

TEACHING STATEMENT - HAIJUN XIA

I firmly believe that a nurturing culture is what drives our civilization forward. Since the beginning of my career, I have been privileged to work with teachers, collaborators, and mentors who gave great attention to my development, without whom I may not have been able to apply for this faculty position. I have a passion and take great honor in joining the workforce to bring positive influence on my students and help them to achieve their full potential.

TEACHING EXPERIENCE

The ultimate goal of my teaching is to foster and connect talent. My teaching philosophy is to project my influence beyond the technical content of one subject to the students' intellectual and social development. Over the course of my Ph.D. at University of Toronto, I have worked as a teaching assistant for 10 classes on both undergraduate and graduate levels, including computer programming, software engineering, human-computer interaction, and advanced topics of information visualization. My roles in these courses include designing course materials, leading tutorials and workshops, and supervising group projects. I have recently co-taught a 3rd year undergraduate course in human-computer interaction with Professor Daniel Wigdor, where I am designing the course curriculum and material, giving lectures, and supervising group projects.

Fostering Talent: Beyond Individual Courses

When serving as a teaching assistant or a lecturer, I always ask myself: *how can I not only deliver the course material but also extend my influence beyond a 2-hour lab session or lecture?* I firmly believe this lies in cultivating a culture of learning among my students, with an aim to foster life-long learning. To achieve this, my teaching seeks to 1) *connect the course material to the big picture* and 2) *impart learning strategies to accelerate and motivate students' self-learning.*

When planning curricula and lectures, I broadly survey materials in other courses, trendy industry topics, and research breakthroughs, to build the connections to the course material via real world examples. When lecturing, I engage students by constantly highlighting the connections to the course material. For example, when lecturing on the design of questionnaires and interviews to gather user feedback, I use questionnaires and interview videos (with interview participants granting permission) from my own research projects to demonstrate how the techniques are used in actual research projects.

"Give a man a fish and you feed him a day; teach a man to fish and you feed him for a lifetime." Apart from teaching knowledge, I am also devoted to pass on skills and methods to students so they can benefit elsewhere. When answering students' questions in programming lab sessions and workshops, I often sit down with students to reason and discuss with them to show my perspective and to teach them a way of thinking, hopefully to lead them to the joy of self-discovery. In the course evaluation of Introduction to Computer Programming, my lab sessions were highly rated with one student commenting that *"You don't learn how to program python from Haijun. You learn first how to think and then how to program."*

Connecting Talents: Beyond Individual Learning

Learning is a social activity. Inspired from my collaboration and teaching experience, I find that one of the best ways to support one's potential and creativity is to situate oneself within a group of creative people. I work to create positive, inclusive, and engaging learning environments so that my students *feel safe and comfortable to unleash their intellectual curiosity.*

I also actively help students to build long-term relationships with their peers and instructors. I believe that *strong social connections are the key to the development of their life and career.* From every programming lab session to every HCI design workshop I led, I always allocate time at end of class to invite students to present their designs or share their insights with others. For example, in the Introduction of Human-Computer Interaction course I am teaching this term, I pair groups of students so that each group serves as the jury for other groups. This allows students to evaluate their own work from a different perspective and learn from their peers. *Seeing students debate, complement, and connect with each other is a truly wonderful experience.* Students appreciated the interaction in the class and commented that *"Super fun! I made more friends in this class than the two years here"*.

Whenever possible, I also try to expose students to academic events through the attendance of research talks, visits to research labs, and volunteering as research subjects. For example, I encourage the undergraduate students who are taking my Introduction of HCI course to attend the Toronto User Experience talk series and give them attendance credit. Students found learning about the cutting-edge technologies eye-opening and they have started to relate these topics to the course materials and actively asked questions in lectures! I believe these engagements *effective for connecting students to bigger academic communities for their intellectual development.*

RESEARCH MENTORSHIP

I have had the pleasure of working with 3 junior graduate students and 2 undergraduate students, in which I mentored their research projects. For the undergraduate students, *I ensured they got to experience all aspects of a research project, as they often make career decisions based on these experiences.* For graduate students, I always challenge them to *think deeper to aim for a theoretical contribution and apply their techniques broader to understand the strength and limitations of the research.* These students work closely with me on all the phases of a research project. Three are co-authors on my research papers and two are first authors.

During my visit to the Future Reality lab at New York University at 2017, Sebastian Herscher, a first year Ph.D. student, was interested in my research, and began working with me on Spacetime [Figure 1]. Sebastian has excellent engineering skills but lacked a bit HCI ideation skills. To help him, we conducted daily brainstorming session for three weeks to explore ideas in several HCI domains. Sebastian and I also worked closely on the literature review, implementation, user study, and paper writing. He was the second author on our UIST 2018 paper. Since then, we continue to collaborate, where I advised his recent CHI 2019 submission, and we are continuing our collaboration for a UIST 2019 project.

Inspired by the Spacetime project, Devamardeep Hayatpur, a 3rd year undergraduate student at University of Toronto Mississauga, worked with me to explore novel interaction techniques in virtual reality and submitted his first research paper to CHI 2019 as a first author [Figure 2]. Michael Wang, a first-year undergraduate student at University of Toronto, learned about my research topic and contributed on the DataInk project [Figure 3]. Both Devamardeep and Michael were still developing their technical and research skills. To help them get on track, I carefully adjusted the level of technical challenges to suit the development of their skills.



Figure 1. Sebastian and I collaborated in Spacetime, a multi-user 3D scene editing application in Virtual Reality. The yellow avatar was controlled by Sebastian. He took this shot on his work station.



Figure 2. Devamardeep prepared a 3D scene in Virtual Reality for his first research paper submission.

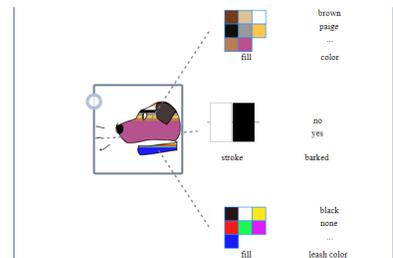


Figure 3. Michael learned d3.js and helped to develop the glyph panel in DataInk.

PROPOSED COURSES and RESEARCH OPPORTUNITIES

I look forward to contributing courses to the established ecosystem of courses by collaborating closely with the faculty members, as well as engaging and supervising undergraduate and master students on research projects in my lab. I would like to contribute to the introductory courses for both the undergraduate and master programs. I am also particularly excited to design new curriculum for the following advanced courses.

Graduate Courses

Theories and Concepts in HCI - Advanced seminar course.
Students read and present foundational research papers in HCI and its subareas that focuses on the concept-driven research or the theoretical perspective of HCI . A term paper requires students to focus on theoretical foundation of their research topics.

Special Topics: The Spectrum of Reality - Advanced project-based course.
Students read and present HCI research papers on Augmented, Virtual, and Mixed Realities. A term project requires students to explore, build, and evaluate novel interaction techniques or useful applications in these domains.

Special Topics: The Power of Representations in HCI - Advanced project-based course.
Students read and present HCI research papers on novel representations in HCI. A term project requires students to build novel representations of digital content and interface elements as well as explore and evaluate the use of the novel representations.

Special Topics: Interaction Techniques and Modalities - Advanced project-based course.
Students read and present HCI research papers on novel interaction techniques and modalities. A term project requires students to build and evaluate novel interaction techniques, interaction modalities, and input devices.