MIT EECS Diversity, Equity and Inclusion (DEI)
Annual Report: September 2021-August 2022

Prepared by Dr. Amanda Beyer-Purvis, EECS Program Director of DEI, Prof. Leslie Kolodziejski and Prof. Frédo Durand, EECS Equity Officers

EECS Diversity, Equity and Inclusion Goals

The goals for EECS Diversity, Equity, and Inclusion this year were three-fold:

- Support and continue to grow DEI efforts already underway within the department
- Continue to build the DEI infrastructure within the EECS department to create supportive groundwork for current and future DEI initiatives.
- Launch new initiatives prioritized by the department

The annual report outlines the work done in these areas for our EECS community to review.

Table of Contents:

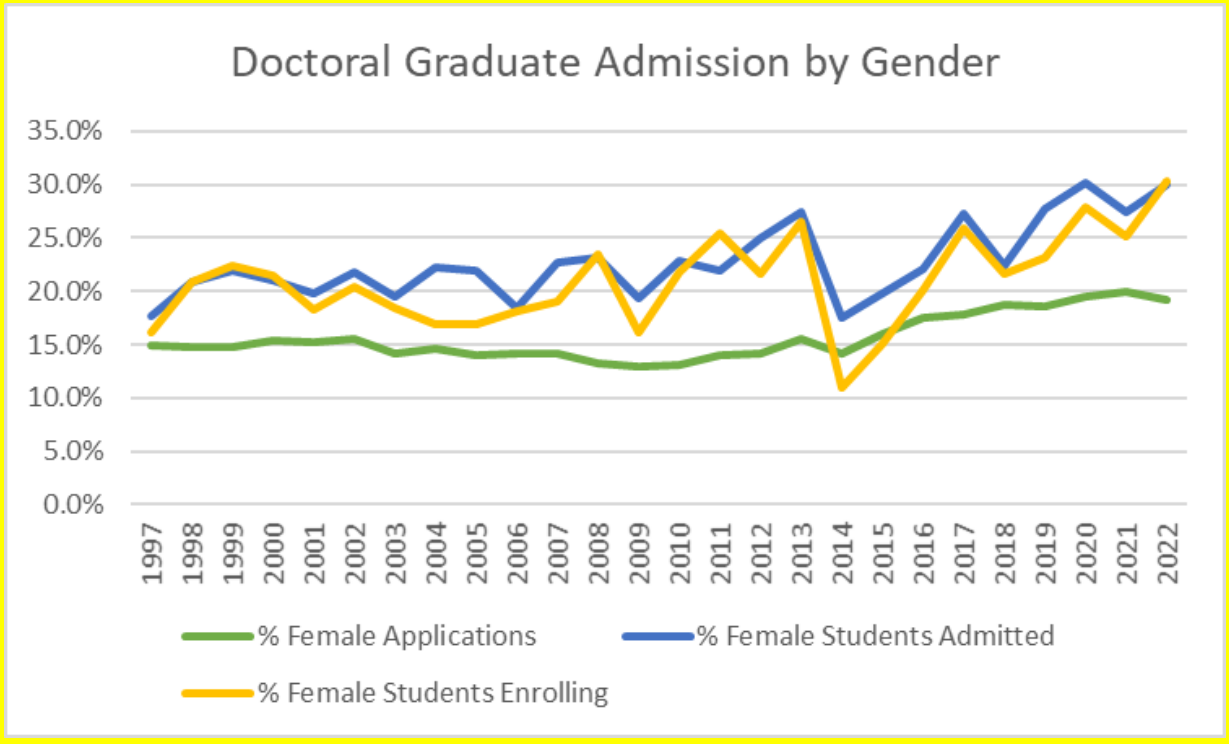
Department Demographics Update

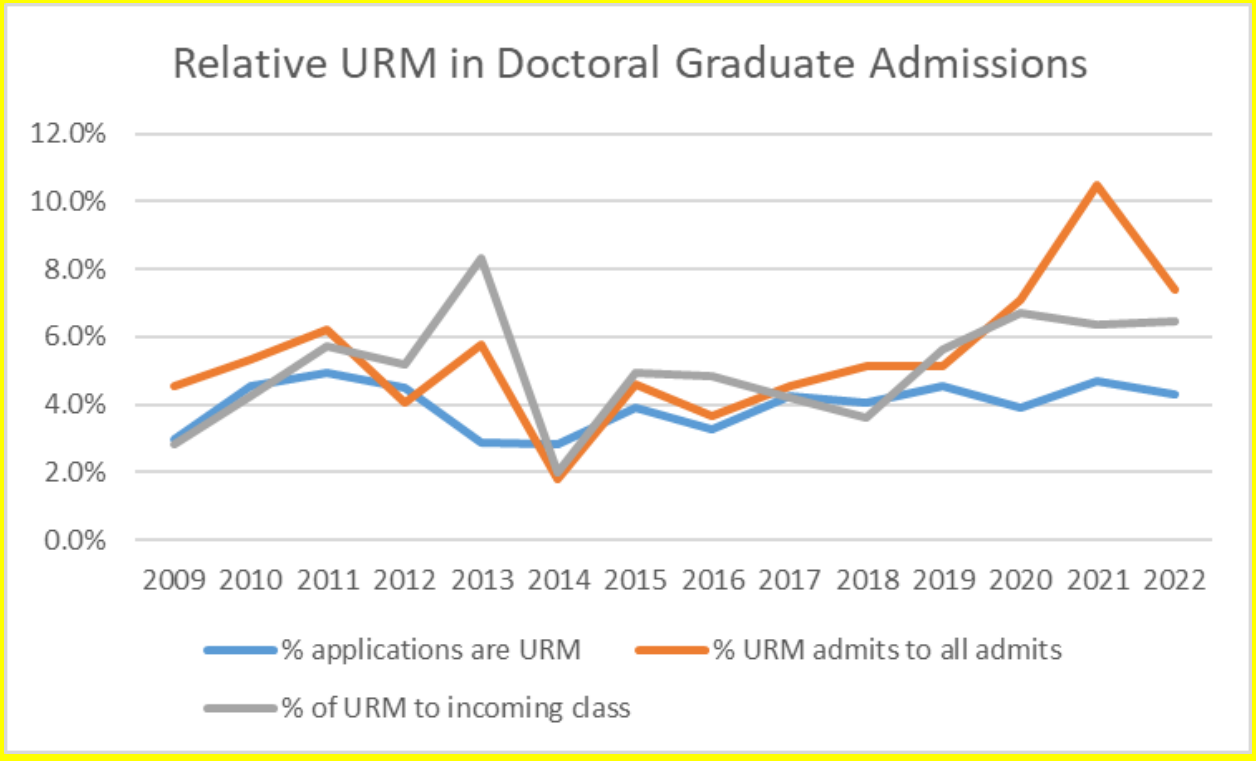
The department now publishes demographic information at https://eecs-dei.mit.edu/data-about-diversity-and-climate/ and we give a quick summary in this section.

At the undergraduate level, the gender makeup of MIT EECS has significantly improved over the last two decades, going from 24% of students who identify as women in 2005 to 43% in 2022. Over the same time period, the proportion has gone from 20 to 27% for graduate students (which includes Masters of engineering students).

For the PhD program, over 30% of the 2022 class identify as women. Underrepresented Minorities (URMs) make up 30% of our domestic undergraduates (vs. 32% of the US population). This number was 21% in 2005.

At the graduate level, the number went from 9% in 2005 to 14% in 2022. In order to gain more insight about our PhD program demographics, we provide plots for the makeup of our applicant pool, admitted students, as well as the students who actually enroll.



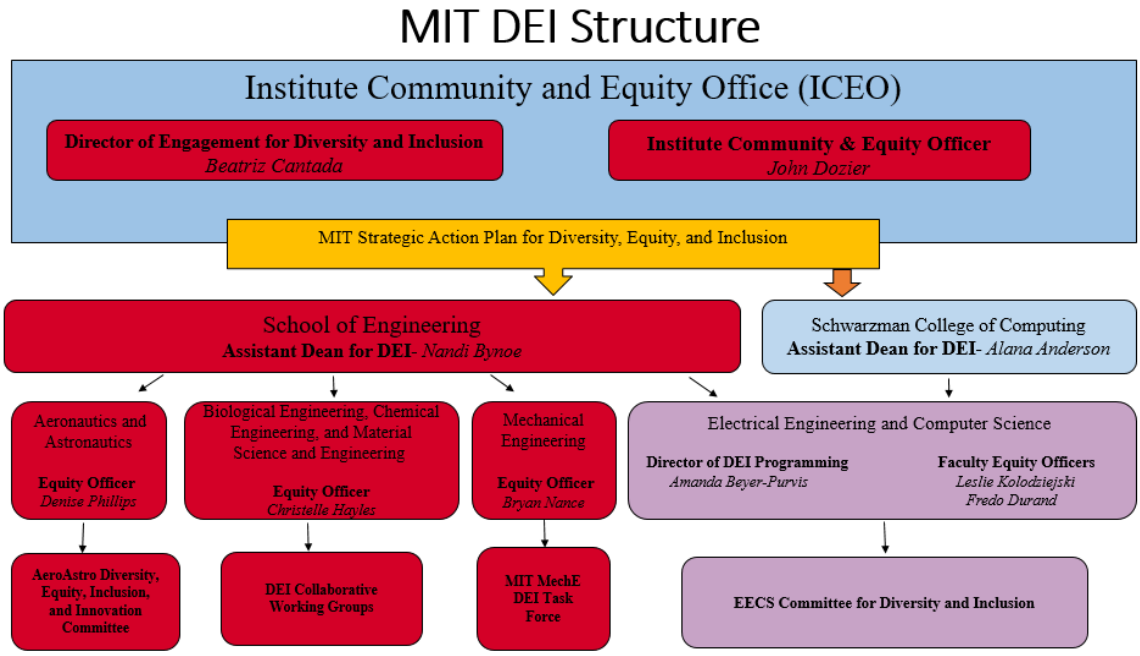


Building DEI Infrastructure

MIT has spent the last academic year creating an institutional DEI structure to begin implementing change work around diversity, equity and inclusion throughout the institution. EECS worked to implement structural support for Diversity, Equity, and Inclusion work within the department. EECS DEI work is connected to the Institute Community and Equity Office (ICEO) which is overseen by John Dozier and Beatriz Cantada, as well as work at the school and college level through the Assistant Deans for DEI in the School of Engineering and the Schwarzman College of Computing. The ICEO recently released the institution-wide MIT Strategic Action Plan for Diversity, Equity and Inclusion which will direct the broad DEI actions of Schools, Colleges and Departments at MIT.

To assess, guide and implement the actions within the EECS, the department hired Dr. Amanda Beyer-Purvis as the Diversity, Equity and Inclusion Program Director in January of 2022. She organizes and oversees efforts in inclusive excellence and reports to both the School of Engineering Assistant Dean for DEI and department head to provide some amount of independence and create synergies. The DEI program officer

works as a team with the EECS faculty equity officers, Leslie Kolodziejski and Fredo Durand. EECS has also been developing partnerships, and participating within and outside MIT, to improve inclusive excellence both in the department and in the broader EECS MIT-wide ecosystem. EECS has members on the School of Engineering DEI committee, has been meeting bi-weekly with the Office of Graduate Education, and joined the monthly DEI meetings hosted by the MIT Institute Community and Equity Office (ICEO), while also meeting regularly with outside peer university partners such as the LEAP alliance and the Sloan Foundation directors group of the University Centers for Exemplary Mentoring across the US. EECS also engaged in continued action and learning within the standing Committee on Diversity, Equity and Inclusion.



EECS Committee on Diversity, Equity and Inclusion (CDEI)

The Committee on Diversity, Equity and Inclusion plays an oversight and information gathering role. It includes faculty members, undergraduate students, graduate students, postdocs and staff and is co-chaired by the DEI program director with participation of the equity officers. Members will serve two years, renewed in half every year. The committee may sponsor targeted task forces. This year the CDEI committee worked on finalizing the hire of the Director of DEI Programming for EECS, as well as compiling all the change ideas and input about institutional knowledge gathered from a year of community outreach and discussion into a topical outline for the EECS DEI Strategic p Plan. Our new Program Director of DEI also engaged in mini-education sessions addressing current DEI best practices and research-based knowledge to help build a base of expertise with committee members.

EECS Faculty Equity Officers

Equity Officers, Prof. Frédo Durand and Prof. Leslie Kolodziejski worked to onboard Dr. Amanda Beyer-Purvis as the new Program Director of DEI for EECS and introduced her to the many DEI efforts and initiatives within EECS. The EECS equity officers continue to be members of the department leadership group (DLG) that meets weekly during the academic year, and the equity officers also serve as members of the EECS Committee on Diversity, Equity and Inclusion (CDEI).

EECS Program Director of DEI

The Program Director of DEI spearheaded several initiatives in her first year including:

- Collaboratively working with the faculty equity officers to produce a DEI Strategic Plan for EECS; the draft strategic plan is being presented to stakeholders for input and will be launched in early 2023.
- Organizing a computer lending program in EECS
- Working to find a space in the EECS area for a Meditation/Prayer Room.
- Coordinating regular meetings and collaborations with the administrator of the MSRP: MIT Summer Research Program, Dr. Noelle Wakefield, to create EECS specific supports around the MSRP program
- Increase our presence and coordination for attending conferences that promote diversity in STEM. Twelve EECS student/faculty/staff community members attended Tapia Conference: Celebrating Diversity in Computer Science in September and hosted exhibition booths to connect EECS with diverse computer science students and faculty from around the country.
- Met with undergrads and grad students to discuss finding ways to provide administrative support and advocacy to help their organizational efforts.
- Supporting the connection of EECS to the LEAP Alliance of peer universities.
- Participating on the DEI Committee in the School of Engineering representing the EECS department, in addition to a number of other institute-level committee activities including the new SoE Post-doc program planning committee and the ICEO institutional-wide diversity officer meetings.

EECS DEI Website

The new website contains extensive DEI content available at Community and Equity-Diversity, Equity, and Inclusion – MIT EECS. Conversations have begun with the EECS Communications Officer Jane Halpern about how to make all the information on the website accessible and engaging so as to organize the website during the 2022-23 academic year.

Conflicts and Reporting

See previous annual report

Synergies Inside and Outside MIT

DEI work across MIT has expanded greatly in the last year. Below are some updates from our partners in DEI work from around the Institute:

- *MIT ICEO (Institute Community & Equity Office)* has released an institute-wide Strategic Action Plan for Belonging, Achievement, and Composition that will help inform prioritizations and initiatives within departments and at the institute level. The ICEO representatives are organizing meetings and retreats to coordinate and support departments.
- School of Engineering (SoE) and its DEI committee, planned a Postdoc program for underrepresented populations in 2021-22 and launched the program Fall 2022. EECS equity officers and Program Director for DEI participated in planning aspects of this post-doc program.
- Assistant Dean of DEI for the School of Engineering, Dr. Nandi Bynoe and the Schwarzman College of Computing Assistant Dean of DEI, Dr. Alana Anderson both meet regularly with the EECS Program Director of DEI to coordinate broad initiatives like conference presence, developing relationships with historically Black colleges and universities (HBCUs), and strategic plan coordination.
- IDHR (Institute Discrimination and Harassment Response Office)
- OMEFAC (Office of Minority Education Faculty Advisory Committee)
- MIT EECS is a member of the LEAP alliance (formerly FLIP alliance) and continues to attend meetings to coordinate opportunities for our LEAP fellow cohorts. LEAP is also starting to coordinate CS conference attendance to have LEAPAlliance presence and impact.
- OGE (Office of Graduate Education): EECS is developing a relationship with OGE in order to align with OGE efforts at recruitment and retention of URM students and to help craft our MSRP participation and expansion.

Activities Related to Faculty Hiring

In the Spring of 2022, faculty search chairs heard presentations from the Assistant Dean of DEI for the College of Computing and the EECS Program Director for DEI on best practices for diminishing bias and increasing equitable processes in hiring. In addition, EECS faculty searches piloted virtual pre-interviews with the goal to increase engagement with potential candidates as full campus visits are limited in number due to time and resources.

EECS/CDEI Task Force on Graduate Admissions

This year the EECS Department, along with the EECS Committee on Diversity, Equity and Inclusion (CDEI), formed a task force to consider all aspects related to EECS PhD graduate admissions activity. The overall goal aims to ensure a diverse graduate student population with regard to all aspects of diversity, including gender and gender identity, ethnicity and race, citizenship, undergraduate institution and experience, socio-economic status, individual experience or circumstance, sexual orientation, family status and military engagement, as examples.

The activity of the task force will consider these aspects of the doctoral graduate admissions activity including:

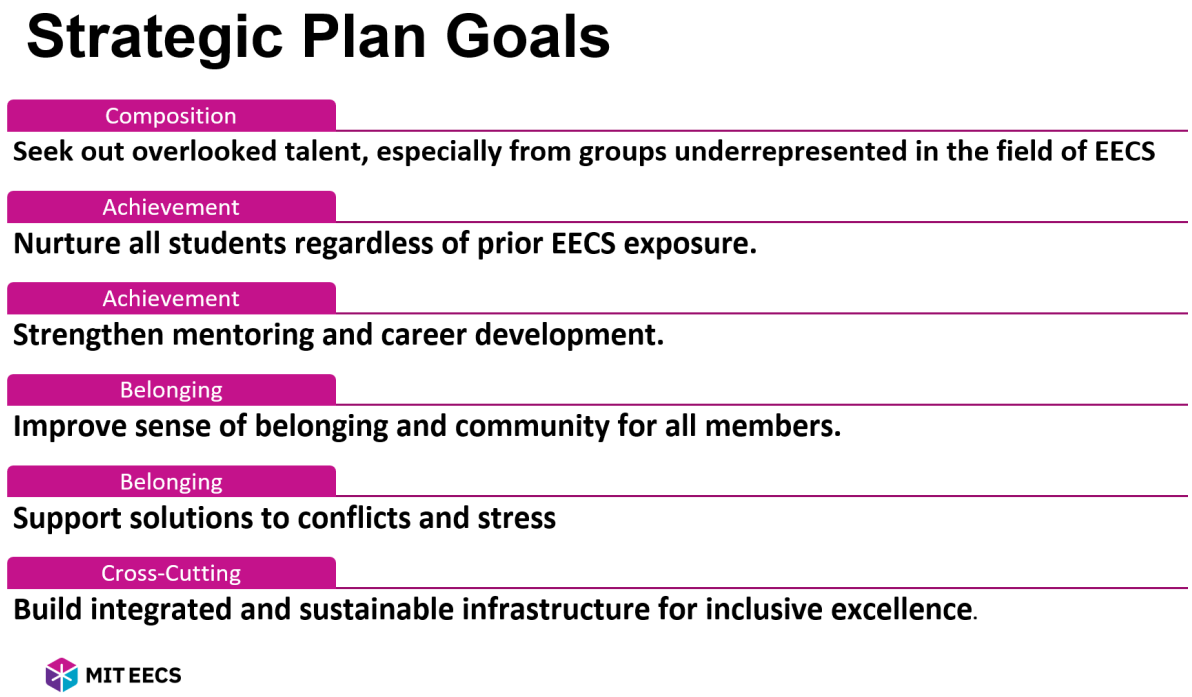
- review the visibility of our EECS PhD program;
- engagement with applicants prior to decision;
- engagement with admitted student following admission decision;
- review of the Grad Apply application website;
- review processes carried out by sub-area chairs and committee members; and
- efficacy of current “guaranteed support” system for first year PhD students in EECS.

The results of the grad admission task force’s research and list of recommendations will be compiled and brought to departmental leadership for consideration in Fall 2022, and then implementation will begin in Spring of 2023.

EECS Strategic Plan for Inclusive Excellence

This year, Equity Officers, Prof. Frédo Durand and Prof. Leslie Kolodziejski and DEI Programming Director, Dr. Amanda Beyer-Purvis began to develop the draft document of the EECS Strategic Plan on Inclusive Excellence. The strategic planning process began in 2020 with the CDEI gathering community information and feedback, reviewing available department data, reports, petitions and DEI best practices and then compiling a list of comprehensive potential recommendations for initiatives to include in the strategic plan. The CDEI then gave feedback on prioritization within the comprehensive list and worked on developing an organizational structure for the strategic plan. The drafting process for the strategic plan began in the Spring of 2022. The EECS strategic plan for inclusive excellence is organized into two levels of detail and follows the three pillars of the MIT-wide strategic action plan for belonging, achievement and composition.

EECS has six goals:



The plan seeks to provide a broad picture of the DEI work for the EECS department and includes existing as well as future efforts. It is not meant to be limiting but describes recommendations where EECS can have an impact on creating sustainable efforts to grow inclusive excellence in composition, achievement, and belonging within the department. This plan seeks to improve achievement and belonging for all community members and all roles: undergraduate students, graduate students, staff, faculty members and lecturers. The plan will be launched in early 2023. We aim to start the implementation of all recommendations within three years.

Improving DEI for Graduate Students

MIT Guaranteed Transitional Support Program

EECS continues to provide transitional support for PhD graduate students moving, or transitioning, from one research group to another research group. The availability of such support has been more broadly known since spring term 2021 with the institute-wide implementation of the Guaranteed Transitional Support Program. [Note: EECS has always provided such transitional support using departmental bridge funds along with personal support from the EECS graduate officer.] As part of the MIT guaranteed transitional support program, the support offered is personal support, academic and financial support, and coaching. Financial support may be in the form of a departmental teaching assistantship, a research assistantship or a departmental fellowship. Since the first offering of the MIT program (and through the summer session

2022), 44 graduate students (40 in EECS and 4 outside of EECS) were guided through the process by the EECS transitional support coordinator (TSC) Professor Leslie Kolodziejski. Twenty-eight graduate students received personal support and coaching, whereas 16 received financial support from the department totaling $853,410 along with personal support and coaching. A majority (>60%) of the transitions have been successfully navigated and the graduate student has a new project and research group; some transitions are still ongoing and being navigated with support from the TSC, and of the 44 students, one individual decided to withdraw from the PhD program and pursue industrial interests. It is important to point out that all conversations between the TSC and graduate students are confidential with the goal of allowing open, supportive and honest conversation among parties. If desired, additional transitional support coordinators are available to help our EECS graduate students when a student desires to engage with a TSC outside of the department; the list of all TSCs is found here.

Additionally, a Strategic Plan for Graduate Advising and Mentoring at MIT was produced by the Ad Hoc Committee on Graduate Advising and Mentoring that outlined recommendations around (a) the creation of a platform for faculty and thesis supervisors to acquire professional skill development and lifelong learning in mentorship; (b) tools and mechanisms for graduate students to provide feedback to research advisors; and (c) normalized, equitable metrics of assessment of mentoring that support professional development and can be readily adopted into performance and promotion reviews for research advisors. EECS has begun the work of reviewing how the strategic plan for advising and mentoring can inform best practices within our own department.

PhD Student Check-in

In 2020, the EECS department piloted a new initiative that aimed to provide support to research advisors and their PhD graduate students with the creation of an online-tool accessible by both parties. The goals for the PhD Student Check-in were to provide some structure, or guidance, to assess the activities and progress of the graduate student, to provide input to, and an opportunity for feedback from, the advisor, and a way to archive the information from year to year. The PhD Student Check-in would be completed each year from matriculation to graduation of the PhD student. The PhD Student Check-in consists of three activities: (1) a reflection that is completed by the PhD student, saved and submitted, (2) feedback that is completed by the research advisor, saved and submitted, and (3) a conversation, preferably face-to-face, of both parties to discuss the information shared by each. The PhD Student Check-in covers each calendar year, and hence has been offered in 2020 and 2021; the third offering will be for 2022. Thus far, the participation rate has been mixed, but is declining. For 2020, the first year that the tool was offered, approximately 75% of the graduate student body

completed the student reflection, and about 50% of these students also received feedback from their research advisor. For the second year of the pilot, 400 graduate students, or 53%, have completed the reflection with 193, or 48%, receiving feedback from their research advisor. For our 840 PhD students, there are 238 unique research supervisors. Thus far, 22% of research supervisors have provided feedback using the online tool with 13 responding to some reflections from their graduate students. However, 26% of research advisors have responded to no submissions with 95 having no reflections offered and thus require no comment. Participation in the PhD Student Check-in has been bimodal showing that some research groups use the online tool consistently with all members of a research group offering a reflection of their annual PhD activities and having feedback provided by the research advisor; the other mode is no participation at all by either the PhD students or the research advisor. The EECS department will continue to offer the PhD Student Check-in for 2022 as the tool is very helpful for some research groups. Some modifications to the manner of using the online tool are under discussion and may be offered as a trial for the calendar year 2022 reflection and feedback by students and research advisors.

Using MIT authentication via Touchstone, the PhD Student Check-in can be accessed by either PhD student or research advisor using this link: PhD Student Check-in (2021) (mit.edu)

MIT University Center for Exemplary Mentoring (UCEM)

The MIT UCEM program was originally established in 2015, and funded by Alfred P. Sloan Foundation as part of their Minority PhD in STEM effort, aimed at diversifying academia; the support from the Sloan Foundation ended June 2022. Beginning July 2022, the program will continue within the School of Engineering and is temporarily named SoE Program of Exemplary Mentoring. The SoE PEM has expanded by including additional departments- NSE, CEE and DMSE. Led by the UCEM program's director, Professor Leslie Kolodziejski, the mission of the UCEM/PEM is to recruit, to provide academic/professional/personal support, and to facilitate retention, by creating a supportive community, to underrepresented minority doctoral students. Presently, the UCEM is in its 8th year and supports 75 scholars (8 cohorts) including the original five engineering departments at MIT (BioE, ChemE, MechE, EECS, and HST). For the academic year 2022-23, community-building will continue to be emphasized, in addition to professional development by scholar participation in the Institute for Teaching and Mentoring and by the creation of their 'virtual self' for each scholar, along with re-engaging with the 25 MIT UCEM alumni for advice and guidance on careers after the PhD including academic career paths, entrepreneurial engagements and industry employment.

Group photo of many of the attendees at the close of UCEM Summer Retreat 2022 held in Falmouth, Cape Cod at AutoCamp. Thirty six UCEM scholars attended the retreat with all educational offerings provided in collaboration with Theater Delta Interactive Theater for Social Change.

Thriving Stars

A new initiative launched on Ada Lovelace Day October 12, 2021 is the EECS Thriving Stars program designed to impact the representation of women and underrepresented genders in the PhD program in EECS [Note: many events sponsored by Thriving Stars are described in greater detail on the EECS website hyperlinked above.] The effort strives to make inroads from all aspects of obtaining a PhD degree in EECS, including recruitment at the undergraduate level, graduate admission and enrollment into the PhD program, the journey to complete the PhD milestones, and then to graduation with the PhD degree. The effort works to increase exposure to undergraduates regarding the value of the PhD degree that will open doors for career opportunities and ultimately enhance career satisfaction. The effort will support the professional network of women studying in EECS at MIT and has numerous activities that will support the journey and nurture more rewarding engagement of women in the department. Thriving Stars is an activity that has established an engaged Advisory Board of very accomplished women in industry and academia, and is partnering with the GW6 co-presidents for engagement with the enrolled graduate women. Much of the Thriving Stars initiative will focus on out-reach and multiple manners of communication to highlight the goals of the program and the dedication of EECS to improving representation of women and underrepresented genders. For the first year, Thriving Stars hosted several activities: (1)

social activities for undergraduates and graduate student women in EECS, (2) GW6 Research Summit, (3) informational zoom chats with MSRP alumni, GAAP participants, all candidates in Grad Apply who may be considering applying, and also underrepresented students by race and ethnicity who may also be considering to apply, (5) a zoom conversation with newly-admitted PhD applicants to discuss career options and to impact enrollment, and (5) the Thriving Stars Research Summit to highlight the achievements and contributions of our senior PhD graduate students and recent EECS women alumni (the Thriving Stars Research Summit event was hybrid to reach a larger audience). For the first year of the Thriving Stars initiative, departmental records were broken with regard to enrollment into the PhD program for fall 2022. A record number (47) of women and underrepresented genders matriculated with the incoming class at 30.2% women and represents the largest female population in the department's history.

Question: When was your 'aha' moment and then what did you do? EECS graduate students chat with undergraduates to share some of their PhD journey, and who and what influenced their decisions. With delicious hors d'oeuvres, Thriving Stars sponsored a social mixer for over 60 women students in EECS.

EECS Graduate Application Assistance Program (GAAP)

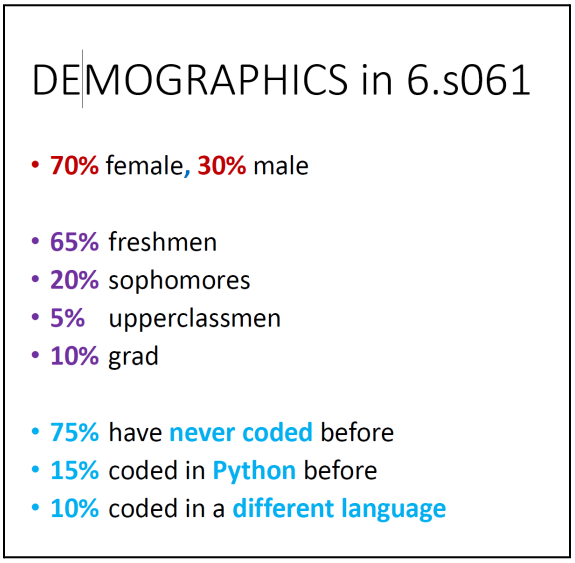
The THRIVE Graduate Application Assistance Program (GAAP) is a student-conceived and student-run initiative offered by PhD students in the MIT EECS department. GAAP leaders pair eligible applicants with current graduate student volunteers, to mentor

undergraduate applicants one-on-one through the doctoral graduate application process, meeting periodically with applicants all the way up to the deadline December 15th. Since the inaugural offering in fall 2020 (or three offerings), GAAP mentors have helped 540 mentee applicants through the application process. GAAP is a concerted effort made possible with the help of multiple student groups and offices within MIT, including THRIVE at EECS, the EECS Graduate Students Association, Graduate Women in Course 6, and the EECS Communication Lab, with support from the EECS Graduate Office and the EECS Committee on Diversity Equity and Inclusion. For the 2022 mentoring activity, GAAP has rallied 116 current graduate students to volunteer as mentors to 214 undergraduate mentees; the number of volunteers exceeds previous offerings of GAAP. The EECS Department also covered 91 graduate application fees to enable the GAAP participants to submit their applications to the 2022 admissions cycle.

Improving DEI for Undergraduate Students

On-Ramp to Computing in EECS

Last fall the department introduced a strategically paced version of 6.0001 called 6.s061. The new class maintains the same content and problem sets as 6.0001, but stretches the 6-unit half semester class into a full semester 9 unit class. The launch of 6.s061 drew a significant number of interested students with 69 students enrolling in Fall 2021, 67 enrolling in Fall 2022 and 96 enrolled by Spring 2022. Students have given feedback that they appreciate the more deliberate pacing, additional opportunities to get hands-on coding experience, and a growth mindset based environment that encourages skill building. One of the unexpected results of launching the class is the interest generated for Computer Sciences from students who self-reported they would not have considered 6.0001 or other CS courses. Students noted that the course increased their programming confidence and provided opportunities to program at different granularity levels. Course runners will continue to evaluate the success and benefits for students in order to provide an effective course that sets students up for success.



Conferences that Promote Diversity

As of fall 2022, we have enjoyed participation in the Richard Tapia Celebration of Diversity in Computing Conference, the Society of Women Engineers (SWE) Conference, the Institute for Teaching and Mentoring, and EECS community members will attend the National Society of Black Engineers (NSBE) Conference in the spring of 2023. Such avid and intentional conference participation has already had an impact in meeting students at all levels and welcoming them while providing more information about our summer research programs for undergraduates, about our doctoral graduate program, and about our postdoctoral research opportunities. We want to continue such outreach activities, and further expand our presence to Grace Hopper Celebration of Women in Computing, Society of Hispanic and Professional Engineers (SHPE), AfroTech: The Place for All Things Black in Tech and Web3 and others in the coming years.

Richard Tapia Celebration of Diversity in Computing Conference

In September 2022, EECS provided full financial support for the attendance of 8 undergraduates, 2 graduate students, 1 faculty member and 1 staff member to enjoy the Richard Tapia Conference. Our EECS exhibition booth was staffed by all of our EECS community member attendees, where we talked to students in all different stages of their academic career who were interested in learning more about MIT EECS; from summer research to grad school to postdoc programs.

EECS community members hosted visitors to our departmental ‘booth” to learn about EECS at MIT and to grab some fun swag touting our new department logo, colors, and to highlight the departmental organization of EE, CS and AI&D.

Society of Women Engineers (SWE) Conference 2022

Twelve EECS community members attended the Society of Women Engineers Conference in Houston, October 19-22 including our EECS graduate officer and graduate admission administrator, 4 PhD women and 6 undergraduates in EECS. EECS hosted a booth in conjunction with Chemical Engineering to show a meaningful presence by MIT, to recruit prospective students and postdocs.

After a long day chatting with visitors to the MIT EECS booth at the SWE conference, EECS conference attendees enjoy an evening of fellowship, conversation, delicious refreshments and a fun locale in Houston!

Building Relationships with HBCUs

In April of 2022, EECS sponsored Research Day at Spelman College. Dr. Alana Anderson, Schwarzman College of Computing Assistant Dean for DEI, Dr. Noelle Wakefield, Assistant Dean for Diversity Programming in the Office of Graduate Education, and Dr. Amanda Beyer-Purvis, EECS Program Director of DEI all attended Spelman's in-person research day to learn about undergraduate research at the college, promote summer research programs at MIT and make connections with Spelman students and faculty. This outreach will continue into the future and expand to additional HBCUs* in coordination with the Office of Graduate Education.

*Historically Black Colleges and Universities

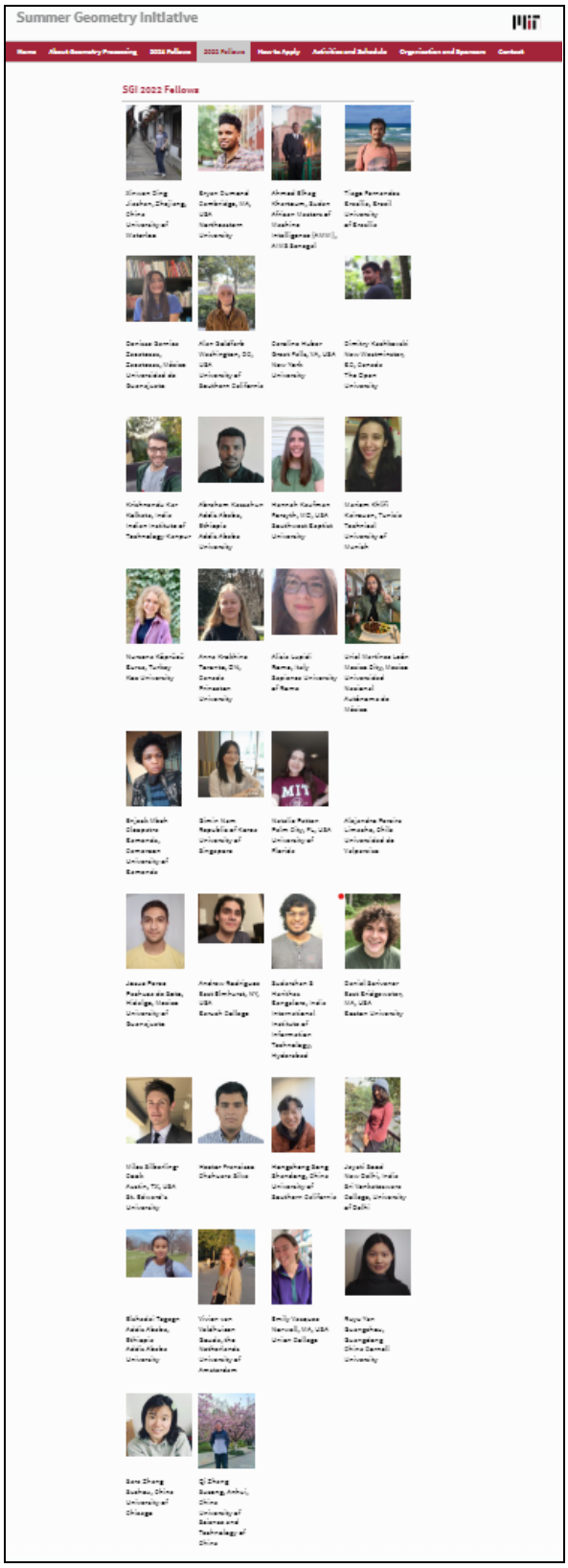
Expansion of the MIT Summer Research Program (MSRP)

This summer EECS hosted 15 MSRP interns, mentored by 12 EECS faculty members. The EECS Program Director of DEI began meeting weekly with the Assistant Dean of Graduate Diversity Initiatives within OGE who oversees the program to discover ways EECS can expand and engage further with the MSRP program. Additionally, Dr. Amanda Beyer-Purvis met with Prof. Aleksander Madry, an MSRP mentor to brainstorm through ways EECS can create wrap-around support for faculty and students engaging with the program. The EECS Graduate Office provided an informational session focussing on the graduate admission process in the department along with a discussion of the PhD program in EECS at MIT. MSRP interns along with graduate office staff and the EECS equity officers and Program Director of DEI enjoyed a picnic lunch in Killian court; a number of laboratory tours were also organized and offered to show the MSRP interns the many different facilities available to carry out our research.

Summer in New England is especially fun while picnicking with MSPR interns and EECS community members in Killian Court!

Summer Geometry Initiative

EECS Professor Justin Solomon created an online outreach program for undergraduate students from groups historically underrepresented in the field and who are interested in research on Geometry Processing. The Summer Geometry Initiative (SGI) is the result of discussions among a worldwide network of geometry processing researchers, which started during the 2020 Symposium on Geometry Processing (SGP)—which, like many conferences in 2020, was held online for the first time. While researchers were disappointed to not see each other in person at a conference center in Utrecht, the online format actually allowed SGP to reach a broader and more geographically diverse audience than ever before. The virtual summer offering helped the conference attendees realize that similar opportunities should be created for students and early-stage researchers to enter geometry processing research, even if they do not have opportunities to try this discipline at their home institutions. Ultimately, this led to the design of SGI, which is a summer research program designed to introduce a broad pool of students to geometry processing research through immersive interaction with top researchers in the discipline. In summer 2022, we hosted the second annual Summer Geometry Initiative (SGI), a six week online program giving training and research experiences in applied geometry to a cohort of 34 undergraduates and master's students from all over the globe---focused on students from underrepresented and underserved communities. SGI 2022 received nearly 600 applications and featured a cohort of



students from nearly every continent, who were paid to spend six weeks completing tutorials in geometry processing, attending guest lectures, learning about graduate school opportunities, and completing research projects led by top faculty and research scientists in the field. Many SGI 2021 alumni also applied for and entered top PhD programs in geometry processing and related fields, leading to a measurable increase in the diversity and size of the graduate cohort in the field.