Diversity Statement by Hussein Sibai

I was born and raised in Lebanon, a country that had its fair share of wars, violent political conflicts, and economic uncertainty during my lifetime. I feel lucky and privileged to have obtained a high-quality education. That would not have been possible without the immense continuous support and life-changing advice from many people, including my family, teachers, and mentors. At the same time, I feel deep pain and resentment knowing that numerous talented people did not have the opportunity to get the education they deserve because of navigating similar paths without similar support. These feelings build my solid commitment to helping make education accessible for everyone, especially those less privileged.

Historical marginalization of parts of human society imprinted deep biases in people’s minds. We can only change that with long-term, continuous, comprehensive, and actionable policies accompanied by intensive awareness campaigns. There have been decades of public discussions highlighting instances and systematic examples of bias and unfairness, initiatives to raise diversity awareness, and programs to include underrepresented groups. However, proportional representation is still a largely unsolved problem, even in leading academic institutions. For example, the first African American woman, Dr. Yemaya Bordain, graduated from the ECE department at the University of Illinois Urbana-Champaign only as recently as 2015! There has been a stable achievement gap of more than 20 points in standardized tests between Black and White students. While 20% of awarded undergraduate engineering degrees are for women, they only comprise 13% of the engineering workforce. Many women leave engineering jobs because of unwelcoming culture. Similar examples are abundant for a range of underserved groups. Hence, further efforts are needed in the academic pipeline to achieve a diverse STEM workforce.

Recent research shows that people’s implicit biases have also propagated to engineering products. An obvious step in this concern is to include all groups in research and design. A New York Times article opened my eyes to how engineering designs can be biased, even unintentionally, and profoundly impact people’s lives. The article discusses the implicit bias that went into camera design since the 1940s that left people with dark skin with non-calibrated colored pictures, a stark example of how bias affects perception of certain groups, literally. A more recent example comes from ProPublica. It was shown in 2016 that COMPAS, a machine-learning-based algorithm that predicts a criminal’s recidivism, is biased against Black people. COMPAS has been used for assisting judges in many courtrooms across the United States. In the 39% of the cases where COMPAS was wrong in its prediction, it was twice as likely to label Black offenders who turned to not re-offend again at high recidivism risk than White counterparts. On the other hand, it was twice as likely to label White offenders who would re-offend again at low recidivism risk than Black counterparts. As autonomous systems become increasingly ubiquitous, especially those with machine-learning components, concerns of embedded biases rise. Horrifyingly, an image classifier not recognizing groups of people accurately enough because of an implicit bias might now cause an autonomous vehicle to overrun them. Such examples amplify the necessity to tackle bias in engineering research, education, and practice. Alongside solving bias, having diverse opinions from people with different backgrounds will improve innovation and creativity.

As a student, I participated in workshops that discussed challenges that minority groups face in academia, especially women. I volunteered to teach students programming in the well-integrated middle schools of Urbana, Illinois, as part of the UMS SPLASH program funded by the NSF. I taught and mentored students from different academic backgrounds, nationalities, races, and genders at AUB in Lebanon and UIUC. As a faculty member, I will promote diversity in my teaching, research, and service through:

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2 https://nces.ed.gov/programs/digest/d15/tables/dt15_325.45.asp
3 https://www.bls.gov/cps/cpsaat11.htm
5 https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing
6 https://regents.universityofcalifornia.edu/governance/policies/4400.html
1. **Diversity initiatives:** I will create, support, and promote diversity initiatives, e.g., Broadening Participation in Computing (BPC) by the NSF, outreach programs, e.g., the GAMES camp that teaches high school female students engineering concepts in UIUC

2. **Supportive mentoring and learning:** I will create a safe and welcoming research environment to attract diverse undergraduate and graduate student researchers. Per my personalized mentoring strategy, I will ensure that any challenges faced by my mentored students, especially those from marginalized groups, are heard, recognized, and tackled appropriately. I will encourage collaborations between diverse group members. It will not only improve research outcomes but will also enhance communication and fix any unconscious bias. As for myself, I plan to advance my knowledge on addressing equity and inclusion by attending relevant workshops.

3. **Inclusive classrooms:** In alignment with my teaching philosophy, I will utilize innovative technological tools to create an inclusive classroom environment, e.g., the new live sound-to-text converters for people with hearing disabilities. Moreover, while using the storytelling approach in instruction, I will highlight contributions from minority groups in STEM.

I am looking forward to a career in academia where promoting equity, inclusion, and diversity plays a central role in my personal development, teaching, research, and service.

**References**
