Broadening Participation in Computing Plan The University of Texas at Austin Computer Science (CS) and Electrical and Computer Engineering (ECE) Effective Dates: 02/07/2024 - 02/07/2026



Prepared and Overseen by:

CS: Don Fussell, Chair (fussell@cs.utexas.edu) Alison N. Norman (ans@cs.utexas.edu) ECE: Diana Marculescu, Chair (dianam@utexas.edu) Christine Julien (c.julien@utexas.edu) Andreas Gerstlauer (gerstl@ece.utexas.edu)

1. Context: The University of Texas at Austin is a flagship R1 institution in Texas and is home to nationally recognized departments of Computer Science (CS) and Electrical and Computer Engineering (ECE). We have observed that student success at our university is correlated with family income, and so we choose to concentrate on providing our students from low-income backgrounds support and mentoring. We will also recruit them to our departments, where we help them be successful. The representation of groups the NSF considers to be underrepresented in computing are significantly higher amongst low-income students than our current student population. The state of Texas has a significant low-income population, as measured by students who qualify for free or reduced lunch, which make up 43% of the state's public school children. UT Austin is located in the Austin Independent School District (AISD). In 2022-2023, 50.9% of students in AISD gualified for free or reduced school lunch. The overall demographics of AISD include 54.4% Hispanic students and 6.3% Black students. These numbers are in contrast to the populations of the two departments. In CS, 17% of the 2031 undergraduate students are low-income, and those students are 34% Hispanic, 9% are Black, and 31% are women (n = 328 total low-income students). In ECE, 14.9% of the 1767 undergraduate students are low-income (n = 263 low-income students), and, overall, the undergraduate student population is 14.1% Hispanic, 2.2% are Black, and 23.4% are women.

2. Goals, Activities and Metrics: The mission of the UT Austin computing departments is to substantially increase the percentage of the enrolled, retained, and graduated students from low-income backgrounds over the next five years.

[Goal 1, G1 (Contact: For CS: Michaela Cicero. For ECE: Brittney Outlaw)]

Annually implement the following recruiting activities at the levels described:

- [A1.1] Day camps and summer camps, e.g. CS Summer Academies and the Longhorn Engineering Summer Camp (LESC). Over the next 5 years, we will offer 6-8 week-long summer and scholarship-based summer camps. We will collaborate with the Office of Admissions to recruit students from middle and high schools with a high percentage of low-income students.
- [A1.2] Collaborations with K-12 schools, e.g. the Edison Lecture Series, Coding in the Classroom, and AI/ML 101 for High School Educators. Over the next 3 years, we will expand collaborations to include 15 Texas high schools, 6 middle schools, and 6 elementary schools. These programs will include outreach, recruitment, and professional development for teachers. These outreach programs and professional development opportunities will focus on recruiting participants from schools with a high percentage of low-income students.
- [A1.3] Encourage admitted low-income students to accept admission, e.g., through outreach via phone calls, letters, and or dedicated events. In both departments, these students will be invited to participate in on campus events like Texas ECE VIP Day and UTCS Follow the Leader. Within 3 years, we will expand to have each department hosting 7 yield events per year.
- [A1.4] Expand summer transition programs open to all students to help them feel included and welcome in the departments upon arrival. In CS, we already offer such an annual program in a limited way; we will continue to expand the event. ECE will participate in a soon-to-launch annual summer bridge program being designed as an engineering-wide program.

[Goal 2, G2 (Contact: For CS: Alex Bernal & Alison Norman. For ECE: Brittney Outlaw)]

Build a supportive and socially conscious culture through conversations and other community events across the campus computing community, with the goal of conducting 12 such events per year by 2028:

- [A2.1] Provide student support structures and welcoming environments, e.g., the ECE TALENT Success Program, first-year interest groups in both departments, and orientation and advising events. We will host yearly opportunities for TAs, students, and student org officers to learn about strategies for creating welcoming environments.
- [A2.2] Host learning communities with guided reading lists to challenge our thinking around social issues and computing. The communities have and will include faculty, staff, and students.
- [A2.3] Host informal efforts like community town halls and events like faculty fireside chats that foster intra-departmental communication and support students who may otherwise feel less included in the department.

[Goal 3, G3 (<u>Contact</u>: For CS: Alex Bernal & Alison Norman. For ECE: Brittney Outlaw & Tom Atchity)**]** Implement activities at the levels described below to expand opportunities for students to learn about graduate school and how to apply, which is particularly important for low-income students, and broaden the mechanisms through which we disseminate information about graduate programs:

- [A3.1] Provide summer research experience for undergraduate (REU) programs to positively impact the number of low-income students' enrolling in graduate programs. The ECE Next program already exists in ECE for this purpose, and CS will work to establish a formal REU program that similarly aims to create an inclusive and welcoming community. Within the next 2 years, we will connect with 7 other CS/ECE departments at universities across Texas. In coordination with the faculty and student groups at these institutions, we will recruit all students, with a focus on low-income students, to summer research programs and to our graduate programs.
- [A3.2] Both departments will expand or create graduate application assistance programs. The ECE Next program offers a fall semester workshop on graduate school applications, followed by personalized guidance for ECE Next scholars. Within 3 years, both departments will expand programs to offer such workshops every semester for all students, with a particular focus on inviting low-income students who may not otherwise have access to such mentoring.
- [A3.3] Both departments will expand or create research-introduction sessions to help undergraduate students learn about research. CS holds annual sessions on the same topics for student organizations. ECE will expand and build on the existing ECE Next program workshops.
- [A3.4] CS and ECE will expand their graduate school recruiting activities, such as attending Grace Hopper, Tapia, SACNAS, SHPE, NSBE, and Afrotech conferences. We will fund current students, faculty and staff to attend 8 events annually to recruit new graduate students.

[Goal 4, G4 (Contact: For CS: Alex Bernal & Alison Norman. For ECE: Tom Atchity)]

Ensure that all current students have access to the resources they need to succeed in our graduate programs, which is particularly important for students with lower levels of informal mentoring, such as low-income students. Develop or expand our mentoring programs each year and establish yearly panels by 2028.

- [A4.1] Run graduate mentoring programs for incoming graduate students, such as the ECE Partners program that pairs new incoming grad students with senior peer and faculty mentors to aid in their first-year transition.
- [A4.2] Provide mentoring to help students achieve expected milestones on time and to help students navigate unintended complexities of graduate school. These programs will be expanded with cross-department seminars on topics like time management, imposter syndrome, etc. We will also expand students' access to mentors from outside their specific research area to help students navigate their advisor relationship and other aspects of the Ph.D.

To measure progress, we will collect trends in the populations of students from low-income backgrounds who apply, enroll, and graduate from our programs. In addition, we will collect demographic information (including family income, race, ethnicity, and gender) for all of our students, applicant pools, and admitted students and assess trends in this data to determine the impacts that these programs have on the demographics of our student populations. We will also use surveys and other qualitative feedback mechanisms to measure the supportiveness of our culture.