Contributions to Diversity, Equity, and Inclusion

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I have been committed to promoting diversity, equity, and inclusion throughout all facets of my career as an academic – in service, teaching, and research.

Most notably, I wrote an article for *Slate* in 2014 called *Silent Technical Privilege* [1], which contrasted the implicit privileges that I have benefited from as someone in a majority demographic in computing and STEM fields (an Asian-American male) with the implicit biases and other obstacles faced by my female and underrepresented minority colleagues. This article has received over 500,000 online page views, led to hundreds of email responses from readers, led to me being interviewed for an NPR radio program about race and computing [2], and helped to inspire a one-day race and gender diversity symposium at MIT called *Challenging Technical Privilege: How Race and Gender Matter* [3].

From this experience, I have learned that role models are crucial for motivating students to excel in their future professions. As an Asian-American male, I have had plenty of role models who "look like me" [1,4,5] and whom I have felt comfortable asking for professional advice. As part of my service work, I want to provide these important opportunities to a much broader student population by organizing career and interview preparation workshops where I invite women and underrepresented minorities in STEM to serve as mentors.

In terms of teaching, I apply validated pedagogical research about how to avoid implicit bias in the classroom [4,5]. Most visibly, I try to be continually aware of who is raising their hands in class and then call on a diverse variety of students to speak, not just the few outspoken students who sometimes dominate in-class discussions. I also use gender-neutral and value-neutral language in my lectures, emphasize collaboration and personal growth rather than intense head-to-head competition, and avoid confrontational language that may disproportionately discourage members of underrepresented groups. I also aim for diversity when choosing teaching assistants (TAs) since they are direct role models for the students: For instance, four of the five TAs for my web application development class this semester are women.

Finally, I have two active research projects related to diversity in computing. With colleagues at North Carolina State University, I am using interviews and surveys with female CS majors to identify barriers that prevent women from participating more in online programming communities such as StackOverflow [6]. With Katharina Reinecke at the University of Washington, I am analyzing usage log data from my Rosetta code visualizer (deployed at pythontutor.com) to discover how people of different demographics learn programming online; our eventual goal is to adaptively adjust the system's user interface to make it more effective for people of diverse demographics. This work is a follow-up to our 2014 study of how demographics (e.g., age, gender, nationality) affect learners' engagement with edX MOOCs [7].

1. Philip J. Guo. Silent Technical Privilege. In *Slate*, Jan 2014.
2. People Assumed I Was A Tech Whiz Because I'm Asian, *NPR Tell Me More, radio interview with Celeste Headlee*, Jan 2014.
3. Challenging Technical Privilege: How Race and Gender Matter. One-day symposium at MIT, Oct 2014. `http://challengingtechnicalprivilege.weebly.com/`
4. Jane Margolis and Allan Fisher. Unlocking the Clubhouse: Women in Computing. MIT Press, Nov 2001.
5. Jane Margolis. Stuck in the Shallow End: Education, Race, and Computing. MIT Press, Aug 2008.
6. Denae Ford, Justin Smith, Philip J. Guo, Chris Parnin. Identifying Barriers for Female Participation on Stack Overflow (in submission)
7. Philip J. Guo and Katharina Reinecke. Demographic differences in how students navigate through MOOCs. In Proceedings of the *ACM Conference on Learning at Scale*, Mar 2014.