crowd-AI camera sensing system, which resulted in a second-author paper at Ubicomp 2018. He then founded the startup Zensors based on the research project. Other students have contributed to various parts of my research, then moved onto graduate programs and industry jobs, often applying the unique skills acquired through my mentorship. Haoran Qi worked on a real-time computer vision component for assisting blind users access appliance control panels (UIST 2016), then became a software engineer at Google. Recently, he transitioned into the Google Accessibility Engineering team to work on a vision-based app to assist people with visual impairments, and has been engaging with me. It is a powerful reminder of how mentorship can create long-term collaborations and relationships.

I worked with these students in a combination of hands-on and hands-off mentoring styles, some coding and designing alongside me, others working on independent projects. I try to personalize my mentoring styles for different projects and students, and evolve them over time. Such diverse and successful mentoring experiences have been highly rewarding and they were also enlightening learning experiences for myself. I will continue to refine my mentoring approach to help my students learn and grow.

Community

Throughout my career, I have worked to bring computer science and HCI, more generally STEM education, to people in underrepresented communities and other disciplines. During the summer of 2018, I worked with the Codetalk program of St. Joseph Center in Venice, California (link) to mentor and help low income, underemployed and underserved women pursue entry level positions in the technology sector. In Pittsburgh, I have attended many local government programs such as the OVR STEM Career Expo (link) to engage people with disabilities (including many high school students) about the accessibility research we conduct at CMU, in order to inspire them to pursue a STEM career. Additionally, I have served as mentors twice for the Georgia Tech Mentor Jackets Program and others informally through social media, to guide many students to pursue researcher or practitioner careers in HCI. As a faculty member, I will continue my efforts in championing these issues, as well as building and growing the community both within the institution and in the local area.

Example Courses

I am qualified and excited to teach courses in the following areas, as well as a broad range of intro-level CS courses:

Human-Computer Interaction. Potential courses include introduction to HCI, interaction design studio, and user centered research methods. These are practice-oriented courses that teach the fundamentals of HCI and design. Topics include user research methods, brainstorming, prototyping, and evaluation.

Crowdsourcing/Human Computation. Potential courses include graduate-level research topics in crowdsourcing, human computation, and human-AI systems. These courses focus on crowd algorithms and workflows, methods for generating high quality data for machine learning, ethics, crowd-powered and human-AI systems.

Applied Artificial Intelligence. Potential courses include applied machine learning (ML), applied computer vision (CV), and human-AI interaction. These project-based courses introduce common ML and CV techniques, and students will engage in solving real-world problems by going through the AI development lifecycle.

Accessibility. Potential courses include assistive technology, and accessibility project studio. These graduate-level courses cover designs, technologies, and research for people with disabilities, and involves projects working with local organizations to apply HCI methods to design, develop, and evaluate prototype assistive technologies.