

We, in computer science, have the responsibility of ensuring that our innovations reflect human values and that their benefits are broadly equitable. I believe that equity in any intellectual endeavor can only be improved when the demographics of those developing the tools reflect the diversity of its stakeholders, in terms of gender, race, sexual orientation and socioeconomic background. However, computer science has a diversity problem. The CRA Taulbee survey [4] identifies that only 13 black students and 1 Native Americans were awarded a Ph.D. in computer science nationwide in 2019. We must be willing to identify practices that propagate unconscious biases and cultivate an affirmative community where people from all backgrounds can prosper.

My most direct contribution to retain diversity has been actively recruiting and fostering a diverse research group of students I mentor. Twelve of my students have come from marginalized (female, LGBTQ+, Native American) and underrepresented groups (Tunisian, Turkish, Pakistan, and Moroccan). Many of these students are now Ph.D. students in top computer science departments. One of them has even co-founded a startup, which uses ideas from our research. Aside from the traditional definitions of under-representation, I have also attempted to mentor non-Stanford affiliates from institutions that did not offer similar research opportunities. During the summer of 2019, I applied for a US visa for such a student to come and intern with me; and today, that student is pursuing a Ph.D. at Carnegie Mellon. I try to build my students' confidence by asking them to lead reading groups, volunteer at conferences, review papers with me, and solicit their opinions on a regular basis. Instead of prescribing to the default mode where academics must self-select for internships by themselves, I actively introduce them to appropriate industry and academic contacts. While my near-term contributions are small, I hope they will compound to enable my students to grow as researchers and as future leaders, who will in turn achieve an even larger impact on participation and inclusivity.

Providing opportunities to underrepresented students is crucial but it will not alleviate the feelings of isolation that come with being marginalized. One method to mitigate such feelings is by showcasing the work done by underrepresented researchers, improving their visibility for others. I have attempted to provide such opportunities. For instance, I have organized the Stanford Vision and Learning group's weekly seminar for the past three years and organized three workshops at academic conferences [3, 1, 2]. Across these venues, I have made it a priority to ensure that underrepresented researchers are not just present but are equally represented as speakers.

Improving diversity in computer science requires injecting equitable considerations for applicants at all levels of the pipeline - from undergraduates to faculty candidates. My experience is two-fold: I have served on the 2018 Ph.D. applications committee, where I helped review and accept the next batch of Computer Science PhD students, and on the 2019 faculty search committee, where I helped select the next faculty hires. In both of these committees, I was excited to see that we paid closer attention to underrepresented Ph.D. and faculty candidates, ensuring that we place their achievements in context with the barriers they have had to overcome. The application process was designed to allow candidates to self-report hardships associated with being marginalized, expensive standardization tests were made optional, and application reviewers were trained to appropriately weight the physical and mental effort associated with being underrepresented. I intend on making sure that my future institutions also formalize a process for considering underrepresented applicants.

Once I become a faculty member, there is more I intend on doing to improve diversity. All of my efforts so far have focused on college students who are actively pursuing or post-graduates who have

already received computer science degrees. However, as the Taulbee survey identifies, undergraduate enrollments in 2019-2020 comprised of only 20% of women and 26% non-white and non-asian races. In the near future, I intend to broaden my impact by teaching workshop classes through organizations, like AI4All, which expose high-school students to algorithmic thinking and analytical skills that make strong computer scientists. In my future seminars, I intend to continue inviting underrepresented voices to speak. When designing my course materials, I will continue to ensure that my courses are self-contained, requiring as few prerequisites as possible, making them as accessible to students outside of computer science.

- [1] Jingwei Ji, Ranjay Krishna, Ehsan Adeli, Juan Carlos Niebles, Olga Russakovsky, and Li Fei-Fei. *Compositionality in Computer Vision*. <http://cicv.stanford.edu>. 2020.
- [2] Kazuki Kozuka, Ranjay Krishna, Jingwei Ji, Alec Hodgkinson, Olga Russakovsky, Juan Carlos Niebles, and Li Fei-Fei. *International Challenge on Compositional and Multimodal Perception*. <https://camp-workshop.stanford.edu/>. 2020.
- [3] Ranjay Krishna, Jia Deng, Michael Bernstein, and Li Fei-Fei. *Scene Graph Representation and Learning*. <http://sgr1.stanford.edu>. 2019.
- [4] Stuart Zweben and Betsy Bizot. "2019 CRA Taulbee survey". In: *Computing Research News* 31.6 (2019), pp. 1–61.