

Statement on Diversity, Inclusion, Equity, and Broadening Participation

As a Hispanic in academia, I have become increasingly interested in contributing to the efforts of diversity, equity, inclusion, and justice in the sciences and engineering in higher education. Given my first-hand experience with the challenges of becoming an academic in the U.S. as part of one of the most underrepresented minorities in Science, one of the main goals that I aim to achieve in my academic career is to improve the diversity and inclusiveness of the learning environment in higher education. I firmly believe that maximizing diversity in Science and Engineering is likely to have the greatest impact on maximizing our benefit to humanity.

Given my background and experience, I have dedicated my diversity efforts to two main areas: to creating a diverse and inclusive learning environment in the classroom and in my research group, and to broadening diversity and inclusivity more generally in academia. In what follows, I describe my efforts and contributions in these two areas.

Creating a diverse and inclusive learning environment

Creating a diverse, equitable, and inclusive environment in the classroom and in my research group is one of the most important goals in my teaching and mentoring practice. I have approached this in two ways: by educating myself on ways to improve diversity and inclusivity, and by putting some of those learned things to practice.

Self-education and training. For the past five years, I have been educating myself and learning about strategies for practical applications of diversity in the classroom. I have participated in five workshops in Diversity and Inclusivity: "Persistence and Resilience: Envisioning what Institutions can do for Faculty" organized by Purdue University, "Leadership Training Program," "Transforming Academic Culture: Understanding and Identifying Implicit Bias," "Beyond Bias: Bystander intervention and gender allyship," "Hiring diversity training," and "Intro to Bias and gender equity" organized by Indiana University. I have taken part in a small group activity funded by the NSF where trained individuals join our classroom and suggest small ways to improve.

Practice in the classroom and research group environments. The main question that I ask myself each day before stepping into the classroom or into my research lab is: How is my teaching and mentoring environment serving different groups of students? I focus on three key principles. (a) Fostering diverse student perspectives. (b) Integrating diverse perspectives into my teaching and course materials. (c) Encouraging everyone in the classroom to explicitly think about the effects of racial, cultural, gender, socioeconomic, and other differences.

Broadening diversity and inclusivity

All of the ideas mentioned above are in the service of maintaining existing diversity and fostering equity and inclusivity among those that have arrived to higher education. However, I believe that this is not enough. In addition to creating a diverse and inclusive learning environment for all, one of the contributions that I strive to make in academia is to broaden its diversity, to widen its inclusivity. As a Latinx researcher in Science, I am particularly interested in increasing the overall representation of the most under-represented minorities in the STEM fields. As of 2022, according to the reports of diversity by the National Science Foundation, Latinx and Women are the two most under-represented minorities in STEM. I have three goals currently: to improve scientific self-identification in underrepresented groups, to mentor students from underrepresented groups, and to expose marginalized communities to opportunities in science.

Self-identification. One of the key factors that have been identified as an institutional barrier to educational success for underrepresented minorities is the lack of appropriate representation in faculty members. For example, it is increasingly recognized in the literature that the relationship between Hispanic students and their predominantly non-Hispanic faculty encourages disengagement from academic work. Accordingly, one reason I strive to be a leader in my field is so that, when I teach and give talks people

from underrepresented groups can see someone like themselves in those positions. This is particularly important for young people interested in science. Recently, I developed a booth in the Science Fest (attended by 150-200 middle school students) to show how we can "build to understand." Although the objective was to demonstrate the use of robots and programs to understand living organisms, an important goal was for young people to see Latinx representation amongst scientists.

Mentoring. Over half of the students that I am currently mentoring and collaborating with belong to groups that are underrepresented in Computer Sciences. I have been a contributor and mentor to 9 students from the Center for Excellence for Women and Technology (CEWIT) at IU over the past five years. I have also regularly taken part in their workshops and I contribute my time to the 'hackathons' and poster competitions as a volunteer. I have also been in conversation with the leadership from IU's Latino Cultural Center La Casa about how to get more involved. I have arranged several different events to talk to Hispanic students on campus about my path to becoming a scientist. *I highly encourage the committee to also read my teaching statement, where I provide outstanding feedback that has been given to me in relation to mentoring under-represented groups, as this feedback is highly relevant to Broadening Participation in Computing.*

Outreach. For the purposes of serving specific underserved groups, I have worked with organizations that are specifically relevant to them. In the context of helping women in Science and Engineering, I have worked closely with the IU Center for Excellence for Women and Technology over the past five years, providing first-time mentoring in a science research project to nine students in total. In the context of Latinx, I have worked closely with the Latino Cultural Center at IU (La Casa) to hold regular meetings with students for them to ask questions about my academic path and research trajectory. I have also worked closely with the office of Diversity and Inclusion to find ways to make the learning environment in the classroom as equitable as possible.

Finally, there are two overarching principles that I have learned from working on diversity and inclusion over these past five years. The first lesson has been to always *remain humble*. There are infinite ways that we can learn to improve each day. Each day is an opportunity for learning a new way to improve. I seek to *maintain a growth mindset* in all aspects of my life, but particularly in this arena. The second lesson has been to focus on *one small change at a time*. It can be overwhelming to try to achieve a perfect classroom environment, but instead focusing each week or each semester on one or a small number of key improvements, makes the changes be realistic and achievable. And these changes accumulate over time.