Diversity, equity, and inclusion (DEI) hold immense significance in my personal and professional journey. My perspective on DEI has been profoundly shaped by my experiences as a first-generation college student. Over the years, I came to realize that although education itself is meant to provide an equity opportunity for people from all backgrounds, it inherently is easily biased without continuous efforts in DEI.

My Journey and My Motivations

Hailing from China, a country with pronounced disparities in educational resources, I have witnessed the influence of what I term "regional privilege." In well-developed cities like Beijing and Shanghai, students have access to advanced resources, including cutting-edge equipment and highly qualified educators, providing them with a distinct advantage. In contrast, students in smaller cities, lacking the same resources, face significant challenges. For instance, high schools in well-developed cities may have experienced teachers who train students to compete in the International Olympiad in Informatics. In contrast, some high schools that cannot afford experienced teachers or sufficient computers do not even teach programming. As a consequence, students from privileged backgrounds often have an easier path to prestigious universities. Even within the same university and major, the impact of this bias persists. Students who arrive with prior programming experience find it easier to integrate into research labs, leaving their less-experienced peers at a disadvantage. These students often invest considerable time in self-learning to bridge the gap, a situation that falls short of the equity we aspire to offer all.

I firmly believe that such biases are not confined to China; they persist worldwide and affect individuals for a multitude of reasons, including gender, race, nationality, sexual orientation, religion, and ability status. This awareness fuels my commitment to championing DEI. While my influence as a researcher may be confined to certain spheres, I am determined to contribute to the creation of an environment that upholds the principles of DEI.

Creating a Diverse Research Lab Environment

In my view, a thriving research lab should be a welcoming space for students of all backgrounds. Throughout my career at the University of Illinois at Urbana-Champaign (UIUC), I have had the privilege of mentoring a diverse group of students from UIUC and George Mason University, including two women who are underrepresented in the field of computer science. Recognizing the unique strengths and experiences of each student, I tailor my guidance to best suit their needs. For those with limited research exposure, I provide hands-on support, offering concrete ideas, directing them to specific tools like Python packages and GitHub resources, and even debugging alongside them. Conversely, I paint the high-level project roadmap for students with a strong grasp of their research domain and challenge them to scrutinize every aspect of their approach. For instance, whenever a student wants to use machine learning in their approach, I encourage them to articulate why this choice is over others and conduct preliminary studies to prove that.

Providing Equitable Teaching Environment

I hold profound respect for students with diverse backgrounds, perspectives, abilities, and experiences. To foster an inclusive learning environment, I endeavor to make my lectures accessible to students with varying levels of expertise, while also fostering open dialogue in the classroom. During my career as a post-doc, co-teaching "Advanced Topics in IoT" with faculty at UIUC, I recognized the diversity of students' prior knowledge in signal processing. To address this, while giving the lecture on video compression, I did not jump directly into the technical approach. Instead, I started the lecture at a conceptual level. I used a concrete video sample to illustrate that temporal similarity exists in the video and such similarity enables efficient video compression. I also noticed that students do not have the same research background. Thus, I prepare a lecture covering various aspects of a research project such as finding a problem to work on in system research and motivating the solution. I believe such a teaching approach could engage students, regardless of their technical background. Furthermore, I actively encourage students to voice their concerns and questions during lectures, valuing their diverse perspectives.

Participate in Inclusive Service Activities

Participation in service activities provides another avenue through which I advocate for DEI. I have had the privilege of joining the annual Trick-or-Research event at UIUC on two occasions. Here, I presented my work through posters and engaged with high school and undergraduate students from various cultural backgrounds. I extended an open invitation to these students to attend our group talks if they found our work intriguing. I value this event as an opportunity to share the excitement of research with students embarking on their academic journeys, potentially igniting a passion for computer science research.

Promoting DEI through Research Projects

I am eager to promote DEI with research projects in my field. I have conducted a research project to alleviate the pain of facial paralysis patients with a smart glass. Facial paralysis is a disease caused by nerve damage, which can make patients lose facial movements. As a result, the eye of the affected side is unable to blink and will become dry and infected by debris, which can incur eye damage and even blindness. In particular, I perform clinical trials with facial paralysis patients which show that electrical stimulation could trigger the eye blink. This research addresses the specific needs of a marginalized group (facial paralysis patients) and offers them technology that helps them communicate, engage, and participate fully in society. Moreover, I am developing a tool for mute individuals who cannot speak to communicate with others via speech by utilizing large language vision models. This project will provide resources to help those with communication challenges overcome barriers and create inclusive systems and opportunities where everyone can fully engage in conversations, social interactions, and professional activities.

Conclusion

I firmly believe that fostering a culture of diversity is not only essential for the personal growth of students but also crucial for the advancement of faculties and the overall thriving of universities. I will devote my entire career to the creation and maintenance of an environment that is diverse, equitable, and inclusive.