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*)
- Institute for Data, Systems and Society (*http://catalog.mit.edu/schools/mit-schwarzman-college-computing/data-systems-society*), including the Technology and Policy Program (*http://catalog.mit.edu/interdisciplinary/graduate-programs/technology-policy*)
- 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