Diversity and Inclusion Statement

Our experiences shape our perspectives and approaches to scientific and societal problems. Biased decision-making bodies lead to biased policies, which in turn exacerbates inequity. Thus, diversity, equity, and inclusion are integral to the well-being of our community, and I am committed to promoting diversity through research, teaching, and mentoring.

As a Ph.D. student, I had the opportunity to mentor Dr. Kanyand Matand, an African American faculty member working at Langston University (an HBCU in Oklahoma). Dr. Matand's lab works on micropropagation of daylily plants with a focus on optimal regeneration conditions across different daylily cultivars. Dr. Matand was interested in expanding his research program into gene editing for ornamental trait improvement. As part of an outreach program, my Ph.D. lab hosted Dr. Matand during summer 2019, during which I trained Dr. Matand on nuclei acid extraction, reverse transcription, PCR primer design and optimization, semi-quantitative RT-PCR, and image analysis using imageJ. From our interactions, I learned that his lab has performed regeneration experiments across 19 daylily cultivars, 3 explant types, and 3 hormone treatments. He had the data but was unsure about how to analyze them. While it was not part of the training plan, I was thrilled to give him a statistics crash course, where I taught him how to format his data into a machine-readable format and how to perform statistical tests in R using linear models and Tukey tests. It was a few hours of my time teaching him, but it pushed his research forward greatly as Dr. Matand was able to visualize his data in R and report the results of statistical tests. This effort led to a publication (Matand et al., 2020). Through this experience, I learned that opportunities and training that I took for granted as a student at UC Davis may be limited for under-served communities. This realization re-affirmed my commitment to mentoring and outreach.

Following my experience with Dr. Matand, I expanded my statistics crash course into a full tutorial, which is available online (https://github.com/cxli233/Online_R_learning). In addition to statistics, I have also provided training to the research community on effective data visualization. I developed a GitHub page focusing on data visualization called "Friends don't let friends make bad graphs" (https://github.com/cxli233/FriendsDontLetFriends). These repositories are very well received on GitHub, reaching hundreds and thousands of researchers around the globe. The opportunity to study and practice statistics and data visualization for research has been largely restricted to research-intensive institutions. The open-source nature of these repositories reduces the barriers to access and permits entrance by under-served demographics. I actively promote these resources on social media, where I interact with students and researchers over the world. To date, the statistics tutorial has been starred (bookmarked) by more than 400 GitHub users, and the repository on effective data visualization has been starred by more than 6000 GitHub users as one of the most highly starred GitHub repositories for the R programming language in 2023.

Moving forward, I will continue my commitment to diversity in science both in the campus community and globally. I hope to participate in existing outreach programs, such as hosting REU students in my lab. Furthermore, I will continue to develop, maintain, and promote free, open-source resources online. I hope to serve as a mentor to undergraduate/graduate students and postdoctoral researchers from diverse backgrounds either in official or unofficial capacities. I will strive to mitigate the barriers that they may face by establishing and upholding a supportive and respectful lab and classroom culture while investing in their individual technical and professional development.