

MIT EECS

Diversity, Equity and Inclusion

Annual Report

September 2020-August 2021

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EECS Diversity, Equity and Inclusion Goals

EECS at MIT strives for excellence in research and excellence in education. Importantly, excellence abounds in all groups of people having all identities. To achieve excellence, therefore, it is crucial that we invite and accept, empower, support and welcome all talent. To provide support to all community members, EECS at MIT must work toward becoming a more equitable and inclusive department. We must broaden the diversity of our faculty, student body and staff. We must work together to create a climate where each member of our EECS community is supported regardless of their race, gender, religion, sexuality, nationality, disability, veteran status, identity, family situation or circumstances. We strive to create a department that supports every individual so that they can do their best work, contribute to society in meaningful ways, and will enjoy a healthy wellbeing.

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I. DEI Infrastructure

EECS Committee on Diversity, Equity and Inclusion (CDEI)

In the fall 2019, the EECS department constituted a committee charged to focus entirely on diversity, equity and inclusion (DEI) with two faculty members as co-chairs (Prof. Frédo Durand and Prof. Leslie Kolodziejewski); additionally, the co-chairs participate weekly in the departmental leadership group (DLG) meetings where they serve EECS as Equity Officers. The relatively large CDEI is a diverse group of community members (faculty, staff, postdoctoral associates, lecturers, undergraduate and graduate students) whose collective goal is to improve the experience of all in EECS so each member can reach their full academic and professional potential. The CDEI meets weekly, and also hosts EECS Town Hall discussions planned for every fall and spring semester. During the timeframe of this annual report, however, three EECS Town Halls were offered: one in November 2020, one in March 2021, that focused on understanding the new organization and process of reporting conflict with the MIT Institute Discrimination and Harassment Response ([IDHR](#)) office, and a third town hall in June 2021.

During this reporting period, the CDEI welcomed a large number of guests from across MIT to inform committee members on a variety of important DEI-related topics or issues. The guests included: Professor Asu Ozdaglar (department head of EECS), Denise Phillips (diversity officer in the MIT Department of Aeronautics and Astronautics), Ebony Hearn (MIT Office of Engineering Executive Director of Outreach Programs), Sarah Rankin (Director of IDHR) along with Sarah Affel (Manager of Investigations at IDHR), Bianca Kaushal (Manager of Prevention and Training in IDHR), graduate student leaders (Micah Smith, Ella Wassweiler, Madeleine Laitz, Liane Makatura of the [THRIVE](#)-sponsored Graduate Application Assistance Program ([GAAP](#)), Kelli Hendrickson (faculty/professional coach and Research Engineer in Mechanical Engineering), and Christine Alvarado (Professor of Computer Science and Associate Dean for Students, UC San Diego to address representation of women in STEM). To complement the perspectives shared by the CDEI committee members, the co-chairs are also advised by a CDEI Student Advisory Group. The student advisory group consists of primarily graduate students with meetings occurring randomly throughout the academic year; moving forward, however, it is clear that the CDEI will benefit from the advice of the advisory group via regular (monthly) meetings taking place throughout each semester.

With support from the EECS department, the MIT School of Engineering, and the MIT College of Computing, a new DEI Program Director role has been established and an interview process was initiated in May 2021. Once the EECS DEI Program Director is added to the departmental leadership, a DEI strategic plan will be created in conjunction with the EECS community, and then implemented. The experience of underrepresented and marginalized community members will be a focus of the CDEI strategic plan effort with goals to increase representation, but also to improve the quality of life and to provide an equitable and supportive experience for all in EECS. More details of the EECS DEI work is found here: <https://eecs-dei.mit.edu/>. A separate discussion of the EECS diversity officer and the distinction with the EECS DEI Program Director is offered below.

EECS Faculty Equity Officers

Effective summer 2020, the department has named two senior faculty as Equity Officers, Prof. Frédo Durand and Prof. Leslie Kolodziejewski, to assist EECS in the many DEI efforts and initiatives. The EECS Equity Officers are members of the department leadership group (DLG) that meets weekly during the academic year, and the Equity Officers also serve as co-chairs of the EECS Committee on Diversity, Equity and Inclusion (CDEI). Additionally, the Equity Officers participate on the DEI Committee in the School of Engineering representing the EECS department, in addition to a number of other institute-level committee activities.

EECS DEI Program Director

As noted above, in collaboration with the MIT School of Engineering (SoE) and the MIT Schwarzman College of Computing (CoC), EECS is conducting a search for a full-time DEI Program Director. Importantly, the search is being organized and conducted in partnership with [Isaacson, Miller](#) (IM), an organization that specializes in personnel searches for exceptional leaders. [Note: the IM organization was instrumental in the hires of the two [Assistant Deans for DEI](#) in the SoE and CoC, and is also conducting the current search for the Office of Graduate Education to find the Assistant Dean of Diversity Initiatives.] The EECS DEI Program Director will work to (i) design and implement outreach activities to help attract and retain a diverse population of students and faculty, (ii) promote a diverse and inclusive culture within the department, and (iii) work with internal and external partners around MIT to develop tools, resources and a range of solutions to grow the inclusive supportive culture that EECS envisions. An important aspect of the DEI Program Director role will be to work directly with EECS faculty, the Leadership Giving Officer, and EECS' senior leadership, to raise the financial resources needed to effectively recruit a diverse population of students and faculty, and to create an inclusive environment within the department. A job description

was created to advertise the opportunity and has been posted. The DEI Program Director IM-led search process began in late spring 2021 with the goal to understand the challenge that EECS faces. Thus far, a number of listening sessions have been carried out by IM with key stakeholders: undergraduate and graduate students, staff and faculty/instructors (at all levels). In the listening sessions, participants were invited to share their views of the issues and problems that are affecting the EECS department, as well as to comment on the attributes of the DEI Program Director that will be necessary and valuable. [In case community members were unable to offer their input during a listening session, IM also created a survey for all EECS community members to use to submit their input and views.] A small CDEI-centric hiring team has also been assembled to assist IM in the search process; the hiring team consists of the two co-chairs of the CDEI, an EECS faculty member and a staff member, along with three graduate students and three undergraduate students. IM also engaged a discussion with the hiring team to understand the challenges and to also gather an appreciation of the characteristics that are important for the hire. From all of the many conversations, a candidate profile has been created and along with the job description, IM is presently searching the country for appropriate candidates; the current activity of the search involves networking and screening to find appropriate candidates for the position. In the upcoming fall 2021 semester, the remaining steps include narrowing the field by presenting potential candidates to the hiring team, whereby the hiring team will select finalists for interview, and then to create a rank-ordered list of 2-4 candidates to recommend to the EECS department head. The EECS department head will make the final decision in consultation with the EECS DLG, and others working in DEI across the institute.

In late 2020, the original plan of the EECS department was to hire an EECS diversity officer, who would be part of the CDEI and who would guide EECS forward in our DEI goals. EECS received more than 40 applications, formed a search committee with members of the CDEI, and began interviews in January 2021. Ultimately, seven applicants were interviewed by the CDEI hiring team, three of the seven withdrew from the search, and finally three candidates were selected for advancing to the EECS community by offering a public job talk. All three top candidates were asked to offer their vision of how they would impact diversity and representation of the EECS department should they join EECS at MIT; the public talks were offered using the virtual zoom platform. All three talks were attended by a diverse array of EECS community members. In addition to providing a Q&A session after each of the public presentations, a survey was extended to all attendees to gather their input and feedback. All three candidates had positive attributes and experiences that would benefit the EECS department. However, none of the three candidates were viewed as having the deep experience and broad perspective that was needed for the role EECS envisioned for the new diversity

officer hire. Therefore, the search for the EECS diversity officer was concluded without a hire. By reflecting on the hiring process, reviewing the diversity officer job description, and by reviewing the salary range, EECS determined that the departmental expectations of the new hire demanded a higher level position, a higher salary range, and greater experience of the candidates. Therefore, a new job description was created with the title DEI Program Director; the staff level was increased from 9 to 11, and the salary range was doubled. It is important to note that many EECS community members, students and staff and faculty, were extremely frustrated by the outcome of not hiring an EECS diversity officer. The EECS department leadership were also extremely frustrated. The decision not to hire was made in consultation with all community members in both EECS and across MIT more broadly who participated. Importantly, the search process for the EECS diversity officer was very encouraging as so many community members devoted much time and offered very valuable input to assist in the decision making process. The crucial importance for EECS to hire a person, either a diversity officer or a DEI program director, was made very clear in the entire search activity for the EECS diversity officer.

EECS Faculty Annual Input and Review

On an annual basis, EECS faculty submit summaries of their many activities related to scholarship in research, contributions to teaching, and manners of providing service, both internally and externally to the department and MIT. These annual summaries of faculty engagement and contributions are used to guide annual increases to faculty salaries. Beginning with the annual input requested in 2019 and also in 2020, EECS faculty were asked to consider ways that they support the community and how they foster a welcoming and inclusive environment. In the annual input, faculty were asked specifically to please share any activities that you conduct, or carry out, in your research group(s) that help to create an inclusive environment, that ensures equity among group members, or that is sensitive to diversity. From the input received by the EECS faculty in the 2020 annual input, a departmental resource was created to share best practices adopted within EECS and is found here: [Building Community DEI report](#). In addition, the 2020 annual input informed the EECS faculty that in 2021, their contributions to supporting DEI efforts of the department or MIT, or more broadly outside of MIT, will be considered along with research, teaching and service for salary increases.

MIT Guaranteed Transitional Support Program

In April of 2021, Phase I of the [MIT Guaranteed Transitional Support Program](#) was launched and EECS is a participating department. It is important to note, however, that EECS has always provided transitional support for graduate students moving from one research group to another research group. To make the availability of such support

more broadly known, in fall 2020, the EECS website was modified so as to provide a clearer [description](#) of the department's transitional support. The EECS Graduate Officer Professor Leslie Kolodziejski serves the department as the Transitional Support Coordinator and is a member of the MIT Transitional Support Coordinators Group, and also serves on the Phase II Guaranteed Transitional Support Working Group and the institute-wide [Ad Hoc Committee on Graduate Advising and Mentoring](#). All three committee activities are working synergistically to move MIT forward toward creating a climate of productive and supportive mentorship relationships between faculty and graduate students. Since April 2021, a number of EECS graduate students have reached out for guidance as they considered switching groups or took the steps to move to a new research group. 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. In the academic year 2020-21, seven EECS graduate students received departmental bridge support to total \$188,231. In the academic year 2020-21, seventeen first-year EECS graduate students received departmental support totaling \$546,704.

New EECS Website (to be launched early October)

MIT EECS has conducted an overhaul of its website which is due to launch in October 2021. The website features "Community and equity" as a top menu item to reflect the importance of these issues in the vision of the department.

We created new extensive DEI web content that is temporarily available at <https://eecs-dei.mit.edu> and will be folded in the new MIT EECS website under "Community and equity". The website provides demographics data about the department, and links to programs and organizations working on DEI in the department and elsewhere. The website serves to archive former reports and student petitions, and has resources for members of the community who seek help or want to report issues. The website offers a list of suggested activities that EECS members can participate in to improve DEI, as well as a reading list on these topics. Information within the website also provides guidance for DEI activities to add to proposals such as NSF, and in particular NSF's new "Broadening Participation in Computing" requirement.

Conflicts and Reporting

Based on community feedback and input from the EECS CDEI, we organized an EECS Town Hall with [IDHR](#) (Institute Discrimination and Harassment Response Office) representatives (Sarah Rankin: Director and Title IX Coordinator and Sarah Affel: Manager of Investigations) to provide information about conflict reporting and institute-wide support options that are available. The Town Hall was offered using the

Zoom platform and the formal presentation was followed by moving attendees to break out rooms for small group discussion and to provide feedback to the organizers and IDHR guests. Following the reorganization of the IDHR in spring 2020, and its expansion to include reports from faculty and staff, along with the undergraduate and graduate student body, little was known about institute-wide conflict reporting options, specifically with regard to harassment and discrimination. Thus as expected, one challenge that has been identified by IDHR leadership as well as the EECS CDEI is how to better [inform](#) the community about personal support and conflict reporting options. The challenge is believed to remain as attendance at the Town Hall was small, yet conflicts are still prevalent on campus. We remind the community that resources for victims and bystanders include IDHR, MIT's [Violence, Prevention and Response](#), [EECS REFS](#), and EECS [THRIVE](#).

Synergies Inside and Outside MIT

The DEI infrastructure and organization at MIT are growing and changing rapidly. This creates new opportunities for learning and making progress together. This has also required the creation of structures and communication channels. Partners now include:

- MIT ICEO (Institute Community & Equity Office) where communication has mostly gone through bi-weekly office hours. The ICEO was also consulted when further expertise was needed and participated in the search for the EECS diversity officer.
- School of Engineering (SoE) and its DEI committee, where both EECS Equity Officers are members and which met several times in 2020-21. The SoE DEI committee composed a DEI best practices report and presented their findings to the SoE Engineering Council.
- EECS was involved in the search for Assistant Dean of DEI for the School of Engineering, which led to the hire of Nandi Bynoe.
- An EECS equity officer (Prof. Durand) co-chaired the search for the Schwarzman College of Computing Assistant Dean of DEI, leading to the hire of Alana Anderson.
- We have worked with IDHR (Institute Discrimination and Harassment Response Office) on a town hall about reporting. Meetings with IDHR have also enabled a reflection after sexual harassment events at the University of Michigan, which allowed us to articulate the priorities in case of credible accusation: protect the community while preserving the presumption of innocence.
- OMEFAC (Office of Minority Education Faculty Advisory Committee): Two members of the CDEI are members of this advisory committee, Equity Officer Fredo Durand and EECS Undergraduate Officer Dr. Katrina LaCurtis.
- MIT EECS is a member of the LEAP alliance (formerly FLIP alliance), a group of universities that seek to increase the diversity of the future leadership in the

professoriate in computing at research universities as a way to achieve diversity across the field. The Alliance targets doctoral students from the following communities: African Americans, Latinx/Hispanics, Native Americans, and People with Disabilities.

II. Demographics

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. In the future, we are planning to develop a more thorough and robust set of indicators and share them with the community.

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 41.9% in 2021. 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, 25% of the 2021 class identify as women.

Underrepresented Minorities (URMs) make up 24% of our domestic undergraduates (vs. 32% of the US population). This number was 21% in 2005. At the graduate level (including MEng), the number went from 9% in 2005 to 12% in 2020.

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.

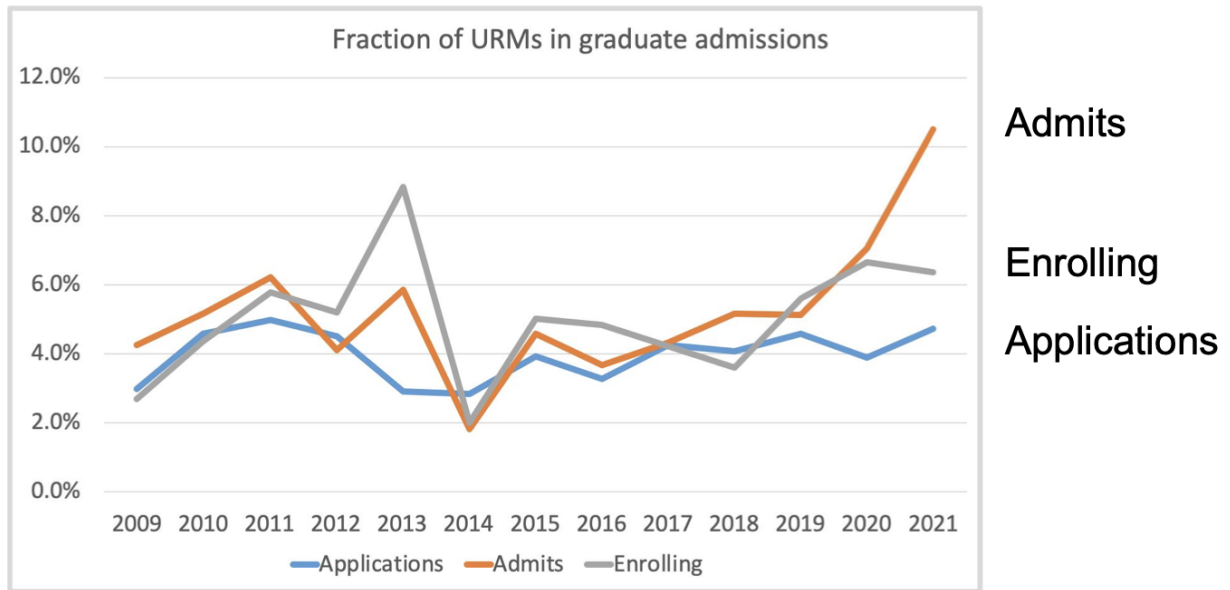


Figure 1: The fraction of applications received, the fraction of applicants admitted into the PhD program, and the fraction of underrepresented minority students enrolling into EECS at MIT.

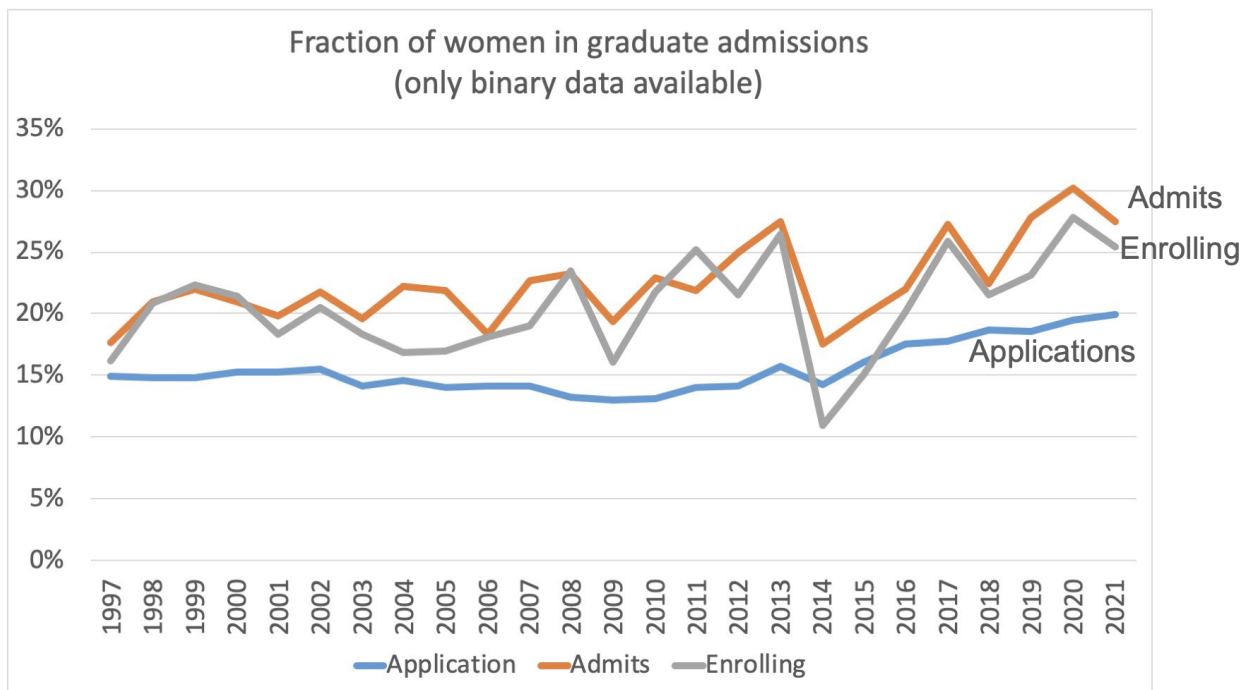


Figure 2: The fraction of applications received from female candidates along with the number of individuals admitted and also deciding to enroll over a 25 year timeframe.

III. DEI Fundraising Efforts

Clare Boothe Luce Graduate Fellowships for Women

In the summer of 2020, the Henry Luce Foundation invited MIT to compete nationally for consideration of the [Clare Boothe Luce Graduate Fellowship for Women](#). Unfortunately, MIT was allowed to submit only a single proposal to the Luce Foundation, and an internal MIT competition was thus required. EECS entered the internal MIT competition by submitting a proposal for two graduate fellowships to support EECS graduate women just completing their first year of the PhD program. The EECS proposal provided significant cost sharing (in excess of \$120,000) promising to provide full financial support (tuition, stipend, medical insurance) for the two women graduates for *two entire calendar years*: fall, spring and summer sessions. The EECS proposal highlighted the support provided to our graduate women while in the PhD program, along with data that demonstrated that our women PhD students complete their PhD requirements in similar timeframes as the men, and data also showed that completion rates for the women are similar to the men. Although underrepresented by gender while working toward the PhD degree, our women doctoral students are equally successful as their male counterparts. EECS was selected by MIT to then submit a proposal to the Henry Luce Foundation. Recognizing the strength of our EECS PhD program, and noting the dedication of the department to our underrepresented women graduate students, EECS at MIT was selected to receive \$300,000 for two [Clare Boothe Luce Graduate Fellowships for Women](#).

To select the recipients of the Clare Boothe Luce Fellowships, EECS invited all research advisors of our graduate women students to nominate their first-year graduate student for consideration. The many nominations were reviewed by the EECS Fellowship Committee and the two finalists were selected. PhD students Aziza Almanakly (advised by EECS Professor Will Oliver) and Belinda Li (advised by EECS Professor Jacob Andreas) have been named MIT EECS's recipients of the multi-year Clare Boothe Luce Graduate Fellowship for Women. The internal competition was extremely fierce with many nominees certainly deserving of the fellowship award. A recent MIT News [article](#) describes the important research contributions made by each fellowship award recipient, and shows the significant potential each woman has to impact their chosen area of research.

NSF Broadening Participation in Computing

In order to help Principal Investigators (PIs) conduct meaningful activities to satisfy the broader impact or broadening participation in computing (BPC) requirements for NSF

proposals, the department has created a departmental BPC plan, which has been approved by NSF. The plan can be found at:

<https://drive.google.com/file/d/1TI2ezTVo96U-QnoMlvnaqNnDoUVEREUK/view>

The plan offers a menu of activities approved by NSF that PIs can participate in to help broaden participation in the field. More information can be found at

<https://eecs-dei.mit.edu/nsf-bpc-broadening-participation-in-computing-requirements/>

IV. CDEI Actions Supporting Inclusive Gender

EECS Rising Stars

MIT EECS created and launched Rising Stars in 2012 to identify and mentor outstanding electrical engineers, computer scientists, and artificial intelligence and decision-making engineers and scientists interested in exploring careers in academia. We are pleased that the program has grown substantially since its beginning and has been adopted at many of our peer universities where they share the privilege of organizing and hosting the offering of Rising Stars each year.

This year the program is being organized and hosted by EECS at MIT. [Rising Stars 2021](#) broadened its eligibility criteria to promote a more inclusive notion of gender. Rising Stars is open to graduate students and postdocs of underrepresented genders, including cisgender women, trans people of any gender, non-binary people, and all people with historically marginalized or underrepresented gender identities.

MIT Human Resources (HR)

Based on feedback from the community at the first MIT EECS DEI Town Hall (November 2020), the Equity Officers have worked with Vice President of HR Ramona Allen and Alyce Johnson, Senior Advisor to the VP of HR, to update the various electronic and record-keeping systems that request and record gender information at MIT. In part due to the advocacy from EECS, the institute has created a “Gender Identity Project” that is collaborating with HR and IS&T to determine functional as well as respectful implementations for collecting private and personal data for MIT community members. Systems are being created to allow individuals to provide their chosen name or names in addition to their legal name. Systems are also being created to allow individuals to provide their pronouns and other aspects of their gender identity, if desired, and while remaining private. The EECS Equity Officers are participating in the Gender Identity Project.

V. Improving DEI for Graduate Students

Support for EECS Doctoral Students

Admission to our doctoral graduate program is the beginning, and mentoring our graduate students as they pursue their academic and research goals is extremely important. The graduate students in EECS are a very vibrant community that support each other, and are also supported by the department in various ways. There are a number of organizations (GW6, GSA, THRIVE, EECS REFS, GAAP) that are funded by the EECS department to support both underrepresented gender-marginalized persons specifically, as well as to support grad students more broadly. The organization Graduate Women in Course VI, or [GW6](#), receives funding to support professional development, personal support, and community building for our gender-marginalized graduate students (throughout their graduate degree program). Additionally, a relatively new non-identifying intersectional organization Tools for Honing Resilience and Inspiring Voices of Empowerment, or [THRIVE](#), provides peer-to-peer support to enhance diversity, equity, inclusion and mental health for our graduate student body. Importantly, THRIVE seeks to support all persons regardless of gender identity, sexual orientation, race, ability, ethnicity, religion, and parental status. Both organizations are extremely important for gender-marginalized graduate students as they navigate their graduate student experience as a member of an underrepresented group by gender. [Note: THRIVE graduate student leaders launched the Graduate Application Assistance Program (GAAP) initiative described below in the spring 2020.] Additional holistic support for the entire EECS graduate student body is provided by the Graduate Student Association ([GSA](#)) and by the [EECS REFS](#) (Resources for Easing Friction and Stress) group.

The graduate student leaders of GSA, THRIVE, GW6 and EECS REFS contribute significantly to the climate of the EECS department impacting DEI in many ways. Numerous different events are offered throughout the year. Additionally, in partnership with the EECS Graduate Office, welcoming (and informative) events occur at the EECS Visit Days (typically offered in March) and the new PhD student orientation (offered the week prior to the start of the fall term). For the EECS Visit Days events, offered to newly-admitted PhD students, the three day event specifically offers activities for various groups, such as gender-marginalized individuals, LGBTQIA+ and allies, international applicants, and students with families. For the past four years, the visit days event has offered a Diversity Panel discussion, where faculty/staff do not attend to encourage open dialogue. The Diversity Panel allows current diverse students to share their lived experience as a student of Color, or of another identity, with our visitors. The panel is very well attended with much discussion of life at MIT and in EECS. At the new

PhD grad student orientation in EECS, similar events are offered to these many groups so as to ensure connections are facilitated and friendships will be nucleated and nurtured. A similar Diversity Panel is once again provided by the current graduate student leaders.

Additionally, there are more formal manners to support graduate women, particularly first year graduate women. The fall term 2020 was the 16th year to offer the New Graduate Women in EECS Seminar Series. The seminar series met every week in person on Fridays for breakfast (since fall 2020 was impacted by the pandemic, food was provided but consumed back at their office and not together). The seminar has a curriculum that supports the acclimation of new women graduate students in the department, and also supports creation of a friend group and a support network. Additionally, by inviting a number of guests to the seminar, the women attendees expand their own professional network even further. Additional activities funded by EECS to support community building are (i) the annual sunset cruise on the Boston Harbor for women-identifying graduate students (all levels), faculty and staff, (ii) the Erin Aylward Graduate Women's Community Dinner (now entering the 7th year!), and (iii) impromptu meetings with the department head and graduate officer to discuss recent national events that affect women specifically or affect our EECS community.

In its 7th year in fall 2020, another similar seminar series was offered, called Networking T Seminar Series, for first-year graduate students having the same goal as the seminar described above. The Networking T seminar is for students who may find value in meeting regularly each week; students who have participated include those who are underrepresented, those who are in the military, those who have children, or those who may be the first from their family to leave their country to study abroad, as examples. The Networking T Seminar series has the same curriculum, and supports the creation of a friend group and a support network. Again, in fall 2020 amidst the pandemic, the Networking T Seminar met in person every Tuesday for lunch (similarly, although lunch was provided the students consumed lunch at their office).

PhD Student Check-in

A new graduate student mentoring activity was initiated the fall 2020 semester called the *PhD Student Check-in*. The activity is required for all of our PhD graduate students who are supervised by research advisors within EECS and outside of EECS across MIT and even Harvard. The initiative uses a new website that allows the graduate student to provide input regarding their research activities and to reflect on their work for the past calendar year. The website automatically provides information from the student's academic file to show progress in degree requirements. The research advisor also accesses the website, will view the reflection provided by the student, and will then offer

their input and feedback. After the input is entered by the student and research advisor, a face-to-face conversation is carried out to talk about the information and to plan for the future. The PhD Student Check-in will take place at the start of the graduate student's PhD journey and every year until graduation. All of the reports are archived year after year on the website. The goal of the PhD Student Check-in is to support the relationship between graduate student and research advisor and to provide structure and guidance regarding both the academic and research activity further supporting the mentor/mentee throughout the PhD journey.

The new PhD Check-in activity was created in fall 2020; PhD students were asked to complete their reflection in November/December, and research advisors were asked to complete their feedback in IAP 2021. Importantly, the fall 2020 semester was continuing in the global coronavirus pandemic (started in March 2020), as was the spring 2021 term. As of August 2021, the outcome for participation in the PhD Check-in is as follows: 599 (out of 786) PhD students started to complete their reflection and 583 did indeed submit their information to their research advisor (there are 215 unique research advisors within EECS and external to the department). For research advisors, 329 responses were prepared and 328 responses were submitted to the graduate student mentee. The outcome shows a 74% response rate (583 out of 786) from the PhD students, with 41% (328 of the 786 PhD students) receiving feedback from their research advisor using the new website created for the check-in activity. A range of comments (paraphrased) were offered to the EECS graduate officer from research advisors: (i) my group has our own manner of providing feedback, so we will not participate, (ii) for years I have used my own form to request progress and to share feedback and I would like to keep using my process, (iii) I am very supportive of my research group and I do not need this check-in activity, (iv) thank you for creating this activity as this will help me to give my students feedback, (v) thank you for this website as I can now see the academic progress of my students and where they need to work on their PhD requirements, and (vi) I submitted my feedback, but now I have to complete the process with the face-to-face conversation and I will. Similarly, a range of comments (paraphrased) were offered to the EECS graduate officer by the PhD students: (i) I am a new grad student and I do not have anything to report; do I have to do this?, (ii) I am concerned about offering feedback to my research advisor so I am not filling that section out; is that okay?, (iii) thank you very much for this activity as having the opportunity to reflect on my PhD journey has helped me to focus my future plans, (iv) talking with my research advisor about my research and goals was very uplifting, (v) I do not feel comfortable completing the form on the website; may I abstain from the activity?, and (vi) at first I didn't want to complete the form, the reflection with the feedback, but I did and I found that it was useful. Feedback from the CDEI Student Advisory group indicated that some PhD students were extremely nervous about

participating in the PhD Check-in and found the activity stressful. Although email reminders were sent to both PhD students and research advisors, and given that the new activity was requested in a very challenging time period as we were all navigating the pandemic, the decision was made to view the participation as very encouraging from the PhD student body, but less encouraging from the research advisors.

The fall 2021 semester will be the second offering of the PhD Check-in and more discussion of the pros/cons for participation will be shared to hopefully see greater adoption among the research advisors. Additionally, since fall 2021 will be the second year of utilizing the new website, hopefully participants will appreciate more fully the value of the archived information, the updated progress in degree requirements and the opportunity to reflect over the past extremely challenging year. The graduate officer and the department leadership will work to encourage greater adoption among research advisors.

MIT University Center for Exemplary Mentoring (UCEM)

The MIT UCEM program was originally established in 2015, and is funded by the Alfred P. Sloan Foundation as part of their [Minority PhD in STEM](#) effort aimed at diversifying academia. Led by the UCEM program's director, Professor Leslie Kolodziejski, the mission of the UCEM is to recruit, to provide academic/professional/personal support, and to facilitate retention, by creating a supportive community, to underrepresented minority doctoral students. As of July 2021, the [UCEM](#) is entering its 7th year and supports 59 Sloan Scholars (7 cohorts) in five engineering departments at MIT (Biological Engineering, Chemical Engineering, Mechanical Engineering, EECS, and Health Sciences and Technology). For the academic year 2020-21, three activities dominated the pandemic year: (1) social engagements or wellness check-ins, (2) faculty mentor/scholar mentee engagement events, and recruiting events to impact the 2021 graduate admissions enrollment.

In the summer of 2020, faculty in all of the five UCEM departments were invited to join the UCEM activity as a UCEM faculty mentor. Twenty five faculty responded with interest to engage with our program and importantly with our Sloan Scholars. Connecting with new faculty across the UCEM program is a way to expand the UCEM scholar's network with faculty both within their own department, but also from other MIT departments. Faculty mentors and Sloan Scholar mentees were invited to introduce themselves via creation of a video to speak to where they come from, what they work on, and what they promise to offer to the relationship. In preparation for engaging the faculty mentors and Sloan Scholars in a mentor/mentee relationship, [Theater Delta: Interactive Theater for Social Change](#) was commissioned to offer a special faculty workshop to guide the faculty in ways to cultivate a successful and nurturing relationship

with graduate students of Color. Similarly, Theater Delta was commissioned to offer two special graduate student workshops to guide students in ways to 'manage up' their mentor/mentee relationship and to cultivate an empowering engagement with these new additional faculty mentors. The three workshops were offered virtually due to the coronavirus pandemic, but the workshops were well-attended by both faculty/staff and UCEM graduate students. The faculty workshop was recorded and then faculty mentors who were unable to attend were allowed to watch the recording and to benefit from the special training. For the two graduate student workshops, the UCEM leadership invited all URM graduate students to attend from all five UCEM departments. In this way, additional URM graduate students were supported by the theater performance. The faculty workshop was uniformly enjoyed by the faculty and staff attendees as indicated in replies from a post-performance survey; similarly, according to the post-performance survey, the graduate student workshop was uniformly enjoyed by the student attendees. The faculty attendee survey indicated: 100% agreed the facilitated discussion was thought-provoking and constructive; 100% agreed that the performance impacted them in some way around the issues; 100% agreed they intend to change their behaviors around these issues; 100% agreed that they left the performance with more information than they came with; and 78% agreed that the performance led them to reevaluate one or more ideas or opinions on these issues. The graduate student attendee survey indicated: 95% agreed that the facilitated conversation was thought-provoking and constructive; 95% agreed that they left the performance with more information than they came with; 95% agreed that the performance impacted them in some way around the issues; 77% agreed that the performance led them to reevaluate one or more ideas or opinions on these issues; and 95% agreed that they intended to change some of their behaviors around these issues. Once the faculty mentors and the Sloan Scholars were "enlightened" with regard to supportive and productive engagement, faculty/student mixers were offered to begin to nurture relationships. Creating such relationships in a virtual environment has been very challenging, but two mixers have been offered thus far. The first faculty/student mixer used the Zoom platform and the attendees moved from breakout room to breakout room to meet each other and begin to chat. Prompts were provided to guide the conversation. The second faculty mentor/scholar mixer used the Gather Town platform with the backdrop being the UCEM community house. Faculty, staff and graduate students could go from room to room of the UCEM community house to chat with the various attendees. Each room of the UCEM community house had a topic identified for discussion so the attendees would be guided in the conversation. In the upcoming year 7, the UCEM faculty mentors/scholar mentees will meet together in person to cultivate their relationships.

The UCEM program has supported 23 URM alumni in the original four engineering departments (BioE, ChemE, EECS and MechE) on their journey to complete their PhD

(19 students earned PhDs, 3 earned Master of Science degrees and withdrew from the PhD program). In the midst of a pandemic, we had five graduates complete their PhD degrees in spring term 2021 or summer session 2021.

VI. Improving DEI for Undergraduate Students

On-Ramp to Computing in EECS

Introductory courses are critical for making a field welcoming to a broad set of students. Undergraduates reach MIT with large differences in prior exposure to computing, and data indicates, for example, that access to AP CS correlates with race, gender and ethnicity. 25% of 6.0001 students indicate that they have never programmed before and discussions with former students suggest that the course may be too fast-paced for some. This is why the department is introducing a more reasonably paced version of 6.0001 (called 6.s061 for now). The new class includes the same content and problem sets as 6.0001, but it stretches the 6-unit half semester class into a full semester 9 unit class. Care was taken to make it easy for students to transition from 6.0001 to the new class.

Richard Tapia Conference on Diversity in Computer Science

EECS sponsored and participated in the Tapia Conference on Diversity in Computer Science. We supported the attendance of our own EECS undergraduates and a number of EECS faculty members hosted a booth. In 2020, five CS faculty attended the Tapia conference and supported the attendance of 77 of our undergrads. Financial support for conference attendance was provided by IBM, the MIT Quest for Intelligence program and the EECS department. In addition, following the Tapia Conference, the CS faculty organized a virtual visit day event for a number of promising URM undergraduate students who attended the Tapia Conference also. The virtual visit day event allowed the students to meet faculty and meet current graduate students and to hear about a number of exciting research activities underway in EECS at MIT. The goal was to encourage these promising URM students to consider continuing their education in graduate school, and perhaps consider applying to our EECS at MIT doctoral graduate program or to consider participating in the MIT Summer Research Program (described below).

EECS Graduate Application Assistance Program (GAAP)

GAAP is an EECS graduate student initiative launched this year 2020, and has the goal to mentor women-identifying students, underrepresented minority students, underserved and disadvantaged students, disabled and LGBTQIA+ students with regard to applying to graduate programs. Each graduate student mentor is paired with an undergraduate student mentee (from anywhere in the US or from abroad) and assists the mentee as they prepare their graduate applications to EECS at MIT, or to any other college the mentee is considering. The goal is to mentor the applicant so as to promote self-confidence in their applications and help the mentee to understand the graduate application process. Although EECS faculty mentor the graduate student mentors, no EECS faculty engage with the GAAP mentees prior to the admission application deadline. In fact, the faculty participants on the EECS Graduate Admissions Committee cannot determine which applicants participated in GAAP. Additionally, the \$75 application fee, that is required to apply to the doctoral program, is covered for all participants in the GAAP program with funds raised to support GAAP. The application fees are paid for by the generous support from IBM, the MIT Quest for Intelligence program, and by the EECS department. For the inaugural admission season that GAAP has provided mentorship support, 220 mentees have been mentored by 99 of our EECS graduate students. The GAAP program is described [here](#).

Expansion of the MIT Summer Research Program (MSRP)

The MIT Summer Research Program ([MSRP](#)) at MIT was originally created in 1986, and has the goals of promoting the value of graduate education (at MIT and elsewhere), improving the research enterprise through increased diversity, and preparing and recruiting the best and brightest for graduate education at MIT. Since the founding of MSRP, 990 interns from 25 departments across MIT are proud to be called MSRP alumni. EECS faculty participate regularly in MSRP by providing research projects for the 9 week-long summer on-campus internship for the MSRP interns; for the 2021 offering, 19 EECS faculty signed up to provide research projects. The curriculum is packed with: curricular instruction, scientific communication skill building, graduate admission discussions to understand the application process, classes from the Gordon Engineering Leadership program are offered, professional development workshops are offered, research and mentorship along with one-on-one faculty research mentorship is provided, departmental info sessions are offered, faculty research seminars, and very importantly, community building activities create the summer MSRP agenda. Typically a summer class size is 40 MSRP interns. However, beginning in December 2020, and led by EECS Department Head Asu Ozdaglar with support from Dean of Engineering Anantha Chandrakasan, Chancellor Cynthia Barnhart and Provost Martin Schmidt, the MSRP program was significantly expanded, and in fact **doubled in size** for the summer

2021 hybrid (both in person and virtual events) offering. Therefore, MSRP had **80 interns** from underrepresented and underserved backgrounds being welcomed to our campus and into our engineering laboratories. In EECS, our MSRP intern 'quota' went from 2 in 2020 to 14 interns for 2021! Additional summer activities, organized by the EECS Graduate Office, were offered to the SoE interns and included: in person laboratory open houses for robotics labs, the Grainger Energy Lab, the CSAIL Computer Vision Group, and the Quantum Computation Labs. Graduate Officer Leslie Kolodziejski discussed the PhD application process over lunch with 28 interns.



Figure 3: Graduate Officer Leslie Kolodziejski discussed the graduate application process with MSRP interns interested in the EECS PhD program over lunch.[photograph courtesy of Pedro Colon Hernandez]

Social engagements included lunch with the EECS graduate office and current EECS graduate students out on Killian Court and a softball game with current graduate students/faculty/staff. The softball game had the MSRP interns challenging the EECS faculty/grad students. Sadly, EECS suffered a loss with final score 6 to 18 for the MSRP interns. However, no injuries were suffered, and all participants had a great time enjoying cold drinks and pizza after the game.



Figure 4: MSRP interns gather outside of the Stata Center in preparation to tour various robotics labs hosted by Professor John Leonard and Professor Tomas Lozano Perez. [Photograph courtesy of Pedro Colon Hernandez]

The cost to host one intern on our campus, in person, is \$16,000. The School of Engineering and the Provost's Office provided the funds to support the additional 40 person intern expansion (\$640,000). Importantly, as a key strategic part of the 2021 expansion, MIT and the MSRP program have initiated a new partnership with four minority-serving sister schools: Spelman College, Morehouse College, Olin College and University of Baltimore County-Meyerhof Program. As the partnerships develop and thrive, the goal is to admit *cohorts* of URM undergraduates into the MSRP program from each partner school. Additionally, the partnerships are planned to involve faculty from the partner schools in a collaborative engagement that focuses on mutual research interests so the interns will have a rich and meaningful research experience on both campuses (their undergraduate institution and the summer MIT research experience).

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 sad not to 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. This 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.

SGI aims to accomplish the following objectives:

- spark collaboration among students and researchers in geometry processing;
- launch inter-university research projects in geometry processing involving team members across broad levels of seniority (undergraduate, graduate, faculty, industrial researcher);
- introduce students to geometry processing research and development; and
- diversify the “pipeline” of students entering geometry processing research, in terms of gender, race, socioeconomic background, and home institution.
- In addition to its research goals, SGI aims to address a number of challenges and inequities in the geometry processing discipline. Not all universities host faculty whose work touches on this emerging discipline, reducing the cohort of students exposed to this discipline during their undergraduate careers. Moreover, as with many engineering and mathematical fields, geometry processing suffers from serious gender, racial, and socioeconomic imbalance.

Funding was obtained from a number of generous sponsors across industry and academia, listed [here](#). SGI received 627 applications! A careful review process led to a cohort of 35 (paid) SGI Fellows, a brilliant, diverse, and enthusiastic group of early-stage researchers; we also invited a second cohort of students to participate in our initial week of geometry processing tutorials. Students showed incredible enthusiasm and breadth of backgrounds/stories and included participants across many time zones and educational institutions.

In the first week, our Fellows (plus additional invited participants) participated in tutorials led by a team of geometry processing experts, designed to introduce them to the big ideas and scientific techniques encountered in geometry processing research. In the remaining five weeks, the students participated in short-term research projects. Each project lasted 1-2 weeks and was led by a geometry processing expert. Over 30 project mentors volunteered, who have proposed projects across a variety of applications, from machine learning on triangle meshes to discrete differential geometry to Bayesian inference. Each project was worked on intensively by 4-8 students, who interacted day-to-day through digital environments, shared repositories, and so on. The program was interspersed with guest speakers from industry and research, as well as panel discussions on graduate school admissions, research techniques, and other topics.

More Information regarding the 2021 Summer Geometry Initiative can be found at:
<http://summergeometry.org/sqi2021/welcome-to-sqi-2021/>

VII. Improving DEI in Faculty Search

The department had 5 faculty slots allowed for the three searches (CS, AI+D, EE), plus a number of Schwarzman College of Computing joint positions with Sloan Business School, MechE, Philosophy, DUSP, BCS. This year, the department broadened its use of best practices in faculty search, in particular the use of rubric scoring, and introduced a diversity statement requirement. The rubrics consisted of: prior research quality, research independence, future research vision, execution likelihood, departmental need, teaching vision & experience, ability to mentor students, likelihood of collaboration, commitment to DEI.

For the first time, we also introduced the participation of graduate students in faculty search. Students were briefed on the search process, and provided valuable feedback on the multitude of candidates.

For the departmental positions, EECS received 376 complete applications, invited 26 candidates for interviews (9 women candidates, 4 underrepresented minority candidates), and made 4 academic hires (2 white men, 2 white women). The joint faculty searches also had gender parity in their outcome (1 man and 1 woman).

VIII. Task Force on Graduate Admission

The EECS Committee on Diversity, Equity and Inclusion (CDEI) is standing up the committee task force to consider all aspects of the graduate admissions activity affiliated with the EECS PhD program. The department's vision regarding the doctoral degree program in EECS is: (i) to attract diverse and talented applicants from all undergraduate institutions, (ii) to provide research and academic opportunities such that talented undergraduates want to enroll in EECS at MIT, and (iii) to provide a doctoral graduate experience that empowers each graduate student to excel and to achieve their career goals while supporting their PhD journey. The overall goal also works 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.

Some questions we hope to answer are:

- What indicators/data should be tracked to assess progress in graduate diversity, equity and inclusion?
- How to ensure talented candidates from groups historically underrepresented are recruited and retained and receive fair contextualized evaluation?
- Should we use systematic interviews, to reduce the reluctance to admit people we don't know yet?
- How can we better leverage current graduate students in the admissions process?
- How can we better recruit after admissions?
- Can we better advertise our program to broaden applications?

The topic of conflict reporting and resolution was also identified for a potential EECS task force, but we decided to postpone its creation to capitalize on the work of two on-going institute-wide related activities: [MIT Guaranteed Transitional Support](#) Phase II working group and the [MIT Ad Hoc Committee on Graduate Mentoring and Advising](#). These institute-wide activities are due to deliver their findings and recommendations at the end of Fall 2021 (Phase II) and end of Spring 2022 (Ad Hoc Committee). Professor Leslie Kolodziejewski is participating in both activities and believes the work of these MIT-wide groups will definitely impact the work of an EECS task force on conflict reporting and resolution.

IX. Work towards a EECS DEI Strategic Plan

We are working on a comprehensive strategic plan to improve diversity, equity and inclusion, and more generally seek to make sure that all talents can thrive at MIT EECS. The plan will be informed by and will seek synergies with the MIT-level ICEO strategic plan draft available at https://dei.actionplan.mit.edu/sites/default/files/media/documents/2021-03/dei_strategic_actionplan_210330_accessible.pdf. We had hoped to be further ahead in this process at this point, but this is an important and complex topic that deserves careful planning. As we hope this report has shown, we have not waited for a strategic plan to act on areas where clear progress could be made.

In working towards a strategic plan, we have been mapping out the departmental DEI space, talked with numerous guest experts, engaged with others from other units/universities about their “best practices”, and are studying the literature on the effectiveness of various DEI strategies. We have reviewed the MIT ICEO action plan draft and are excited about mentoring opportunities and documenting our departmental processes. We further believe that we need our EECS DEI Program Director to be a full

partner in determining our departmental directions, strategizing about approaches, and then implementing action followed by assessment. We will start sharing a strategic plan framework in the Fall of 2021 (with the EECS departmental leadership, the CDEI, the CDEI student advisory group). And our new goal is to start engaging with community members in spring 2022, with a plan to advance an EECS DEI strategic plan by the end of spring term 2022. Again, this will not delay action on an array of activities already in progress.