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Teaching Statement

I have always found teaching an indispensable component of my academic career because it not only provides a rewarding and impactful opportunity to share my knowledge with others, but it also helps me to learn from others. Here, I explain my existing efforts in teaching and mentorship, and how I intend to continue and expand these efforts in my academic career.

TEACHING EXPERIENCE

During both undergraduate and graduate programs, I gained plenty of teaching experience as a teaching assistant for six courses. As an undergraduate, I taught undergraduate courses including *Introduction to Programming (C++)*, *Advanced Programming (Java)*, and *Software Engineering*. In these courses, I did a variety of tasks including designing and grading exams, homeworks, and projects, and holding discussion sessions.

During my graduate studies, I taught more advanced courses such as *Multimedia Networks* and *Stochastic Processes*. In these courses, in addition to a teaching assistant's regular tasks, I had the opportunity to rework the course content with the instructor. As a PhD student at the University of Illinois, I have also had the opportunity to bolster my teaching experience as a teaching assistant of a 200 student class (*Introduction to Data Mining*) with both undergraduate and graduate students. To manage students' questions in such a scale, we decided to use an incentive policy to encourage students to answer their peers' questions on Piazza: those students who participated in the Piazza discussions and answered their peers' questions would receive extra credit if their answers were endorsed by a teaching assistant. To implement this policy, I was responsible for answering student questions and endorsing correct answers. During the semester, almost all of the students (165 students) made at least one contribution to the course's Piazza page which resulted in more than 2300 contributions (i.e., posts, responses, edits, follow-ups, and comments). While answering/ endorsing these many posts was an overwhelming task, I really enjoyed such a high engagement between students which made Piazza the main source of reference for students to find answers to their questions.

In addition to my teaching assistant experiences, I was invited to present a guest lecture about my research on advertising algorithms in the Computational Advertising course (CS 498), which provided me a valuable experience in learning how to prepare the material for a course lecture.

Courses I can teach: Having taught across the curriculum, I am qualified to teach a variety of courses in the areas of Human-Computer Interaction, Social Computing, and Data Mining at both undergraduate and graduate levels. For example, an undergraduate "*Human-Computer Interaction*" course would cover fundamentals of HCI such as user-interface design, human-centered design, social computing, crowdsourcing, and visualization. "*Research Topics in Social Computing*", a graduate level course, is another course that would provide students with a deeper understanding of how socio-technical systems emerge, grow, and sometimes diminish. In this project-based course, I aim to involve students in team-based projects to analyze the dynamics of socio-technical systems and users' interaction with these systems as well as to prototype and evaluate new socio-technical systems.

I am also interested in designing special topic courses in areas related to my research. For example, one course that I am interested to propose is "*Designing Algorithmic Socio-Technical Systems*". This discussion and project-based class will cover recent research on users' interaction with opaque algorithmic socio-technical systems and teaches students to critically analyze these systems' designs within their real-world context. Students will then work on team-based projects where they will redesign existing/design new algorithmic socio-technical systems in order to build less biased algorithmic systems and provide a more informed interaction between users and the system.

MENTORSHIP EXPERIENCE

During graduate school, I have had the opportunity of mentoring seven students in research: I advised four undergraduate students in learning the HCI fundamentals and conducting research in this area, and guided three master students in their theses' projects. These collaborations resulted in three published and two submitted papers at major HCI and social computing conferences such as CHI, ICWSM, and SocInfo. In all these mentorship experiences, advising students has been a mutual learning and enhancing process for me: while I have helped my students grow, they have also helped me reflect on my research ideas and improve my critical thinking skills. To describe this process, here I explain my mentorship experience with three students.

Andy Vuong, a University of Illinois undergraduate, began working with me as a part of the PURE program (Promoting Undergraduate Research in Engineering). The goal of this program was teaching undergraduates the fundamentals of a research area in Computer Science. Andy, however, went beyond learning the basics of HCI research; he became involved in a project that I was working on at the time about users' interaction with opaque algorithmic social feeds. Andy's enthusiasm for learning research motivated me to not only teach him qualitative coding skills, but also involve him in analyzing and coding the interview data I collected for this project. Andy became a co-author on our CHI 2015 paper which received a best paper award. He sent me an email after: *"I am really appreciative that you took me on as a PURE mentee many semesters ago and gave me early exposure to what HCI work is like."*

Nouran Soliman is another undergraduate student who I mentored during a six-month internship at UIUC. I got to know Nouran when we were both doing an internship at the Adobe Research. Nouran's interest and motivation in conducting HCI research inspired me to involve her in a research project around political filter bubbles. While Nouran was an undergraduate student at a university in Egypt, she managed to work on this project mostly remotely. We spent months designing a user study to investigate the effects of social comparison in breaking the political filter bubbles. During this process, Nouran built a Twitter application by which users were exposed to the political bias of the posts they read in different aspects. I then taught her skills of semi-structured interviewing and qualitative coding. Nouran used these skills to conduct a user study via the Twitter application she built that resulted in a submission to the CHI 2019 case study. With her successful internship experience in HCI research, I have encouraged Nouran to apply to graduate school in the area of HCI, and she is currently preparing her applications.

In addition to mentoring undergraduate students, I had the opportunity to advise graduate students in their theses' projects as well. One example is Payam Siyari who I mentored on a research project about inferring network topology from incomplete data. I helped Payam find and interpret related work on the topic, provided him a framework that I built in my research for sampling from information diffusion networks, and held multiple discussion sessions with him to improve his developed method. This project not only resulted in a publication at IEEE SocInfo 2012 conference but it also was chosen to be published in the ASE Human journal as top 3% papers of the conference. Payam joined the PhD program at Georgia Tech the year after, and has recently become a data scientist at Uber.

During my mentorship experience, I have tried to support each student as it best suited them: some want to improve their technical skills to join industry, while some desire to experience research and determine if they are a good fit for graduate school. Some need ideas to start with while some have already many great ideas, but need help with implementing those ideas. So I adapt my mentoring approach to each student's goals and abilities, and I look forward to pursuing this approach in my academic career as well.