

Sibin Mohan's Diversity Statement

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1 Introduction

STEM-related fields, and Computer Science in particular, have seen an explosion in opportunities in recent years. In contrast, it has been observed that similar opportunities may not necessarily be accessible to individuals with marginalized identities. For instance, according to data from the National Center for Education Statistics, while 52,333 Computer Science degrees were conferred to men in 2015-2016 [6], only 12,072 were awarded to women [7]. Further, Black and Hispanic men were conferred 4,474 and 5,075 computer science degrees respectively in the same time frame. The numbers for Black women (1,530) and Hispanic women (1,146) are even more worrying while the data for the LGBTQ+ community is scant. These numbers highlight the lack of diverse individuals in the field of computing.

Why do we need diversity in computing? After all, aren't algorithms "neutral"? *I believe that technology is not neutral!* Recent work in computing has highlighted this problem: (a) face recognition algorithms are much better at identifying white male faces [3], (b) Google Photos tagged black men as primates [4] and (c) Apple's newest iPhones are too large for most women's hands [1]. Many such issues likely stem from the fact that the tech workforce is uniform (nearly 84% of tech jobs are held by White or Asian men [9]) and the products reflect the workers' inherent biases/experience.

Research suggests that being part of a marginalized or minority group can hamper job satisfaction, career success and workplace productivity [2]. I believe that *a more diverse workforce, that better represents the population, can not only develop technical solutions that work well for everyone but also improve the environment for marginalized groups.* The lack of diversity also means that a majority of the population is being held back from access to technology (in its use; design and development; distribution; how/what information is collected and its use, etc.). For instance, studies (e.g., [5]) have shown that internet connectivity is crucial for access to educational, health and basic governmental resources. Considering the increased use of smartphones, machine learning algorithms¹ and IoT-style applications, careful thought is required in the design and use of these technologies (and others). A first step towards achieving this is to ensure that the *people building these technologies accurately represent the population*; a university is a good place to initiate such positive change.

Through the following paragraphs, I intend to illustrate my commitment to improving diversity in CS. I have worked with multiple female students – at the graduate as well as undergraduate levels. I was the thesis advisor for a female M.S. student, who is now continuing as a Ph.D. student in my group. Over the last 3 years, I have advised multiple undergraduate students (most of them women) for summer internships. I will continue to actively engage and recruit students from under-represented communities (through internships as well as undergraduate, graduate and postdoctoral mentoring).

In Fall 2017 and Spring 2018, I taught 5-6 week courses on computer programming to middle school students in Urbana² as part of the SPLASH after-school program³. My course used the Scratch programming language (designed at MIT) and a curriculum designed by UIUC Computer Science faculty. The students in these classes were fairly diverse with nearly 40% girls and many Hispanic and Black students. To increase the diversity in Computer Science (specifically at the university as well as industry level), I firmly believe that it is necessary to foster interest during middle/high school. This will make the field of computing more approachable when students encounter it at the university/professional levels. Hence I intend to continue teaching this course at the Urbana middle school.

From friends in the Social Sciences, I have learned that increasing diversity is not only about focusing on the numbers but also about *striving for inclusion and preparedness for conflict of thought, opinion and values* that will arise as diversity increases. To address these issues, there need to be constructs in place (mentors, role models, pathways for success, tracking students' success, helping them deal with any conflicts that might arise, etc.) that will ensure the students' continued success in the future. I intend to work with department/college/university/community-level efforts to get the aforementioned constructs in place. I would reach out to colleagues in the college of LAS as a starting point and also keep myself current about the

¹e.g., ML algorithms are being used for sentencing and parole decisions in criminal courts [8].

²<https://csl.illinois.edu/news/inspiring-future-programmers>

³<http://usd116.org/programs/splash/>

types of implicit biases that exist so that we (a) identify them and (b) address them at the department level. All of the above needs to happen to increase the diversity of the department, while still maintaining the academic excellence that we are renowned for. I believe that computer science departments, and universities in general, can lead the way in diversity and inclusivity initiatives.

References

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