

## Tianyi Zhang | Diversity Statement

Despite the increasing public awareness of diversity, our society continues to struggle with the ramifications of systemic discrimination, bias, and inequality. In Computer Science, there is still a substantial diversity gap in gender and race. According to the U.S. Bureau Labor Statistics in 2019<sup>1</sup>, only 25.6% of computer and mathematical occupations are women, 8.4% are African Americans, and 7.5% are Hispanic or Latino. This diversity disparity has led to valuable perspectives being missed, important groups of users being underserved, and critical research questions being sidelined. For example, when Apple's healthkit was first released, period tracking, a key function that roughly half of the world's population would expect to be included was missing. The recent incident of "the White Barack Obama image"<sup>2</sup> once again exemplifies the well-known racial bias in AI. The negligence of not testing for racial bias and simply blaming it on data bias is astounding, reflecting the lack of diversity we continue to see in academia and industry.

One group whom I seek to help are women, who have always been underrepresented in Computer Science. One of the major obstacles for women to majoring in CS or pursuing CS careers is the inaccurate gender stereotypes. These stereotypes have led to unequal access to CS educational resources and unwelcoming learning atmospheres for women. However, these stereotypes are completely wrong. I have mentored 5 women students, and all of them have demonstrated solid CS skills and research capabilities. In particular, both Aishwarya Sivaraman and Anastasia Reinhardt have published our work as first authors in top-tier Software Engineering conferences, ICSE and ESEC/FSE. In addition, when serving as a mentor in the UCLA Graduate Society of Women Engineers mentorship program, I have met many female students who are competitive and have great interests in science and engineering. As faculty, I plan to take an active role in breaking such gender stereotypes in CS. On one hand, I plan to incorporate stories of female computer scientists such as Ada Lovelace and Grace Hopper into my lectures and highlight their contributions to the history of CS. I will also invite collaborators who are women to give guest lectures or seminar talks. On the other hand, I plan to explore the opportunity of creating a summer coding boot camp within the community surrounding campus. I would like to invite local kids, especially girls and minorities, to join and help them realize that CS is not so intimidating. I believe the exposure to computer science and people in the field who look like them allows kids and college students to use their curiosity and fearlessness at a young age, while setting them on a trajectory to pursue studies and career opportunities in CS and related fields.

As a mentor and an instructor, I am committed to creating an open and inclusive environment where all students, in a classroom or in the research lab, feel equally valued regardless of their race, ethnicity, gender, gender identity, ability, and socioeconomic status. As an international student from Asia, I know what it feels like to find oneself outside the dominant culture, as well as how easy it is to get stressed and lose confidence. In the first few years of my PhD, I became more introverted when I started speaking English and kept doubting myself. But I was fortunate to be part of a diverse research group at UCLA, where we had students from all over the world, including Egypt, India, Iran, Pakistan, and Denmark. Having such a diverse cohort to share our own struggles and support each other was a great help. I am also grateful to my PhD advisor and my Postdoc advisor, both of whom are women and have given me a tremendous amount of patience, encouragement, and support. From them, I learned how to become a thoughtful leader and mentor. As I move forward, these personal experiences have motivated me to foster a diverse environment in my own research group.

Growing up in a rural area in China, I am well aware of the inequality of educational resources. When I was a kid, I had little access to modern technologies or programming classes. I felt quite behind my peers when starting college as a CS student. While teaching in a classroom as a TA, I also observed that classroom discussions can be easily dominated by privileged students who have related background or easy access to resources. As an instructor, I will ensure my classroom includes a variety of voices from different subject positions of race, ethnicity, gender, socio-economic status, etc. I will not be afraid of speaking up when there are subtle or blatant put-downs. In particular, I want to help students from historically underserved backgrounds, whose educational and economic circumstances limit their academic opportunities. I invited London Lowmanstone, an African-American undergraduate student to my project on interactive program synthesis, which eventually led to a conference paper in UIST 2020 with London as the second author. As I build my own research group, I want to continue to devote time and bring more research opportunities to students from underrepresented groups. I believe bringing students from diverse socioeconomic levels, racial categories, and cultural backgrounds together can help them build more empathy, mutual understanding, and enduring friendships.

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<sup>1</sup>The U.S. Bureau Labor Statistics in 2019 <https://www.bls.gov/cps/cpsaat11.htm>

<sup>2</sup>What a machine learning tool that turns Obama white can (and can't) tell us about AI bias, <https://www.theverge.com/21298762/face-depixelizer-ai-machine-learning-tool-pulse-stylegan-obama-bias>