Mit Stephen A. Schwarzman College of Computing

Advances in computing will be a defining force in the next phase of human history. This is perhaps most visible with the development of artificial intelligence (AI) systems that augment or replace human decision making and reasoning. These technologies will deliver opportunities we cannot yet imagine. At the same time, they will pose important and growing societal and ethical challenges and responsibilities regarding issues such as privacy, public safety, trustworthiness of information, the nature of work, and security of nations.

In this galvanizing moment, the MIT Stephen A. Schwarzman College of Computing (https://computing.mit.edu) aims to address the opportunities and challenges of the computing age — from hardware, to software, to algorithms, to artificial intelligence — by transforming the capabilities of academia in three keys areas:

• **Computing fields**: Support the rapid growth and evolution of computer science and computational areas of allied fields such as electrical engineering, as reflected notably in the rise of AI.

• **Computing across disciplines**: Facilitate productive research and teaching collaborations between computing and other fields, rather than place one field in service of another.

• **Social and ethical aspects of computing**: Lead the development of and changes in academic research and education, and effectively inform practice and policy in industry and government.

With its initial organizational structure effective January 1, 2020, and scheduled completion of a new building on the MIT campus in 2023, the MIT Schwarzman College of Computing will:

• Reorient the Institute to not only deliver the latest advances in computer science and AI but also discover the power of computing in every field of study on campus, while ensuring that the future of computing is shaped by insights from other disciplines.

• Create 50 new faculty positions located both within the college and shared with other academic departments across MIT. Provide a structure for collaborative education, research, and innovation in computing across all of MIT’s schools.

• Educate students in every discipline to be “bilingual,” so they can responsibly use and develop computing technologies to help make a better world. Transform education and research in societal, public policy, and ethical considerations relevant to computing.

**Origins**

The formation of the college (https://computing.mit.edu/history) was motivated by major trends both inside and outside of MIT. Within the Institute, the numbers of students declaring majors and choosing classes in computer science have reached historic highs. And newly created joint majors between computer science and other fields, including biology and economics, are also proving popular. The MIT Schwarzman College of Computing will enable the creation of new and innovative educational programs, and produce creative computational thinkers and doers with the cultural, ethical, and historical consciousness to use technology for the common good — leaders who will offer the world new technological possibilities grounded in human values.

Similarly, in fields far beyond engineering and science — from political science and linguistics to anthropology and the arts — there are burgeoning opportunities for current and future research to benefit from advanced computational knowledge and capabilities. The college aims to empower researchers to lead in such research in computer science, AI, and across a broad range of disciplines. Their discoveries will leave an indelible imprint on education, the environment, ethics, design, finance, health, music, manufacturing, policy, security, transportation, and more.

At the same time, computing and AI are increasingly woven into every part of the global economy, and the digital portion of the economy has been growing much faster than the whole.

Building on these trends, the college will strengthen computing studies and research across MIT’s many areas of excellence, and in turn shape the direction of computing research and education through insights from these fields.

**Organization**

The organizational structure of the MIT Schwarzman College of Computing brings together existing MIT programs in computing and developing much-needed new cross-cutting educational and research programs.

**Academics**

• Department of Electrical Engineering and Computer Science (http://catalog.mit.edu/schools/mit-schwarzman-college-computing/electrical-engineering-computer-science)


• Center for Computational Science and Engineering (http://catalog.mit.edu/mit/research/center-computational-engineering)

• Operations Research Center (http://catalog.mit.edu/mit/research/operations-research-center)

**Research**

• Abdul Latif Jameel Clinic for Machine Learning in Health (https://www.jclinic.mit.edu)
• Computer Science and Artificial Intelligence Laboratory (https://www.csail.mit.edu)
• Laboratory for Information and Decision Systems (https://lids.mit.edu)
• MIT-IBM Watson AI Lab (https://mitibmwatsonailab.mit.edu)
• Quest for Intelligence (https://quest.mit.edu)
• Sociotechnical Systems Research Center (https://ssrc.mit.edu)

Cross-Cutting Programs
• Social and Ethical Responsibilities of Computing (https://computing.mit.edu/SERC)
• Common Ground for Computing Education (https://computing.mit.edu/cross-cutting/common-ground-for-computing-education)
• Center for Advanced Studies of Computing

Degrees Offered in the MIT Schwarzman College of Computing

Computational Science and Engineering
SM  Computational Science and Engineering
PhD, ScD  Aerospace Computational Engineering
PhD, ScD  Civil Engineering and Computation
PhD, ScD  Computational Science and Engineering
PhD, ScD  Computational Earth, Science and Planetary Sciences

Data, Systems, and Society
SM  Technology and Policy
PhD, ScD  Social and Engineering Systems
PhD  Social and Engineering Systems and Statistics
PhD  Aeronautics and Astronautics and Statistics
PhD  Cognitive Science and Statistics
PhD  Economics and Statistics
PhD  Mathematics and Statistics
PhD  Mechanical Engineering and Statistics
PhD  Neuroscience and Statistics
PhD  Physics, Statistics, and Data Science
PhD  Political Science and Statistics

Electrical Engineering and Computer Science (Course 6)
SB  Artificial Intelligence and Decision Making
SB  Computer Science and Engineering
SB  Electrical Engineering and Computer Science
SB  Electrical Science and Engineering
SM  Electrical Engineering and Computer Science
MASc  Artificial Intelligence and Decision Making
SM/MBA  Engineering/Management—dual degree with Leaders for Global Operations Program

MEng  Computer Science, Economics, and Data Science
MEng  Electrical Engineering and Computer Science

Electrical Engineer

PhD, ScD  Computer Science
PhD, ScD  Computer Science and Engineering
PhD, ScD  Electrical Engineering
PhD, ScD  Electrical Engineering and Computer Science

Operations Research
SM  Operations Research
PhD  Operations Research

1  See Interdisciplinary Programs (http://catalog.mit.edu/interdisciplinary).

Admissions
The selection process at MIT is holistic and student centered; each application is evaluated within its unique context. Selection is based on outstanding academic achievement as well as a strong match between the applicant and the Institute.

Undergraduate applicants do not apply to a particular school, department, or program. Although the application asks about a preferred field of study, admitted undergraduates are not required to choose a major until their sophomore year. Admissions information for regular and transfer applicants (http://catalog.mit.edu/mit/undergraduate-education/admissions) is provided in the Undergraduate section (http://catalog.mit.edu/mit/undergraduate-education), as well as on the undergraduate admissions website (https://mitadmissions.org).

Applicants for graduate study apply directly to their particular department or program of interest. See the individual department and program descriptions for specific requirements.

Office of the Dean
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