

I am a woman and a first-generation college student and have direct experience with reasons women leave computing. I formally entered computing in high school through an introductory Java class. In this class, I had no formal mentors and no counter to the persistent “advice” from my classmates that girls weren’t cut out for CS and STEM. No one in my family has had a traditional college experience, and many of my relatives were hostile to a woman even entering college, let alone getting a degree in STEM.

This was my first experience with factors that dissuade women from staying in CS. As I began taking programming classes in college, I found the same resistance to my presence in the classroom. Despite my interest in computing, I chose to pursue an undergraduate degree in a different field, Media Studies with a focus on digital technology. Professionally, I stayed with computing, working as a back-end web developer. My Masters and Ph.D. were pivotal in supporting the integration of computing into my professional career and research agenda – women mentors in the field convinced me that I belonged, and that my interdisciplinary skillset between Media Studies and CS were valued by the community in HCI.

While I love the impact of computing, the field has long-standing challenges with diversity, reflected in the composition of high-profile tech companies [1] and our classrooms and research labs in higher education [2]. As a faculty member, a commitment to inclusion and equity means addressing formal barriers to computing as well as recognizing where formal efforts fail in promoting success for underrepresented groups. Increasing diversity creates a better computing environment and improves the quality of the work we do as a fundamentally human-centered field. In this statement, I discuss my commitment to diversity, focusing on contrasting efforts in formal environments (research and teaching) versus informal environments.

Supporting Diversity in Formal Environments

The first place many consider bringing the value of diversity is to formal settings in academia. My goal is to help students who may not have been taught how to navigate a traditional, American college experience to **gain confidence through formal mentoring**, by teaching them explicit and soft expectations in the academy. I have mentored ten undergraduate/Master’s students at Georgia Tech and at Northwestern, nine of whom are from underrepresented groups in computing. I work to guide them through their research sticking points, encouraging them to be curious and ask *any* questions by demonstrating this behavior myself in a non-judgmental environment. I am working with professional organizations to these goals as well. I am currently involved with and serving on the SIGCHI CARES committee, an ACM group dedicated to anti-harassment efforts at SIGCHI conferences. We are iterating on better understanding conference climate and procedures to respond to reports of misconduct at professional events.

In teaching, **I work to bring my values of inclusion in the classroom**, where I consider perspectives in gender, race, LGBTQ+ status, and college preparedness. Different students have different ways of expressing their ideas; therefore, I bring different preliminary assessment to the classroom, like small group and written work. I also adopt techniques for raising student voices beyond simply calling the most-frequent hand in the audience. For example, during small group discussion about bias, race, and computer vision algorithms, I walked around the classroom, stopping to solicit input from students. I asked each student to share their perspectives, and then asked students to voice their thoughts to the larger class.

Yet, **being aware of equity issues does not always provide it to those in these situations**. In my research, most participants in pro-eating disorder communities online are white, cisgender women and live in North America/Europe, replicating known biases of social media usage. Because of this, I am confronted by the question - do my algorithms only help the proverbial “rich get richer” by predicting mental health status on

groups already likely to have access to treatment? Connected to this are challenges in deploying interventions to those already in academia. For example, when we recruit students for Ph.D.s., we can make great strides towards diversity in our enrollment; yet, we will reproduce existing biases by only recruiting those who have an undergraduate education in CS. Being adept at computing is more than just possessing a CS degree – my Ph.D. program, Human Centered Computing, buffered against that bias by taking students from non-traditional backgrounds, and is one of the ways I was able to reenter computing. However, formal interventions only address people who have access to formal environments like Ph.Ds. To make computing open and equitable to all, we must consider more than just making our research labs and classrooms inclusive and look to how informal environments facilitate access to the field.

The Importance of Informal Environments and Community-Building

Another important way to provide support is by building communities for underrepresented groups in computing in less formal environments. These support systems provide mentoring and networking, and especially for underrepresented groups, means that they can turn to trusted individuals for support.

During my Ph.D., I worked to build these support systems through being a lead organizer for Grad Women @ College of Computing, a Georgia Tech group that organizes seminars, talks, activities, and industry opportunities for women in the College of Computing. I ran multiple events to bring together women in computing, including a faculty luncheon for women faculty at Georgia Tech and doctoral students and several career boosting opportunities. These opportunities provided space for women to ask challenging questions about their position in the field and receive support for their endeavors.

These efforts, while important, do not consider earlier interventions to prevent dropout [3]. **I believe working across the age and access gaps in education can begin to solve issues of dropout and provide support in less formal environments.** During my Master's, I worked as a group leader for the Georgetown Women Who Code, where I taught undergraduate women to build data scrapers and games in Python. In these environments, we connected to students earlier in the pipeline, demonstrating that computing, and STEM more broadly, is a field for them. I have also tutored and run summer camp opportunities for STEM in elementary and middle school since I was a teenager. To access students who may not have the resources to go to summer camp, we ran afterschool programs and Saturday workshops for elementary school children, teaching them to build rockets and program robots. These examples show how less formal opportunities can fill the gaps where formal research and instruction end.

My Commitment to Diversity in Computing Going Forward

Inclusivity in computing is an ongoing process that requires consistency, patience, and an ear towards others' concerns - there are still many opportunities to improve. As a woman in computing who decided to reenter the field, I hope to inspire others to believe that underrepresented groups belong and can succeed in these environments, no matter their career path or formal position. As faculty, I am excited by the opportunity to be a mentor in formal and informal environments for students. As my work branches into new kinds of mental health behaviors, like addiction, I hope to use these experiences to design and create new methods that work to overcome biases in data-driven approaches to problem solving. Finally, I intend to become involved with departmental and external efforts to promote underrepresented groups in computing. Because diversity is an ongoing process, I remain committed to learning from my and others' experiences and pursuing best practices in creating an inclusive institution. With a genuine commitment to inclusion in computing, we improve the field for all.

References

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- [2] "The Mixed News on Diversity and the Enrollment Surge". Computing Research Association. 2018. <https://cra.org/data/generation-cs/diversity/>
- [3] Terry Camp. 1997. The incredible shrinking pipeline. In *Communications of the ACM* 40, 10 (Oct. 1997).