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Diversity Statement

Computer Science, along with other STEM fields, is currently facing a well-documented lack of gender and racial diversity [1]. Underrepresented groups face systematic structural and social barriers in access and exposure to computing, leading to the problem of maintaining diversity throughout the STEM pipeline [2]. Lack of diversity at the institutions where Computer Science systems are being developed or deployed means that decisions such the fairness and accountability of the system may not be well aligned with the demographic needs. This has severe consequences to the well-being of our society as these technologies are increasingly being used in important applications such as processing loans or matching faces to a criminal database.

Below I describe my efforts to improve the inclusiveness and diversity in computing to address some of these challenges.

Background As a child I was fortunate enough to live in diverse communities with people across India. Coming to Berkeley for my PhD provided me an opportunity to live with and know students from all over the world and experience a diverse set of cultures and lifestyles. These experiences have been extremely rewarding and have shaped my desire to understand and embrace diversity in all forms. I come from a family with a modest financial background and was the first in my extended family to pursue a PhD degree. My first-hand experience of the challenges I faced motivate my research and teaching efforts to reduce the barriers to computing.

Diversity in teaching and research I have taken the opportunity to teach and collaborate with computer scientists internationally. For example, I regularly teach and host students from Hokkaido University, as part of an ongoing collaboration with the University of Massachusetts. Prior to this, when I was a researcher at TTI Chicago, I taught machine learning courses at TTI Nagoya. I also organize regional conferences in India (e.g., ICVGIP) to promote research and collaborations from universities in India.

At the University I participate in efforts, such as ScienceQuest and HackHer413, to promote computer science to high-school students, women, and other underrepresented groups. I teach undergraduate classes in computer vision which has a wide appeal and attracts students with diverse backgrounds (e.g., math, physics, and biology). The University of Massachusetts is a part of the five-college consortium [3], which allows students from liberal arts colleges for women such as the Mt. Holyoke and Smith College to attend my classes. Besides these, I have supervised several undergraduate students, including four women, through NSF sponsored REU projects, honors theses, and summer internships. These students have gone on to pursue Masters and PhD degrees at top computer science departments, as well as industry positions. Please see my CV for details [4].

In the future, I will continue to pursue collaborations that promote AI to benefit society, especially in developing countries. For example, I am a program chair for ICVGIP 2021. I would also like to contribute to outreach efforts and serve on committees that aim to improve diversity and inclusiveness of computer science (e.g., through programs like AI4ALL, NSF REU, and other University initiatives). Involving students in research and applications of computer science early in their career is key to their retention.

Research outreach to other disciplines Another way I promote diversity is through interdisciplinary collaborations. Artificial Intelligence is having a tremendous impact on our lives, yet the choice of how

these technologies are deployed and their benefits are limited to a few. I aim to make computer science technologies more accessible to researchers and practitioners in other disciplines. As an example, I collaborate with ecologists to develop novel computer vision algorithms to analyze bird migration in radar imagery, shedding some light on how climate change and other factors affect biodiversity.

I also co-organize the Fine-Grained Visual Categorization workshops annually, which brings together researchers across areas such as biology, ecology, and computer science, contributing to datasets, techniques, and research questions that the community should be working on. I engage with the community of ecologists and biologists aiming to analyze animal populations through camera traps by helping them build datasets and tools to analyze the data. I plan to continue such collaborations as they provide an excellent opportunity to develop computer science applications for other disciplines, some of which have a better gender diversity than computer science.

References

- [1] Google Inc. & Gallup Inc. (2016). Diversity Gaps in Computer Science: Exploring the Underrepresentation of Girls, Blacks and Hispanics. Retrieved from <https://services.google.com/fh/files/misc/diversity-gaps-in-computer-science-report.pdf>
- [2] STEM pipeline. https://en.wikipedia.org/wiki/STEM_pipeline
- [3] The Five College Consortium: <https://www.fivecolleges.edu>
- [4] Curriculum vitae: <https://people.cs.umass.edu/~smaji/promotion/cv.pdf>