

The lack of diversity in computer science is a both pressing and paramount problem that requires direct action from members of our community. Computer science is increasingly becoming a foundational subject across all types of careers, so ensuring diverse access to and participation in computer science education is key to promoting more equitable socioeconomic outcomes for students. In addition, research thrives with the inclusion of diverse perspectives and diverse perspectives are needed to avoid encoding implicit biases in technology. As a faculty member, I hope to provide a welcoming and equitable experience for students entering the general field and for students pursuing careers in research.

1 Diversity in the General Field

Improving diversity in computer science and CS-adjacent careers requires addressing the *pipeline problem*. While employers are working to diversify their hiring processes, the candidate pool is not representative of the general population. I plan to work toward fixing the pipeline problem as a faculty member by (i) increasing exposure to computer science through events such as programming contests for students from underrepresented groups, (ii) ensuring equitable access to office hours and feedback by explicitly reaching out to students, and (iii) instilling confidence in the preparedness of students for working in the field.

Programming contests. I believe directly organizing enjoyable experiences for students from underrepresented groups that expose them to computer science can increase the likelihood that they pursue a related career. I have experience volunteer organizing the Cornell High School Programming Contest from 2018 to 2021. These contests were open to all high school students, but considerable effort was put toward encouraging participation from students with little prior experience. Seeing the eagerness with which students from underrepresented groups participated in these events gives me confidence that they are successful in broadening participation in computer science. I plan to organize such events as a faculty member, for both local high school and undergraduate students.

Equity in course instruction. Instructors have outsize impact on improving diversity in the computer science pipeline because it is in taking introductory and undergraduate courses that students with no previous background in computer science decide whether or not to further pursue a career in the field. During my experience organizing high school programming contests, I found that most requests for guidance came from a specific demographic group. We worked to make this system more equitable by reaching out to teams that had many unsolved problems and proactively offering feedback. This is also an equity issue for students taking courses; some students may view seeking help from office hours as an admission of failure and avoid doing so. While teaching courses, I will address this by explicitly monitoring the progress of students and reaching out to students that are under-utilizing valuable office hour resources. To further normalize the experience of attending office hours, I plan to set as a first assignment in all of my courses “to briefly meet with me in office hours;” I hope that these meetings allow me to learn the backgrounds and goals of students and create a welcoming environment for the remainder of the semesters.

Instilling confidence. In my experience, students can waiver in their resolve to pursue a career in CS because they feel under-qualified. For example, I observed this when I volunteered for AthenaHacks—a hackathon at USC for women and non-binary students—as a mentor. I provided guidance to a group of women hackers over a 24 hour period as they implemented a prototype of their idea. I made similar observations when, as an undergraduate intern at Face-

book, I mentored a younger USC computer science student via the Facebook University Mentor Program in both navigating their internship and charting their academic path back at USC. In both of these experiences, the students I worked with, at times, expressed a lack of confidence in their technical skills despite their clear proficiency! I plan to address this misconception as a faculty member in two ways. First, based on my experience coaching athletes, positive affirmation is a major avenue toward instilling confidence. When I interact with students in the classroom or in office hours, I will consciously make an effort to give feedback with positive affirmation, especially when students doubt their abilities. I also believe that humbling myself in front of students, such as readily admitting when I make a mistake during a lecture, will show students that a career in the field does not require some mystical (i.e., unattainable) level of technical mastery.

2 Diversity in CS Research

Lack of diversity in research also stems from the pipeline problem. Marginalized students are often not exposed to careers in research by their family or peers because of the relatively homogeneous composition of the research community. I plan to address this exposure problem head-on by (i) explicitly bringing research opportunities to undergraduates during course instruction and (ii) dedicating time and energy to directly mentoring undergraduates from underrepresented groups.

Exposure to research. As a member of the research community, I have access to knowledge and opportunities that can be used by students to further pursue research careers. For example, as a research intern at Microsoft Research, I mentored an undergraduate researcher, Lloyd Brown, as he prepared to apply to graduate schools. Though my contributions to Lloyd's graduate school application process were relatively tiny (e.g., connecting Lloyd to colleagues in his field of research from schools to which he intended to apply), they gave Lloyd useful context for his career path. As a faculty member, I concretely plan to offer research opportunities within my research group to students—especially students who may not have a prior connection to the research community—while teaching courses. This kind of direct outreach can substantively improve the diversity of the graduate school pipeline.

Direct mentorship. Beyond offering research opportunities to students, I also believe that dedicating my own time and energy to mentorship is crucial for improving diversity in the research community. I have experience mentoring two undergraduate students from underrepresented groups while at Cornell. The first of these students, Audrey Cheng, contributed meaningfully to my early dissertation work as second author on the Gryff paper. Audrey has continued pursuing a career in research and is now a PhD student at UC Berkeley. The second of these students, Janice Chan, worked with me to implement a benchmark application for several research systems. Though Janice is now a software engineer at Google and not pursuing a research career, she continues to actively work on distributed systems. I believe that direct, one-on-one mentorship keeps students engaged - more so than delegating this mentorship to graduate students. I intend to be directly involved with mentoring undergraduates on research projects as a faculty member.