Juho Kim • Teaching Statement

My goal in teaching and mentoring is to create an interactive and constructive learning environment for students. I have found it rewarding to see my students learn and grow, and realized that a learning environment makes a big difference in students' experiences. A good environment is more than well-delivered lectures and well-designed curricula: it's a culture. I will carefully build a culture that increases interactivity, promotes learning by doing, and provides feedback. **Interactivity** encourages higher comprehension and reflection, and helps students have more control in their learning. I care about increasing student-teacher, student-student, and student-content interactivity. **Learning by doing** promotes tinkering with physical and digital artifacts. It provides an opportunity to turn abstract concepts into concrete examples, and naturally affords an iterative design process where students experience failing fast, often, and softly. Immediate and constructive **feedback** helps students discover missing links in their knowledge and adjust their understanding. I focus on creating an open environment where self- and peer-feedback is encouraged.

My teaching and mentoring experiences, as well as my research on online education, have helped prepare me to become a good teacher and mentor. I would like to teach, advise, explore novel educational technologies, and provide community support for the next generation of builders and designers of interactive technologies.

Teaching

I will be a co-instructor for MIT's User Interface Design and Implementation course (6.813/6.831) in Spring 2015, in which we are expecting around 300 undergraduate and graduate students. It is an intro-level Human-Computer Interaction (HCI) course that provides backgrounds in HCI methodology, design process, and hands-on user interface design and implementation with a semester-long group project. It is a rare opportunity as a graduate student at MIT to be an official instructor for a regular course. My responsibilities include delivering lectures, designing and facilitating in-class activities, hiring and supervising teaching assistants, and redesigning problem sets. We are implementing a flipped classroom model in this course, where we ask students to read the course material before class, take a short quiz in the beginning of the class, participate in various in-class activities, and attend weekly studio sections for peer feedback on group projects. It will be a great opportunity for me to gain an experience in planning and running a course before starting as faculty, and to practice various pedagogically effective approaches I believe in.

I also served as a teaching assistant for the same course in Spring 2012, for which I mentored 11 student project groups, facilitated multiple rounds of design critique sessions, and graded problem sets and project milestones. During four years in my undergraduate, I have worked as a private tutor in math, computer programming, English, and vocal training. The variety of teaching experiences helped me not only realize my passion in teaching, but also think about how to bring the benefits of one-to-one tutoring into classrooms with hundreds of students and even online classes with hundreds of thousands of students. I aim to apply active learning methods to my teaching, such as in-class discussions, small group tasks, frequent and targeted feedback, and peer instruction, while reducing one-way lecturing as much as possible. I also familiarize myself with novel education technologies, which may enable more interactive experiences within and outside of the classroom.

Mentoring

I have been fortunate to mentor talented and motivated students in various research projects. I mentored nine MIT undergraduates in learning-related HCI projects, two of whom I mentored for a full academic year with weekly in-person meetings. Sarah Weir designed a learnersourcing workflow for generating summary labels for how-to videos, which resulted in a full paper at CSCW 2015, a premier venue in HCI, with Sarah as the first author. She is also a 2nd place winner in student research competition at CHI 2014, a premier venue in HCI, and received a Robert M. Fano UROP (Undergraduate Research Opportunities Program) award in the EECS department at MIT. Phu Nguyen worked on a crowdsourcing workflow for extracting step-by-step information

from how-to videos, which resulted in a full paper at CHI 2014 with Phu as the second author, and a poster at CHI 2013 with Phu as the first author. I also mentored four students at Harvard and KAIST in a multi-institutional research project, BudgetWiser, which attempts to engage the public in a budgetary discussion online. I mentored the students in creating two live web interfaces and submitting two full papers to CHI 2015. Such diverse and successful mentoring experiences were highly rewarding, and I will continue to refine my mentoring approach to help my students grow as independent researchers.

Technologies for Teaching and Learning

I have a strong interest in improving teaching and learning with technology, which also aligns with my own research domain and expertise. I am interested in creating interactive exercises, systems for supporting active learning, and reusable infrastructure for courses. An example is RIMES, a system I built for enabling instructors to insert interactive exercises into a lecture video. Students can record their responses with drawing, audio, and video. Instructors can then review the submissions using the gallery interface, provide personalized feedback, and share example answers with the entire class. I plan to actively create and employ such technologies to enhance the learning experience for my students.

Community

Learning comes from not just sitting in classrooms but also from interacting with peers and colleagues in a community. I have taken a leadership role in expanding the HCI community at MIT and in the Boston area. I have co-organized the HCI seminar at MIT CSAIL [http://groups.csail.mit.edu/uid/seminar.shtml] since 2011, where we invited speakers from diverse institutions and research backgrounds. The attendance has been not just from MIT CSAIL, but also from other programs at MIT, as well as local schools and industry labs. I have also served as a co-organizer for BostonCHILabs [http://bostonchilabs.org/] since 2011, an alliance of academic and industry HCI researchers in the Boston area, where I organized various academic and social events for the community. I also co-organized Todam, a weekly interdisciplinary seminar series for Korean students in the Boston area for two years. As faculty, I will continue my effort in building and growing an academic community within the institution and local area.

Example Courses

Having mastered the skills to provide a solid conceptual ground in both computer science and HCI, 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**: Possible courses include introduction to HCI, interaction design studio, and graduate-level research topics in HCI. In all these courses I plan to incorporate a project component, where students follow the design process to define a problem, discover user needs, build multiple prototypes and iterate on them, evaluate with end users, and present the demo and findings.

- **Programming / Web Applications**: Possible courses include introduction to programming, software studio, and web applications. Topics would include the basics of programming, algorithms, data structures, and software engineering, as well as modern web development technologies and frameworks. All these courses will be project-based, with an emphasis on modularity, reusability, documentation, collaboration, and open source.

- **Crowdsourcing / Human Computation / Social Computing**: Possible courses include graduate-level research topics in crowdsourcing, human computation, and social computing. The courses will survey key topics and research methods, with an emphasis on paper critiques and peer discussions.

- **Learning at Scale**: This graduate-level course will cover key topics in this emerging area of research. It will examine existing massive open online courses (MOOCs), intelligent tutoring systems, and educational technologies, and encourage students to explore opportunities and limitations of technologies specifically designed for learning at scale. It will cover pedagogical theories, computational technologies, social learning models, and policy and legal issues around learning at scale.