Teaching Statement

Kevin Fan

My teaching philosophy is driven by the devotion of sharing knowledge and experience to the community. As a researcher, I have the fortune to share my findings through papers, presentations, experiments, and most importantly, through interaction with students. I find it most rewarding to see the students grow and embrace the knowledge in their everyday lives.

I consider education in the field of **Human-Computer Interaction** (HCI) to be more than in the form of in-class lecture. From my experience, ***hands-on experience*** involving fieldwork researching and prototyping is just as important, and it helps students engage to the material and concept. Through the end-to-end process of user discovery, problem statement, idealization and design, iterative prototyping, experiments and evaluation, students cultivate their critical thinking and skillsets, and immerse in methodologies used in both academia and industry. Furthermore, through group projects, students hone their interpersonal skills and leadership. Lastly, a focus is also on ***academic writing and presentation***. This not only improves communication skills, but also strengthens the students' understanding of the concept as they educate the audience. The overall teaching method would focus on an interactive learning environment, promoting omnidirectional feedback loop among students, teacher, and users outside the classroom.

Teaching

During my years at Keio University, I have served as a teaching assistant to two graduate level courses. In *Innovation Pipeline – Fabrication*, I assisted students in studying the design of consumer electronics, explaining the theory behind the sensors and actuators that make the hardware function, as well as instructing the use of lab equipment such as laser cutter and 3D printer. In the course *Reality-Based Design*, I was involved in the teaching of HCI methodologies and research, including providing discussion and feedback to students' ideas, design, and prototypes. As our graduate school features a diverse academic background of students, many of which without a technical background, I am fueled to see these students learn, be amazed, and resulted in innovative ideas and prototypes. I also learned valuable experience of interacting with students with various strengths, and effectively explaining concepts through examples and analogy.

Mentoring

As a graduate student at Keio University, I was actively involved in mentoring fellow peers in the Master's degree program. During our weekly and monthly research lab meetings, I provided questions and feedbacks to their research presentations to prepare them for their academic paper writing and thesis presentation. I co-mentored two students more closely, transferring my experience in paper reading, research, experimental design, academic writing, and presentation. Suzanne Low explored a method to measure squeeze amount in soft objects by using smartphone camera to sense light intensities. Suzanne was the first author in a full paper at ACE 2013 and demonstration at SIGGRAPH Asia 2013 Emerging Technologies. Pei Ying Chiang, with an urban planning undergraduate degree, was exceptional in learning HCI design and research methods. Pei Ying creatively explored animating paper products with a clever use of thermal energy and edible foods. I find research mentoring to be as rewarding as teaching, as I am constantly motivated and inspired by the students' growth into a research mindset.

Courses

My experience has fueled me with passion for teaching, and prepared me to teach the following subjects:

Human-Computer Interaction (undergraduate)

This is an introductory to HCI where we explore how computers have been interweaved into our everyday interaction, and discover the problems they solve. This will be a hands-on course where students practice real-world user finding, problem statement, design methodologies, prototyping, and evaluation.

HCI Research (graduate)

This will be a research oriented course where students experience formulating research directions by surveying related literatures in the area of choice, including tangible medias, haptics, interface, wearable computing, VR/AR. We will also discuss experimental design and result analysis.

Virtual/Augmented Reality (undergraduate)

We will look at the consumer components of VR/AR, including head-mount-displays, off-the-shelf tracking, software, and real-world applications. This course will feature group projects

where students get hand-on experience creating VR/AR applications on head-mount-displays or phones.

Advanced VR/AR (graduate)

In the graduate level we delve deeper into the advancing researches in the next generation of VR/AR, including optics, computer vision, tracking, interaction, as well as cognitive science on immersion, presence, and cross-modality. Students will experience research papers and participate on projects focusing on the technique in each of the fields.

Computer Programming (undergraduate)

An introductory course on the concepts of computer programming, including object-orientated programming, functional programming, algorithms, and data structures. An emphasis will also be put on open source projects.