

# Diversity, Equity, and Inclusion Statement

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To support the diverse identities of those around us, we need to treat each other with dignity, which both honors our differences and unites us as human beings. When we recognize the dignity of others, we acknowledge that they alone control their own identity and values. Individuals that form a community, such as a college department, are united by a shared pursuit of achievement, impact, and recognition even though each individual was motivated to join the community based on different life circumstances and values. Each community member has the right not only to be regarded according to their role in the the community's united purpose but also to control whether and how they are acknowledged for their identity, values, and life circumstances. From these principles stem the following tenets: that we should not make assumptions about others, that we should treat others according to what unites us, that we should allow others to dictate to us how they desire their identity and values to be regarded, and that we should respect, acknowledge, and validate those desires.

In the following sections, I discuss the impact of institutional biases on diversity, equity, and inclusion in Section 1, consider some best practices for recruiting a diverse student body and faculty in Section 2, reflect on inclusive leadership in Section 3, describe the importance of accommodations to ensuring equity in Section 4, and express my aspirations for my research to create equity in society in Section 5.

## 1 Institutional Biases

Many top-ranked university departments and faculty therein came of age before the recent emphasis on diversity. Consequently, many departments retain latent, built-in biases that favor privileged, majority populations. Institutional efforts to understand and redress these biases often focus on visible forms of diversity, such as race, ethnicity, and gender expression, which are used in reporting statistics and enforcing quotas relating to interviewing. These processes bring attention to existing institutional biases, but we must recognize that simply reporting statistics and following quotas are not sufficient to enhance diversity, equity, or inclusion.

In particular, a focus on visible forms of diversity can become an obstacle to some students after matriculation. For example, many departments promote inclusion by hosting events that celebrate certain identities with minority representation (e.g. women or underrepresented races and ethnicities). It is beneficial to make students feel welcome both as individuals and as members of groups they identify with. However, in sponsoring and organizing such activities, a department might decide whom to invite to such events based on its own assumptions about students' identities, thus ironically depriving some students of the right to fully control the expression of their own identities and values. Additionally, such activities risk reinforcing students' assumptions of one another when they are separated according to their identity rather than unified according to the academic pursuits they share. Efforts to highlight and foster pride in students' identities can be very worthwhile when they reduce the sense of isolation for included students, but the potential drawbacks illustrate that administrations must be mindful about how they promote inclusion.

## 2 Recruitment through a Leaky Pipeline

We often see a focus on diversity in recruiting students, staff, and faculty, which is justified by the need to foster equity and inclusion. Given the limited information contained within an application, it is common to use visible forms of diversity (especially race and gender) as a proxy for

broader diversity in life experiences. I served on the Cornell computer science Ph.D. admissions committee that garnered attention in 2018 for our success in recruiting a diverse incoming class according to these visible features. A key component of that success involved reaching out to minority organizations around the country and making students within those organizations feel welcome as individuals and encouraged to apply. Such organizations include the Richard Tapia Celebration of Diversity in Computing, the Grace Hopper Celebration of Women in Computing, the Society of Women Engineers, and the National Society of Black Engineers. In screening applications, it is common for readers to search for reasons to reject an applicant. We additionally made explicit criteria for reasons to accept an applicant. Applicants from underrepresented groups in computing (women, racial and ethnic minorities, disabled persons) received additional rounds of scrutiny to make sure that no deserving applicant was overlooked.

A mindful awareness of diversity during recruiting is important, but departments must play an active role in combating the perception that any member of a visible minority group benefited from affirmative action. I know of numerous incidents in which students accused others of being admitted to a prestigious program only because of their gender or racial identity. Even if students are fortunate enough not to encounter such overt bias, societal stereotypes are well known and can play the same role. Many stereotypes are associated with some minority group being bad at a particular subject or activity. Studies of *stereotype threat* have shown that when faced with a difficult exercise, people from a such a minority group are more likely to think of the stereotype and attribute their struggle to an intrinsic lack of ability, whereas students from other groups would simply think that it is a difficult exercise. The distinction between intrinsic and extrinsic explanations of struggle has significant effects on educational outcomes, including attrition. For this reason, departments must be transparent about how identity is *not* used in recruiting: lower standards are not applied to increase the acceptance rate for any set of students.

Admissions and recruiting in STEM are sometimes likened to a leaky pipeline in which diversity in STEM shrinks as students progress through school. I have observed this phenomenon first-hand. When teaching robotics to a middle-school class, I noted that many girls sat in the front row and actively participated. When teaching a high-school robotics club with students only a few years older, I observed that girls were largely absent, and the few who attended sat in the back of the room. From this experience, I concluded that by the time students are old enough to apply for graduate school or faculty jobs, many students who could have enjoyed computer science and engineering have already dropped out or chosen other paths.

To promote diversity in STEM requires mitigating several obstacles that students face. First, many K-12 students are unaware that computer science and engineering exist, or they lack an understanding of what those disciplines are about. To promote greater understanding, I run an annual program in cooperation with 4-H of New York State that teaches computational thinking to high school students from underserved schools throughout the state. The program draws students from all backgrounds and focuses on helping students escape situations of both urban and rural poverty by inspiring them to explore possible careers. My program introduces students to robot programming while carefully avoiding many of the frustrations of debugging. We nurture intrinsic motivation so that the students stay engaged with the curriculum and feel empowered to succeed. Many of these students have expressed that they would like to seek out more experience with computer science and robotics in the future.

For similar reasons, I also participate in outreach programs for women and minorities who are matriculating into the undergraduate engineering program. Robots are an excellent way to get attention, and I leverage them to engage students in robotics and computer science as well

as show the students that the material is both exciting and within their reach.

### **3 Leading by Listening**

I have a rainbow “safe space” sign on my office door. To some visitors, this sign symbolizes that everyone is welcome. To me, it has a deeper significance. It inspires me to better understand the values of students who do not have the “typical” background by listening to them without judging. I frequently tell students — especially those in distress — that my office is a judgment-free zone and that they will not be judged for anything they say. By creating this safe space, I have found that students will speak candidly about their experiences and how they view them. Being listened to without judgment helps mitigate distress and solve problems. I use the insight that I gain from these students to grow as a teacher, mentor, advisor, and person.

In striving for an inclusive lab environment for my research group, I organize a weekly lunch lab meeting. Both undergraduate and graduate students who do research with me are invited to participate. Students give regular mini-updates on their research, and students are encouraged to periodically present longer-format talks about something they have recently worked on or learned. This format sets the expectation that all students are equals with something to contribute, regardless of background or experience, and that we all have something to learn from one another as well. I also encourage lab members to organize occasional lab culture days, in which we discuss a topic of current importance to campus culture or American culture at large. Examples of past culture day topics include mental health and diversity.

### **4 Equity through Accommodations**

Treating students equitably sometimes means making accommodations. As a course instructor, I typically receive a few letters each semester from Student Disability Services affording a student extra time on exams or an exam room without distractions. These are the students who were self-aware and self-confident enough to seek out help through the formal channels. Other students fall through the cracks. In teaching, I monitor student performance for signs of struggle so that I can pro-actively intervene and get students the resources they need.

Inevitably, some students fall through the cracks because the system is not set up to anticipate all possible special needs. I feel a personal responsibility to champion my students’ needs and help them be as successful as possible. For example, I advised a Ph.D. student with a disability who required several unusual accommodations. The disability is not visible, which contributed to difficulty obtaining needed accommodations. When the institution was initially unable to provide them, I worked with the administration and facilities coordinators to clarify her needs, obtain needed accommodations, and repair a few mishaps. This extra, personalized effort made all the difference in her graduate student experience. My supportive acknowledgment of her disability helped her to create space in order to grow as a person.

### **5 Equal Access to Technology**

As a technologist, I am aware that my work has the potential to both bring people together and create divides between them. Technology has been transforming society for two centuries. These changes often create winners and losers, since people without the education or resources to use technology get left behind. A major objective of my research is the democratization of technology to make its benefits accessible to everyone. I aspire to create robots that understand human social signals and mental models so that special education or training is not required. At the same time, I seek to build robots with minimal computational and sensing requirements so that they may become more affordable and available to all who could benefit from them.