

Dean, MIT School of Engineering

The MIT School of Engineering's mission is to educate the next generation of engineering leaders, to create new knowledge, and to serve society. We are dedicated to creating an environment that addresses today's most pressing challenges and fosters the advancement of knowledge as well as the education of students. With the Institute's values in mind, we spearhead projects that enhance life and learning, from attracting the most talented engineers to welcoming people from all backgrounds to leading the next revolution in engineering education.

The largest of Institute's five schools, the MIT School of Engineering comprises about 72% of undergraduate majors and 47% of graduate students. Just over one-third of MIT's faculty are in the school, and they generate more than half of the sponsored research at the Institute.

The total volume of research expenditures in fiscal year 2021 (FY2021) was \$393,000,000.

Tenure

The School of Engineering continues to work diligently to maintain the excellence of its faculty. This year, the school announced that eight members of its faculty were granted tenure.

- Mohammad Alizadeh, in the Department of Electrical Engineering and Computer Science and the MIT Computer Science and Artificial Intelligence Laboratory, focuses his research in the areas of computer networks and systems.
- Kwanghun Chung, in the Department of Chemical Engineering, the Institute for Medical Engineering and Science, and the Picower Institute, is devoted to developing and applying novel technologies for holistic understanding of large-scale complex biological systems.
- Areg Danagoulian, in the Department of Nuclear Science and Engineering, focuses his current research on nuclear physics applications in nuclear security.
- Ruonan Han, in the Department of Electrical Engineering and Computer Science, is a core faculty member of the Microsystems Technology Laboratories. His research pushes the speed limits of microelectronic circuits to bridge the terahertz gap between the microwave and infrared domains.
- Heather J. Kulik, in the Department of Chemical Engineering, leverages computational modeling to aid the discovery of new materials and mechanisms.
- Elsa Olivetti, Esther and Harold E. Edgerton Associate Professor in the Department of Materials Science and Engineering, focuses her research on sustainable and scalable materials design, manufacturing, and end-of-life recovery within the larger context in which materials are used.
- Kelly Metcalf Pate, the Dorothy W. Poitras Associate Professor in the Department of Biological Engineering, focuses on the elucidation of the role of platelets in the immune response to infectious disease.

- Alberto Rodriguez, the Class of 1957 Associate Professor in the Department of Mechanical Engineering, leads the Manipulation and Mechanisms Lab at MIT, researching autonomous dexterous manipulation and robot automation.
- James Swan, in the Department of Chemical Engineering, focuses on how microstructured materials, in particular nanoparticle materials, can be manipulated for the benefit of society.

Awards and Honors

Every year, academic and professional organizations honor numerous School of Engineering faculty members for their innovative research as well as their service to the community. Because this past year was no exception, the individual reports from the school's departments, labs, and centers will document these awards more completely. Notable honors and awards include:

- Pulkit Agrawal of the Department of Electrical Engineering and Computer Science won the Amazon Research Award on June 17, 2020, and the AWS Machine Learning Research Award on September 2, 2020.
- Robert Armstrong of the Department of Chemical Engineering received the American Institute for Chemical Engineering Founders Award for Outstanding Contributions to the Field of Chemical Engineering on September 1, 2020.
- Regina Barzilay of the Department of Electrical Engineering and Computer Science won the Inaugural AAI Squirrel AI Award for Artificial Intelligence for the Benefit of Humanity on September 23, 2020.
- Alexis Bateman of the Department of Mechanical Engineering was named to the the 100 Most Influential Women in Supply Chain list by B2G on September 9, 2020.
- Geoffrey S. D. Beach of the Department of Materials Science and Engineering was named a fellow of the American Physical Society on September 28, 2020.
- Tamara Broderick of the Department of Electrical Engineering and Computer Science was awarded membership to the Committee of Presidents of Statistical Societies' Leadership Academy on March 8, 2021.
- Fikile Brushett of the Department of Chemical Engineering received the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers Lloyd N. Ferguson Young Scientist Award on September 24, 2020.
- Cullen Buie of the Department of Mechanical Engineering was named an American Institute for Medical and Biological Engineering Fellow on February 16, 2021.
- Josephine Carstensen of the Department of Civil and Environmental Engineering won a 2021 National Science Foundation (NSF) CAREER Award on March 22, 2021.
- Arup Chakraborty of the Department of Chemical Engineering won the John M. Prausnitz AIChE Institute Lecturer Award on March 16, 2021.
- Anantha Chandrakasan of the Department of Electrical Engineering and Computer Science was named an ACM Fellow by the Association for Computing Machinery on January 13, 2021.

- Yet-Ming Chiang of the Department of Materials Science and Engineering was named a fellow of the Electrochemical Society on July 31, 2020.
- James Collins of the Institute of Medical Engineering and Science and the Department of Biological Engineering won the Dickson Prize for Medicine on October 26, 2020.
- Dirk Englund of the Department of Electrical Engineering and Computer Science won the Humboldt Research Fellowship for the fields of optics and atomic physics on September 8, 2020.
- James G. Fujimoto of the Department of Electrical Engineering and Computer Science won the The Sanford and Sue Greenberg Prize to End Blindness on December 3, 2020.
- Betar Gallant of the Department of Mechanical Engineering won an NSF CAREER Award on February 11, 2021.
- Lee Gehrke of the Institute of Medical Engineering and Science was nominated to the American Institute for Medical and Biological Engineering College of Fellows on February 19, 2021.
- Henry Corrigan-Gibbs of the Department of Electrical Engineering and Computer Science won the ACM CCS Test-of-Time Award on November 13, 2020.
- Shafi Goldwasser of the Department of Electrical Engineering and Computer Science was named a 2021 North American Laureate by L'Oréal-UNESCO For Women in Science International on February 11, 2021.
- Linda Griffith of the Department of Biological Engineering won the National Academy of Engineering Gordon Prize on January 7, 2021.
- Alan Grodzinsky of the Department of Biological Engineering won the Lifetime Achievement Award of the Osteoarthritis Research Society International on April 29, 2021.
- Song Han of the Department of Electrical Engineering and Computer Science was named to the Institute of Electrical and Electronics Engineers' list of AI's 10 to Watch on August 15, 2020.
- Anders Sejr Hansen of the Department of Biological Engineering was awarded an NSF grant on February 2, 2021, won the R33 Award from the National Cancer Institute's Innovative Molecular Analysis Technologies program of the National Institutes of Health on April 5, 2021, and received a research grant from the NSF on May 17, 2021.
- Neville Hogan of the Department of Mechanical Engineering won the IEEE Robotics and Automation Society's 2021 Pioneer in Robotics and Automation Award on January 26, 2021.
- Rohit Karnik of the Department of Mechanical Engineering was named a senior member of the National Academy of Inventors on February 11, 2021.
- Jonathan Ragan-Kelle of the Department of Electrical Engineering and Computer Science won Intel's 2020 Outstanding Researcher Award on February 17, 2021.

- Mathias Kolle of the Department of Mechanical Engineering received a Human Frontier Science Program Grant on April 1, 2021.
- Hermano Igo Krebs of the Department of Mechanical Engineering was named a 2021 IEEE-EMBS distinguished lecturer on February 19, 2021.
- Heather Kulik of the Department of Chemical Engineering won the Molecular Systems Design and Engineering 2020 Outstanding Early-Career Paper Award on May 20, 2021.
- Robert Langer of the Department of Chemical Engineering received the Association de Pharmacie Galénique Industrielle 2020 Maurice-Marie Janot Award on July 7, 2020.
- Doug Lauffenburger of the Department of Biological Engineering won the National Academy of Engineering Gordon Prize on January 7, 2021.
- Mingda Li of the Department of Nuclear Science and Engineering won a US Department of Energy 2021 Award for Early Career Research on May 27, 2021.
- John Lienhard of the Department of Mechanical Engineering was named an American Society of Thermal and Fluids Engineers Fellow on March 25, 2021.
- Luqiao Liu of the Department of Electrical Engineering and Computer Science was awarded a 2021 Sloan Research Fellowship on February 16, 2021.
- Harvey Lodish of the Department of Biological Engineering won the International Society for Experimental Hematology 2020 Donald Metcalf Award on January 29, 2021, was awarded an honorary doctor of science degree from the Chinese University of Hong Kong on December 13, 2020, and was named a Royal Academy of Medicine of Belgium foreign member on December 16, 2020, and an honorary doctor of science degree from Case Western University on May 31, 2021.
- Nancy Lynch of the Department of Electrical Engineering and Computer Science won the CONCUR Test-of-Time Award on September 2, 2020.
- Samuel Madden of the Department of Electrical Engineering and Computer Science was named a 2020 ACM Fellow on January 13, 2021.
- Karthish Manthiram of the Department of Chemical Engineering received the AIChE 35 Under 35 Award on September 16, 2020, the 2020 US Department of Energy Early Career Research Award on October 22, 2020, and the 2021 Camille Dreyfus Teacher-Scholar Award on May 14, 2021.
- Muriel Médard of the Department of Electrical Engineering and Computer Science was Inducted into the National Academy of Engineering on October 1, 2020, and was named the IEEE Information Theory Society's 2021 Padovani Lecturer on January 26, 2021.
- Rob Miller, with co-author David Karger of the Department of Electrical Engineering and Computer Science, won the ACM Symposium on User Interface Software and Technology 2020 Lasting Impact Award on October 22, 2020.

- Jelena Notaros of the Department of Electrical Engineering and Computer Science was named in *Forbes'* 30 under 30 list on December 1, 2020.
- Tomas Palacios of the Department of Electrical Engineering and Computer Science won Intel's 2020 Outstanding Researcher Award on February 17, 2021.
- Eva Ponce of the Department of Mechanical Engineering was named to the 100 Most Influential Women in Supply Chain list by B2G on September 9, 2020.
- Kristala Prather of the Department of Chemical Engineering was named a 2021 AIChE fellow on March 19, 2021.
- Negar Reiskarimian of the Department of Electrical Engineering and Computer Science won the IEEE International Microwave Symposium 2020 Second Place Best Student Paper Award on January 1, 2021.
- Ellen Roche of the Institute of Medical Engineering and Science was awarded a Single Ventricle Research Fund Award from Additional on January 12 and the National Institute of Biomedical Imaging and Bioengineering Trailblazer Award for New and Early Stage Investigators on September 9, 2020.
- Daniela Rus of the Department of Electrical Engineering and Computer Science won the 2020 John McCarthy Award on January 1, 2021.
- Donald R. Sadoway of the Department of Materials Science and Engineering was named a TMS Fellow by the Minerals, Metals & Materials Society on March 1, 2021.
- Maria Jesus Saenz of the Department of Mechanical Engineering was awarded the Distinguished Educator Award by the International Engineering and Operations Management Society on August 15, 2020.
- Themistoklis Sapsis of the Department of Mechanical Engineering won the Bodossaki Award on Basic Sciences: Mathematics on May 10, 2021.
- Arvind Satyanarayan of the Department of Electrical Engineering and Computer Science received the ACM CHI 2021 Best Paper Honorable Mention on March 24 and won a Google Research Scholar Award on April 7, 2021.
- Alex K. Shalek of the Institute for Medical Engineering and Science won the Avant-Garde (DP1 Pioneer) Award from the National Institute for Drug Abuse on April 30, 2021.
- Yang Shao-Horn of the of the Department of Mechanical Engineering was named a National Academy of Inventors Fellow on December 8, 2020.
- Robert T-I Shin of the Department of Electrical Engineering and Computer Science was named an IEEE Fellow on December 1, 2020.
- Max Shulaker of the Department of Electrical Engineering and Computer Science won the 2020 IEEE Electron Devices Society Early Career Award on September 23, 2020.
- Julian Shun of the Department of Electrical Engineering and Computer Science won the Google Faculty Research Award on February 24, 2021.

- Zachary Smith of the Department of Chemical Engineering received the AIChE 35 Under 35 Award on September 16, 2020.
- Michael Stonebraker of the Department of Electrical Engineering and Computer Science was awarded the NEC C&C Foundation's 2020 C&C Prize on November 30, 2020.
- Zachary Smith of the Department of Chemical Engineering won the Office of Naval Research Young Investigator Award on May 7, 2021.
- Collin M. Stultz of the Institute of Medical Engineering and Science was named a 2021 Phi Beta Kappa Visiting Scholar on March 1, 2021.
- Antonio Torralba of the Department of Electrical Engineering and Computer Science was named a fellow of the Association for the Advancement of Artificial Intelligence on December 23, 2020.
- Giovanni Traverso of the Department of Mechanical Engineering was named by *WIRED* as one of the top 32 innovators who are building a better future on December 3, 2020, and won the STAT Madness competition on April 5, 2021.
- Kripa Varanasi of the Department of Mechanical Engineering won the Best Paper Award – MIT A+B 2020 Applied Energy Symposium on December 18, 2020.
- Domitilla del Vecchio of the Department of Mechanical Engineering won the Newton Award for Transformative Ideas during the COVID-19 Pandemic on July 16, 2020, and was named an IEEE 2021 Fellow on November 29, 2020.
- Sixian You of the Department of Electrical Engineering and Computer Science was named a Scialog: Advancing Bioimaging Fellow for 2021 on February 1, 2021.

New Initiatives and Programs

Launching the MIT and Accenture Convergence Initiative for Industry and Technology

In October 2020, the School of Engineering and Accenture, a technology and consulting company, announced a five-year collaboration that will further advance learning and research through new business convergence insights in technology and innovation. The MIT and Accenture Convergence Initiative for Industry and Technology aims to draw faculty, researchers, and students from across MIT.

The new collaboration focuses on the following offerings:

- Advancing a portfolio of research projects that address technology and industry convergence in the near and long term. This will include data-driven MIT research that connects to topics including AI, knowledge curation, and talent.
- Providing five annual fellowships awarded to graduate students working on research in industry and technology convergence who are underrepresented by race, ethnicity, and/or gender.

- Establishing multiple learning programs, including a digital learning program bringing learnings to the broader Accenture community and leveraging MIT's most innovative digital learning methodologies; a weeklong program held at MIT for Accenture leadership; a program designed to immerse C-suite executives in the latest convergence technologies; and opportunities for the MIT student community to engage with Accenture thought leaders.

Sanjay Sarma, vice president for open learning at MIT and the Fred Fort Flowers (1941) and Daniel Fort Flowers (1941) Professor of Mechanical Engineering, is chair of the advisory board for the MIT and Accenture Convergence Initiative for Industry and Technology. Brian Subirana, research scientist and director of the MIT Auto-ID lab, is director.

Co-chairs of the new initiative are Anantha Chandrakasan and Sanjeev Vohra, global lead of Accenture Applied Intelligence, both of whom work with the advisory board including members from each organization.

Convening Influential Industry Leaders in the Fight Against Climate Change

On January 28, 2021, the MIT School of Engineering [announced the MIT Climate and Sustainability Consortium \(MCSC\)](#), which convenes an alliance of leaders from a broad range of industries and aims to vastly accelerate large-scale, real-world implementation of solutions to address the threat of climate change. The MCSC unites similarly motivated, highly creative and influential companies to work with MIT to build a process, market, and ambitious implementation strategy for environmental innovation.

The work of the consortium involves a true cross-sector collaboration to meet the urgency of climate change. The MCSC will take positive action and foster the necessary collaboration to meet this challenge, with the intention of influencing efforts across industries. Through a unifying, deeply inclusive, and global effort, the MCSC will strive to decrease costs; lower barriers to adoption of best-available technology and processes; speed retirement of carbon-intensive, power-generating, and materials-producing equipment; direct investment where it will be most effective; and rapidly translate best practices from one industry to the next in an effort to deploy social and technological solutions at a pace more rapid than the planet's intensifying crises.

Led by the MIT School of Engineering and engaging students, faculty, and researchers from across the entire Institute, the MCSC has called upon companies from a broad range of industries—from aviation to agriculture, consumer services to electronics, chemical production to textiles, and infrastructure to software—to roll up their sleeves and work closely with every corner of MIT.

The inaugural members of the MCSC are Accenture, Apple, Biogen, Boeing, Cargill, Dow, IBM, Inditex, LafargeHolcim, Nexlore (Hochtief), Rand-Whitney Containerboard, PepsiCo, and Verizon. These companies have intricate supply chains and are among the best positioned to aid in solving the climate crisis. The inaugural member companies of the MCSC recognize the responsibility industry has in the rapid deployment of social and technology solutions; they represent the heart of global industry and have made a commitment to not only work with MIT but with one another and to tackle the climate challenge with the urgency required to realize their goals.

The consortium recently launched its Impact Fellowship Program, a postdoctoral program, and funded the first round of undergraduate research opportunity positions.

Jeffrey Grossman, head of the Department of Materials Science and Engineering and Morton and Claire Goulder and Family Professor in Environmental Systems, and Elsa Olivetti, Esther and Harold E. Edgerton Associate Professor in Materials Science and Engineering, are the Consortium's faculty co-directors. Jeremy Gregory is executive director.

Developing a Unique Collaboration with US Special Operations Command

In May 2021, the School of Engineering, together with MIT Professional Education and US Special Operations Command (USSOCOM), launched a six-week AI and machine learning crash course designed for special operations personnel.

Due to the ubiquitous applications of AI and machine learning, the course was taught by MIT faculty as well as military and industry representatives from across many disciplines, including electrical and mechanical engineering, computer science, brain and cognitive science, aeronautics and astronautics, and economics.

A fireside chat with President L. Rafael Reif and Eric Schmidt, co-founder of Schmidt Futures and former chair and CEO of Google, who is also an MIT Innovation Fellow, painted a particularly vivid picture of the way that AI will inform future conflicts.

In addition to providing an orientation to this concept of robustness (how prone a technology is to error), the course included some best-practice guidance for wielding AI in ways that are ethical, responsible, and strive to limit and eliminate bias.

Julie Shah, faculty co-organizer of the USSOCOM course, associate dean of social and ethical responsibilities of computing, and associate professor in the Department of Aeronautics and Astronautics, lectured on this topic and emphasized the importance of considering the future ramifications of AI before and during the development of both the use plan and the technology itself.

The USSOCOM course was part of the ongoing expansion of AI research and education at MIT, which has accelerated over the last five years. Computer science courses at MIT are typically oversubscribed and attract students from many different disciplines.

Originally envisioned as an on-campus program, the USSOCOM course was moved online due to the COVID-19 pandemic. This change made it possible to accommodate a significantly higher number of attendees, and roughly 300 USSOCOM members participated in the course. Though it was conducted remotely, the course remained highly interactive with roughly 40 participant questions per week fielded by MIT faculty and other presenters in chat and Q&A sessions. Participants who completed the course also received a certificate of completion.

MIT Professional Education is led by Bhaskar Pant, executive director.

Creating a Diverse, Equitable, and Inclusive Environment

Diversity, equity, and inclusion remains a major priority for the School of Engineering, and much has occurred in the space across the past year. The school has made a deep

commitment to diversity, equity, and inclusion (DEI), and aims to enable and foster a deeply inclusive, respectful, and caring community, in which every community member feels enabled and supported to thrive and contribute fully.

The school established a DEI committee, whose mission is to communicate with each School of Engineering department and create a repository of best practices and mechanisms to ensure continued progress on a diverse, equitable, and inclusive environment at all levels in the school. The committee is comprised of faculty, staff, and students from across the school.

The Staff Advice & Implementation Committee was launched in January. The committee includes administrative and support staff from across the school, as well as a sub-committee on DEI that will assist in creating a development plan for School of Engineering staff that integrates existing institutional and national best practices.

The School of Engineering Graduate Student Advisory Group, in collaboration with the dean, recommended that departments request diversity statements from all candidates who apply for faculty positions. This recommendation was implemented in the past year's hiring cycle.

Another new development was the creation of DEI-specific graduate fellowships. The recently announced MIT and Accenture Convergence Initiative for Industry and Technology provides five annual fellowships awarded to graduate students working on research in industry and technology convergence who are underrepresented in areas of race, ethnicity, and/or gender.

Numerous programs have expanded—including the MIT Summer Research Program—with the goal of increasing the number of undergrads from diverse backgrounds who go on to graduate school. Likewise, Rising Stars, a career development workshop for graduate students and postdocs with historically marginalized or underrepresented gender identities, has expanded significantly.

And finally, the school created the Future Founders Initiative, which aims to increase female entrepreneurship in biotech. The initiative, which welcomes MIT and Harvard University faculty, postdocs, and students, is a product of conversations and organizational work among stakeholders from across the broader biotech community of greater Boston. The initiative is led by Sangeeta Bhatia, Susan Hockfield, and Nancy Hopkins.

Educational Activities

Leaders for Global Operations

The MIT Leaders for Global Operations program (LGO), founded in 1988, is a dual-degree MBA and SM Engineering program offered as a partnership of the School of Engineering, the MIT Sloan School of Management, and a group of 20+ leading global industry partners focused in the technology, operations, and manufacturing sectors.

The program's mission is to generate cutting-edge knowledge at the intersection of engineering and management, and to educate leaders to address the world's most challenging operations and high-tech problems.

In the past year, LGO welcomed NextEra Energy and Rivian as partner companies. The LGO Class of 2023 (56 students) was selected from a record-large applicant pool and is among the largest, most diverse LGO classes, with 44% women and 14% identifying as US underrepresented minorities.

LGO is led by Executive Director Thomas Roemer, along with Duane Boning, the Clarence J. LeBel Professor of Electrical Engineering and Computer Science and engineering faculty co-director of LGO; Retsef Levi, the J. Spencer Standish (1945) Professor of Management at the MIT Sloan School of Management and management faculty co-director of LGO; and Cathy Iacobo, lecturer at the MIT Sloan School of Management and industry co-director of LGO.

New Engineering Education Transformation

Launched as a pilot in 2017, the New Engineering Education Transformation (NEET) program reimagines engineering education at MIT, emphasizing interdisciplinary scholarship, project-centric learning, and the “NEET Ways of Thinking” — a set of principles that focus on creative, contextual, and humanistic approaches. The program prepares students to take on major engineering challenges and develop solutions to critical social problems of the 21st century.

NEET students opt in as sophomores and spend three years in one of three threads: Autonomous Machines, Living Machines, and the recently launched Climate and Sustainability Systems thread (with a choice of three tracks: Digital Cities; Energy Transition; and Materials Machines). This structure facilitates their deep dive into a student community bound by an active interest in pursuing projects that cross departmental boundaries. Students earn a NEET Certificate in their chosen thread, together with their MIT degree, within the usual four years.

There are 232 students in NEET, making it the fourth-largest undergraduate academic cohort. Sixty-four percent of NEET students are women, and 32% come from underrepresented groups. They are pursuing 26 majors from 15 departments (eight in School of Engineering and seven in the MIT School of Humanities, Arts, and Social Sciences, Sloan School of Management, School of Science, and School of Architecture and Planning). The NEET community has strong ties; over 37% first-year students who signed up for NEET heard about it from current NEET scholars. In May 2021, 31 students completed their NEET program in three threads as part of the second NEET cohort.

NEET is led by Executive Director Babi Mitra, and faculty co-leads Ed Crawley, Professor of Aeronautics and Astronautics, and Mark Bathe, Professor of Biological Engineering.

Program in Polymers and Soft Matter

The interdepartmental Program in Polymers and Soft Matter (PPSM), established in 1986, offers graduate education and community building for MIT’s polymer and soft-matter science and engineering researchers. This includes a core graduate polymer curriculum, doctoral qualifying exams, seminars by leading researchers, student-driven events, and the undergraduate Minor in Polymers and Soft Matter. PPSM is administered by faculty from the Departments of Materials Science and Engineering (DMSE), Chemical Engineering, Mechanical Engineering, Biological Engineering, and Chemistry.

In fall 2020, PPSM welcomed three new students: two through DMSE, and one through Chemistry. Two students graduated from PPSM's doctoral course of study in AY2021: one from DMSE and one from Chemistry. Enrollment increased from 40 to 41 for AY2021. PPSM faculty consensus is that a sustainable annual number of about five to eight new students is desirable. Our new cohort for the next cycle, AY2022, is already in town and will consist of 12 new students.

In AY2021, PPSM graduates contributed vitally to numerous respected academic, industrial, and governmental organizations, and entrepreneurial ventures in the United States and abroad. The one-day Polymer Day event went national, inviting students, postdocs, and professors from all over the US. Also, PPSM students and faculty have won prestigious awards including NSF fellowships, National Academy of Sciences awards, an MIT Institute professorship, and more.

PPSM is led by Alfredo Alexander-Katz, a DMSE professor.

Sandbox Innovation Fund Program

Since launching in 2016, the MIT Sandbox has become the foundation of the entrepreneurial ecosystem at MIT. Through seed funding, mentorship, and tailored entrepreneurship education, Sandbox provides a launchpad where any MIT student innovator can explore ideas, take risks, and prepare to launch.

In AY2021, the program empowered over 530 unique student-led teams and 1,100 team members. These teams are building novel solutions to address critical issues across all industry sectors, including approximately 15% focused on healthcare and biotech, 10% on education, 7% on fintech, and 5% on sustainability and environment.

MIT Sandbox is often the entry point of a team's startup journey. Seventeen of the 20 teams in the 2021 MIT delta v cohort started in the Sandbox, and a Sandbox team has won the MIT \$100K Competition for the past three years. Hundreds of Sandbox teams have launched successful companies and some are raising significant funding. Recent standouts include Lightmatter (\$113 million), Farmwise (\$20 million), and Fireflies (\$19 million).

Sandbox also facilitates internships with current and alumni teams. By leveraging additional funding from a Sandbox alumni donor and the MIT Experiential Learning Opportunities Fund, support expanded to 190 internships in AY2021.

Sandbox is led by Executive Director Jinane Abounadi, SM '90, PhD '98.

SuperUROP

In 2012, the Advanced Undergraduate Research Opportunities Program (SuperUROP) was launched in the Department of Electrical Engineering and Computer Science. SuperUROP is a specialized version of the Undergraduate Research Opportunities Program that involves a yearlong opportunity for students to tackle challenging problems and conduct publication-worthy research. Students are paired with a faculty member or MIT researcher and then take a two-semester course on research methodology and best practices. At the end of the year-long program, their projects evolve into graduate theses, startup plans, or industry positions.

In AY2021, SuperUROP had 90 students who participated from across the departments of Aeronautics and Astronautics, Biological Engineering, Civil and Environmental Engineering, Chemical Engineering, and Electrical Engineering and Computer Science, as well as from the School of Humanities, Arts, and Sciences.

System Design and Management

System Design and Management (SDM) is a master of science degree program in engineering and management jointly offered by the School of Engineering and Sloan School of Management. SDM completed its 25th year in AY2021 and has also offered a graduate certificate for 20 years. The Integrated Design and Management (IDM) track—which combines a studio environment with instruction in engineering, management, and design—began in 2015.

SDM enrolled 63 degree students and 33 certificate students, as well as four students who matriculated from the certificate program to the full degree. IDM enrolled 30 students for a total of 222 students in the program. SDM graduated 75 students in AY2021. For the calendar year 2020, 100% of graduates seeking employment were employed within six months. IDM graduated 21 students in AY2021.

SDM is led by Joan Rubin, with Warren Seering, the Weber-Shaughness Professor of Mechanical Engineering and Engineering Systems, serving as faculty co-lead.

Communications and Development

In AY2021, the school's communications and development functions focused on the evolution of communication and fundraising activities. Staff from both teams remained in close collaboration on activities including:

- Collaboration on the launch of new programs
- Presentations on key topics to fundraisers across MIT
- Support for Dean's Advisory Council meeting
- Support for the Campaign for a Better World
- New stewardship opportunities including video compilations, articles, and announcements
- Engagement with alumni through timely and compelling information (the dean's e-newsletter, specialized emails, social media, and visits)

Highlights for the year included communications and planning for the launch of the new MIT and Accenture Convergence Initiative for Industry and Technology, announced in October 2020. Additionally, the MIT Climate and Sustainability Consortium launched with an inaugural 13 industry members in January 2021, which involved incredible work from both the development and communications functions to both prepare and announce a consortium of such scale, in such little time.

The school hired a new communications officer in January 2021, who joined the director of communications in building a strong communications framework. In addition to

a formal editorial calendar and the development of communications protocols and processes, a new social media presence was created, including the addition of a new LinkedIn profile to bolster alumni engagement and amplify the school's many industry collaborations. Communication, alignment, and coordination between the School of Engineering communications team and department communicators dramatically improved through the addition of a regular team meeting and a Slack channel created specifically for the group. Communication between the school and the Institute Office for Communications likewise improved through the introduction of proactive outreach and coordination, and sharing of announcements and messaging.

The school development officers, reporting jointly to the Assistant Dean for Development and the academic department heads, led and/or supported a range of new programs, activities, and engagement opportunities for school alumni and friends. In addition to securing funding for core needs, fundraising efforts focused on support for DEI initiatives, including fellowships for underrepresented groups and the expansion of the MIT Summer Research Program. The School of Engineering, with representation from all departments, participated in a pilot collaboration with Resource Development to build upon MIT's fundraising success and further enhance collaboration between School of Engineering fundraisers (both school and department level) and Resource Development. These efforts were critically important to the success of the MIT Campaign for a Better World, which closed FY2021 with more than \$560 million in new gifts and pledges.

Statistics

Undergraduate Enrollment

- Total: 2,370
- Women: 1,107
- International students: 217

Graduate Enrollment

- Total: 3,176
- Women: 1,052
- International students: 1,241

Degrees Awarded

- Bachelor of science: 752
- Master's degrees: 761
- Doctoral degrees: 298

Faculty

- Full professors: 270
- Associate professors with tenure: 37
- Associate professors without tenure: 27
- Assistant professors: 56

Anantha P. Chandrakasan

Dean of the School of Engineering

Vannevar Bush Professor of Electrical Engineering and Computer Science