

As a teacher and a researcher, I will continue to use my position and resources to promote diversity and inclusion.

## TEACHING AND MENTORSHIP

Before discussing how to bring more students from diverse backgrounds, we should first question ourselves: are we prepared to support them, provide them the tools to succeed, and the community that they can call home? **I strive to support students that study under special circumstances.** During my time at CMU, I worked as a teaching assistant in Programming Usable Interfaces (PUI) in Fall 2020, a heavy-loaded class for students without prior programming experience as they need to simultaneously learn programming and design methods. There was one female African American student in my TA session, who had to work part-time to finance her studies, and to study remotely from Chicago with a 1-hour time zone difference from Pittsburgh. Despite of these difficulties, she attended all 8:30 AM classes and recitations, and submitted assignments on time. She worked so hard, but still failed to do well in her first two assignments. I further noticed that she rarely asked questions, so I decided to reach out. In our first 1:1 conversation, I found that she was concerned about asking “silly” questions in front of her peers and instructors, and her part-time job had conflict with all TA office hours. I then arranged a few 10:00 PM office hour sessions in the following weeks to accommodate more remote students like her. By reviewing workflow together with her through these extra hours, I found that she used to manage code versions locally with folder copies and manually uploaded files to GitHub through web interfaces. I then provided her additional learning materials on basic programming knowledge, and encouraged her to come to my office hours more often. I was so happy to see that she managed to catch up on the programming foundations later, with a better understanding of the in-class content, and improved coding productivity.

When I become a faculty member, I will keep the spirit for all my students in teaching and research mentorship. In both classrooms and research labs, I will continue to create an open and inclusive environment that makes all students, regardless of their race, ethnicity, gender, gender identity, ability, and socioeconomic status, feel equally valued.

## SERVICE

As a first generation college student grown up in rural China, I fully understand how difficult it is for students from lower social-class origins **to have access to elite education and to make life-changing decisions.** I am grateful for my mother, who strived her best to send me to the best schools in the reach of our family, to let me pursue the education dream that she could not pursue when she was younger. I wish to pass this kindness on to more people.

As a member of the Summer Research Experiences for Undergraduates (REU) admissions committee of my department in 2021, I witnessed firsthand how various barriers, such as the lack of access to research resources, and the implicit biases in the decision-making process, have hindered diversity in the admissions process. It is particularly hard for students coming from historically black colleges and universities (HBCU) and primarily undergraduate institutions (PUI). In the future, I plan to start and contribute to programs that encourage students from underrepresented groups to consider a career in research and offer more research opportunities to them.

I have also been actively involved in helping students from underrepresented groups. I have mentored 5 female-identifying students during my Ph.D., and all of them have demonstrated solid CS skills and research capabilities. In CMU AI Undergraduate Mentoring program, I mentored a female undergraduate to choose research topics and career choices. In the HCII Ph.D. application assistant program, I helped two international students from non-elite universities prepare and revise their application materials. I also offered them advice in applying to graduate schools. I am also a part of the CMU local K-12 outreach program.

## RESEARCH

I also plan to promote diversity through my research on studying privacy. Today, automated systems collect numerous data without our consent and knowledge, and use them to make decisions that affect our lives (e.g., insurance premiums, mortgage applications). Unfortunately, past research found that these systems can be sexist, racist, and potentially perpetuate other structural inequalities found in society. General Data Protection

Regulation gives people the right not to be subject to solely automated decisions. But there exists a massive gap between the legal requirement and the technological constraints. Today, even the people who build the systems aren't always capable of describing how they work.

As the first step, my research on **AI fairness**<sup>1</sup> develops more intuitive and generally understandable representations of the performance of machine learning models to improve AI literacy. Making these black box systems transparent and regulating them is also the main direction for my future research.

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<sup>1</sup>Hong Shen, **Haojian Jin**, Ángel Alexander Cabrera, Adam Perer, Haiyi Zhu, and Jason I. Hong. 2020. Designing Alternative Representations of Confusion Matrices to Support Non-Expert Public Understanding of Algorithm Performance. ACM CSCW 2020 DOI:<https://doi.org/10.1145/3415224>