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# DEI Statement

Even while the field of computer science is experiencing rapid growth, women and other minorities continue to be underrepresented in the classroom and the workplace. A recent NSF report shows that less than 20% of undergraduates enrolled in computer science degree programs are women, with similarly low rates for other minority groups.[1] Many programs and initiatives that I have worked on contribute to increasing the diversity in computer science, and I would love the opportunity to continue working towards this mission.

The problem of increasing representation for women and other underrepresented minorities (URMs) is complex, and students' career choices are inherently multi-faceted. Much outreach work that I have done focuses on recruiting and retaining women in technology. Several reasons have been hypothesized for women's unwillingness to choose computer science, including negative and "geeky" stereotypes about computer science culture, low confidence in their own computing abilities, and the feeling of social isolation in CS courses.

**Experience**

As a founding member of CS KickStart at U-M, a week-long summer camp designed for freshmen women to explore computer science, I saw that there was an overwhelming interest from women in learning basic CS skills. Each year that I was involved in the camp, we received over 100 applications. Due to financial and space limitations, we were only able to accept 25 students each year. This motivated me to co-create a new one-credit class, "EECS 198: Discover CS," with similar activities as CS KickStart, but with the ability to scale at a more sustainable rate. The goal of Discover CS was to give freshmen women a taste of computer science, show them what a CS career looks like, and encourage them to enroll in the introductory sequence of classes offered by CSE. To achieve these goals, we taught basic programming, hosted guest lectures from accomplished researchers, toured a local software company, heard from a panel of women in the tech industry, and funded "coffee meet-ups" to allow students in the class to connect with more senior CS students. We are currently running a longitudinal survey-based study to determine whether Discover CS significantly contributed to our goals, and initial results look promising. Multiple students have indicated that they will pursue computer science as either a major or a minor after taking this class.

My experience teaching courses such as Discover CS showed me that while dedicated outreach work is important, it is also important to ensure that the classroom is a safe and welcoming environment for all students. This involves building mentoring relationships with students and making sure that students know you are available to talk with them about classes, careers, or other professional struggles they may be facing. It also involves setting classroom guidelines and choosing activities where students feel comfortable participating, as well as intervening if an in-class situation could be hurtful to a student.

Discover CS primarily focused on recruiting women into computer science. While recruiting is a crucial first step, women and other URMs also need to be mentored and supported throughout their technical careers. I co-direct Girls Encoded, an organization

[1] "Women, Minorities, and Persons with Disabilities in Science and Engineering." National Science Foundation, March 8, 2019. Web. 31 Dec. 2019. `https://ncses.nsf.gov/pubs/nsf19304`.

within U-M's CSE department that runs outreach programs for students in all stages of their education, from middle school through graduate school. To support undergraduate women, we routinely hold career panels with women technologists to discuss how to thrive as a women in technology. We also hosted a celebration of women in computing, in collaboration with the U-M School of Music, Theater, and Dance, featuring lightning talks by women in computing and an opera highlighting the contributions of Ada Lovelace, widely considered to be the first programmer.

While most of my outreach work has focused on supporting women in technology, I have also been involved in broader efforts. I co-authored two successful Google grants for the Explore CS Research program, an initiative geared towards women and other URMs with the goal of encouraging students to try research and consider a research career. Approximately eighty students have participated over two years. Students are funded to complete a short research project with an experienced research mentor, culminating in a final poster session. Throughout the program, seminars and meet-ups are held, where students are mentored in the research process, applying to graduate school, and challenges such as imposter syndrome.

**Goals**

I would like to continue this important work, by leading new initiatives under Girls Encoded, as well as by seeking new collaborations with other faculty members working towards a more diverse community. Moving forward, I believe that several lines of outreach work would be particularly fruitful. One area that is critical to supporting women and URMs is mentoring. I am interested in continuing the Explore Computer Science Research program, which offers research experiences to undergraduate students, and engages a broad group of faculty to provide research mentorship. I want to ensure that students have access to student, faculty, and professional mentors. Mentoring provides academic support and wise perspective from older, more experienced computer scientists. Mentoring can take the form of one-on-one personalized interactions, or group events, such as a panel discussions.

I am also interested in doing more work with elementary and middle school students. This is an important time to reach students, before harmful stereotypes of CS have set in and while children are still exploring career interests widely. Targeted programs for this age group can introduce students to basic programming concepts and show them how computational skills complement their other interests and hobbies.

Finally, I believe that it is important to continue evaluating existing programs for women to make sure that they are meeting the needs of women who are also underrepresented minorities. URMs face unique challenges, and these must be recognized and addressed in outreach programs. Through these proposed initiatives and my past work, my goal is to create a culture where all students feel welcome to explore computer science, to learn valuable technical skills, and to ultimately be productive members of the CS community.