Teaching and Mentoring Statement

My teaching philosophy is centered on creating a dynamic and inclusive learning environment that empowers students to become creative problem solvers. Drawing on Self-Determination Theory, I foster a sense of autonomy and relatedness, encouraging students from all backgrounds to engage deeply with the material. I employ a problem-based learning approach that integrates theoretical lectures with hands-on projects, a method I find particularly effective for a technical and applied field like Human-Computer Interaction (HCI). My goal is to equip students with the critical thinking and technical skills necessary not only to understand the field but also to shape its future.

My commitment to teaching excellence spans over two and a half decades, beginning in the 1990s when I first entered academia. Throughout my career, I have taught at six different institutions across diverse academic environments, including Texas A&M University, Northwestern University, Pennsylvania State University, Simon Fraser University, Northeastern University, and UC Santa Cruz. This journey has enabled me to develop and deliver an extensive portfolio of teaching, encompassing over 45 distinct courses that span a broad spectrum of subjects, including Artificial Intelligence, Operating Systems, Software Engineering, Game Design, Human-Computer Interaction, Computer Graphics, Data Science, and User Experience Research. My teaching has evolved from traditional computer science courses in the late 1990s to pioneering interdisciplinary curricula that bridge computer science, design, AI, HCI, and human behavior. This evolution reflects not only my own growth as an educator but also my ability to anticipate and respond to the changing needs of the field. From teaching middle and high school students in summer camps to mentoring PhD students and postdoctoral fellows, I have consistently demonstrated my passion for education at all levels and my commitment to nurturing the next generation of technology leaders.

1. A Reflective Approach to Teaching

I am committed to a continuous cycle of reflection and improvement in my teaching. I actively solicit student feedback, engage with pedagogical research, and adapt my methods to meet the evolving needs of my students and the field. This reflective practice is illustrated in the following examples from my recent teaching career.

1.1. Adaptation and Engagement in a Remote Environment

Upon joining UC Santa Cruz, I was tasked with developing and teaching a new required course, Game User Research (GAME 251), under the challenging circumstances of the COVID-19 pandemic and a rapid transition to remote instruction. My primary objective was to maintain a high level of student engagement and ensure the course's learning outcomes were met despite the challenges of being online. To achieve this, I redesigned the course to be highly interactive, utilizing breakout rooms for collaborative work and leveraging Zoom's features for dynamic discussions. I also prioritized accessibility and support, offering flexible office hours and maintaining open lines of communication. This approach proved successful, with students not only mastering mixed-methods research but also producing high-quality work, including one project that was developed into a journal paper. In the Student Experience in Teaching Survey (SETS) administered by UCSC, a student commented, "I appreciate this professor's flexible availability. I felt like I could contact her at almost any time

and would get a quick response. She was also very receptive to feedback from her students, which allowed us to address issues in the class and fix them accordingly."

1.2. Fostering Innovation through Project-Based Learning

I designed the graduate Serious Games capstone sequence (GAME 256/257) as a project-centered curriculum that challenges students to create and deploy a complete, impactful game. The course attracted a mix of master's and PhD students, necessitating a flexible, mentorship-focused approach. I provided a theoretical foundation through lectures and then acted as a coach, guiding students through the iterative process of design, development, and evaluation. The results were exceptional. One student team developed an educational game that was tested and deployed at the Egyptian Museum in San Jose. At the same time, another created an Alternate Reality Game to foster resilience, which was deployed at UCSC; a paper from that project was published in the HCII conference and was awarded the 'Best Paper award. The SETS was overwhelmingly positive, with one student noting it was, "One of the best classes to learn how to make a serious game."

1.3. Cultivating Critical Thinking in AI and Ethics

Recognizing the profound ethical questions raised by the rapid advancement of Artificial Intelligence, I developed a new undergraduate course, Human Centered AI (CMPM 80H), approved as a general education course. My goal was to move beyond a purely technical understanding of AI and to engage students in a critical examination of its societal impact. The course was structured around interactive discussions, case studies, and group projects, empowering students to think critically about their role in the development and deployment of AI technologies. Through the courses, students learn to write a paper that focuses on a particular argument or position regarding the impact of AI. They developed their argument and supported their statements with literature and research. Their writing goes through iterative development, with the TA for the course and me giving them clear feedback to improve their arguments and writing. The course had a significant impact on the students involved, with one remarking, "This class set me on a new path in a potential career, as I am so interested in one aspect of the field that I had previously never heard of."

1.4. Leading a course on Climate Resilience and Wellbeing

One of my most out-of-the-box pedagogical endeavors has been the development and co-leadership of the UC-wide Climate Resilience, Health and Wellbeing course, an interdisciplinary initiative that integrates mindfulness practice to help students build resilience in the face of climate change and other adversities. This course, offered across all 10 UC campuses, addresses a critical gap in climate education by focusing not only on the science of climate change but also on the psychological and social dimensions often overlooked in traditional curricula.

The course design reflects my commitment to holistic education that nurtures both intellectual and emotional growth. Working with leading experts, including Dr. Elissa Epel from UCSF and Dr. Jyoti Mishra from UCSD, we implemented a curriculum that transforms climate distress into empowered action through what we call "inner work" and "outer work." The inner work focuses on developing climate resilience skills through scientifically based mindfulness practices, emotion regulation techniques, and nature-embedded meditation. Students engage in weekly nature meditation sessions, learning practices such as "Breathing with Nature,"

"Grounding with Earth," and "Listening to Nature" that help them process climate-related emotions in healthy ways. The outer work focuses on projects deployed within the community to raise climate awareness and build resilience.

What makes this course particularly innovative is its integration of contemplative practices with rigorous academic content and community engagement. Students don't just learn about climate science—they develop the psychological tools to cope with climate anxiety and channel it into meaningful action. The course includes weekly reflective journaling, small group discussions led by certified mindfulness instructors, and collaborative climate action projects that connect students with community organizations. This approach recognizes that effective climate education must address the whole person, not just their cognitive understanding. One student said, “In the end, this course taught me that climate resilience is about more than just surviving. It’s about staying connected to yourself, your community, and the planet. It’s about caring, not just coping. And it’s about knowing that small actions, done with care and intention, can lead to bigger change. I’m leaving this class with new habits, new ideas, and a stronger sense of purpose. And I plan to keep going, one step at a time.”

2. Integrating Research and Teaching

My research and teaching are inextricably linked. This integration manifests in several concrete ways.

One exemplary case is my recent work on AI-powered classroom feedback systems, developed in collaboration with my graduate students Sai Maram and Ulia Zaman. This research emerged from the challenge that many of our classrooms are becoming too large to allow for regular feedback and the adaptation of teaching methods to support student success. Traditional end-of-quarter surveys provide limited, untimely feedback that offers little actionable insight for course improvement. Working with my students and the Teaching and Learning Center at UCSC, we developed a system where we used Large Language Models to collect anonymous student feedback through conversational interfaces; these comments are then summarized and sent to the instructors, who can then adjust the course content, delivery, or pacing based on the comments or students’ reflections. This research was directly implemented in several courses within the department, including CMPM 130: User Interface and User Experience Design and HCI 220: Ethics and Activision in Tech and Design. We deployed the system at different intervals to gather rich, contextual feedback. The results were remarkable—not only did we achieve higher participation rates and more detailed feedback than traditional surveys, but students also appreciated the conversational format and the level of autonomy it gave them in their own learning as they saw their comments integrated into the classroom. This work resulted in a peer-reviewed publication while simultaneously improving teaching effectiveness and student engagement within our department.

Another powerful example is the integration of my NSF-funded research on using games to teach parallel programming within operating systems courses. Students' work uses the game and visualization tools to help them think through and learn different concepts of parallelism. The game design and visualization tools were developed to foster a metacognitive approach to learning, encouraging reflection and adaptation. These tools provide students with invaluable skills while contributing to ongoing research projects.

In addition to integrating classroom teaching and research, I encourage graduate and undergraduate students to join my lab and learn alongside others through practical research projects. With over $10 million in

external funding allocated to my team over my tenure, I have created numerous research opportunities for students at all levels. My lab serves as a training ground where undergraduate and graduate students work alongside postdoctoral fellows to gain experience in communication, collaborative work, project management, and disciplinary concepts, including AI engineering, data science pipelines, user interface design, and methods for studying user experience. This approach has proven highly successful—many of the students who have joined my lab have gone on to positions at leading companies, such as Meta, Amazon, Microsoft, and Blizzard. And many of the undergraduate students have joined graduate programs. The research skills they develop through this integrated approach prepare them not just to consume knowledge, but to create it.

3. Mentoring the Next Generation

I am deeply invested in my students' success. I have had the privilege of mentoring 19 PhD students (10 of whom have completed their degrees) and 10 postdoctoral fellows (7 of whom have completed their appointments). Some have gone on to secure positions at leading universities, including Reykjavík University, Northeastern University, Utrecht University, Imam Abdulrahman Bin Faisal University, and the University of Trier in Tunisia, as well as at companies such as Microsoft, Meta, Amazon, Workday, Ubisoft, and Blizzard. I take a personalized approach to mentoring, working closely with each student to cultivate their research interests and support their career aspirations. Most of my students and postdocs also write research proposals to multiple sources, including non-profits, for-profits, and federal funding, as this is an important experience to help them fund their own research and to understand the impact of their research ideas and shape them as they develop.