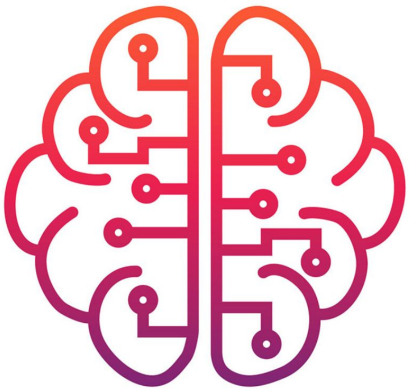
MIT-IBM Watson AI Lab

Upcoming Events

Climate implications of computing & communications workshop

[Pathways to lower climate impacts]
March 3-4, 10 a.m.-2 p.m. ET

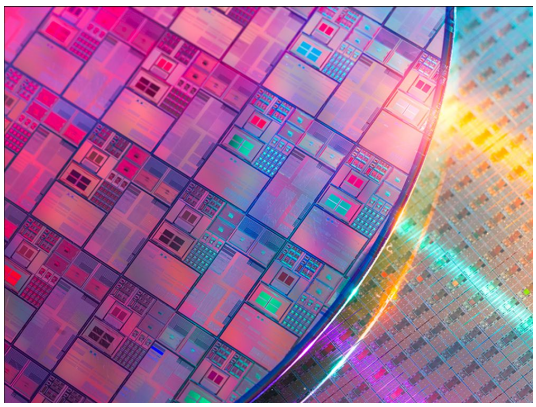
Demand for computing and communications is expected to increase significantly with considerable impacts on the planet. The MIT Climate and Sustainability Consortium, the MIT-IBM Watson AI Lab, and the Schwarzman College of Computing are hosting a virtual workshop, with discussions and collaboration, exploring initiatives that can potentially lower the climate impacts of the computing and communications sectors. Register here.



MIT Quest panel discussion

[MIT Quest for Intelligence research missions]
March 4, 4-5 p.m. ET

In this virtual event, the MIT Quest for Intelligence and the Artificial Intelligence@MIT student group will host a discussion focusing on MIT Quest for Intelligence research missions. Speakers include: director of the Quest for Intelligence Jim DiCarlo, director of MIT Quest Systems Engineering Nick Roy, Walter A. Rosenblith Professor Nancy Kanwisher in the Department of Brain and Cognitive Sciences, and Robert Yang, assistant professor in the Department of Brain and Cognitive Sciences, and Department of Electrical Engineering and Computer Sciences. Register here.



Ultraviolet lithography

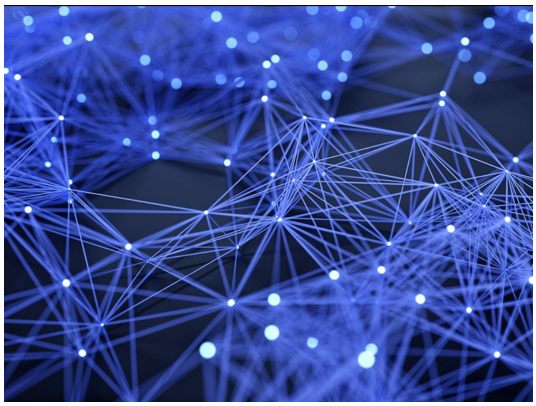
What's happening and what's next, enabling lithographic technology
March 9, 12-1 p.m. ET

Ultraviolet (EUV) lithography exposure tools are being used in the high-volume production of logic and memory chips. In this webinar, Anthony Yen, VP and Head of Technology Development Center at ASML, will give a brief history of the development of EUV lithography, then present the technology's present status, including its use in manufacture of logic and integrated circuits. Attend here.

MIT President Reif and Google and Alphabet CEO Sundar Pichai

Exploring the frontiers of science for bold new answers to urgent global problems.
March 11, 2-3 p.m. ET

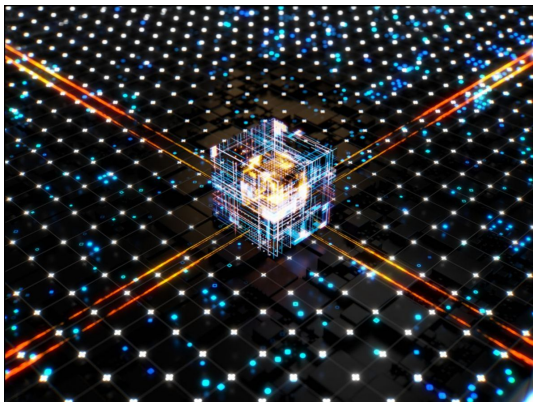
In a livestreamed fireside chat, MIT President L. Rafael Reif speaks with Google and Alphabet CEO Sundar Pichai. Pichai. As part of Pichai's ongoing pursuit to expand opportunity through technology, Pichai launched Grow with Google and recently announced Google's plan to invest $1 billion in Africa over the next five years. Last year, Pichai introduced a new ambition to achieve 24/7 carbon-free energy across the company by 2030. Register here.



Thinking outside the die

Trillion transistor chips for the ML accelerator of the future
March 16, 12-1 p.m. ET

In this webinar, Sean Lie from Cerebras will present their group's vision for machine learning architectures of the future and will introduce their trillion-transistor AI accelerator chip. Attend here.



Making quantum error correction more practical

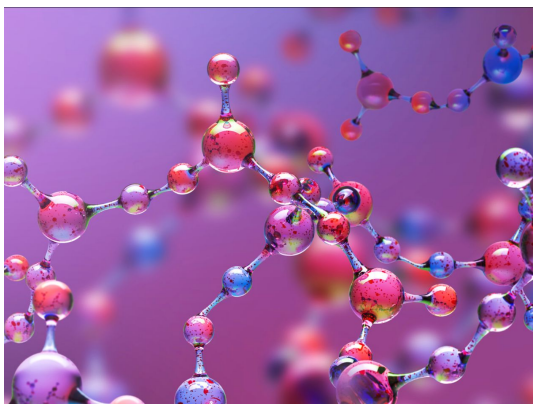
"What's Next" seminar series
March 22, 10-10:30 a.m. ET

Quantum computers are inherently noisy, and quantum error correction is essential to achieve fault-tolerant machines. With additional quantum bits (or qubits), we can detect and correct errors and enable complex, long and accurate computations. In this webinar, IBM quantum researcher Maika Takita will detail her work on hardware-aware code design and the results of these efforts to cut down on the errors in quantum computation. Register here.

Magnetic tunnel junction in modern computing

Applications for random access memory
March 24, 2-3 p.m. ET

Spin-transfer-torque switchable magnetic tunnel junction is an enabling device that brought the recent technology and product offerings of spin-transfer-torque magnetic random access memory. In this webinar, Jonathan Sun of IBM Research will review current understanding of spin-transfer-torque switchable magnetic tunnel junction, with emphasis on device and materials physics underpinning switching performance in memory technologies. Register here.



AI for chemistry

"What's Next" seminar series
April 12, 10-10:30 a.m. ET

Generating new molecules for industrial and material science applications is critical; however, existing methods often rely on deep neural networks, which require training on large datasets, and may not produce synthesizable compounds. In this webinar, Jie Chen of the Lab and IBM Research, and a guest speaker from Evonik will discuss a graph-based approach that uses grammar to efficiently generate molecules. Register here.

In the Lab

Deep-learning technique predicts clinical treatment outcomes

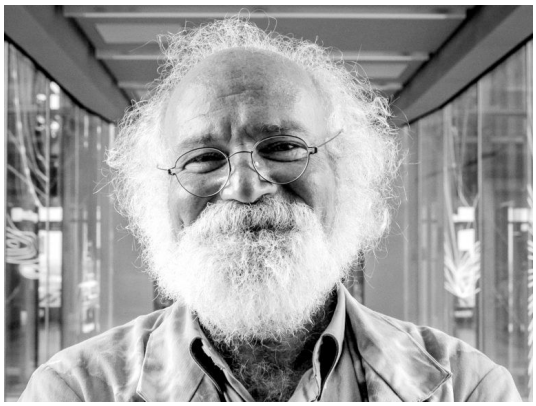
The methodology simulates counterfactual treatment strategies, aiding doctors' decisions.

A new deep-learning technique from the Lab is designed to help physicians explore different treatment options and their timing for ICU patients. Focusing on the cardiovascular system and tumor growth, the approach looks at past medical and treatment history to provide causal counterfactual prediction.

Using AI to find anomalies hiding in massive datasets

[Technique could pinpoint potential power grid failures or cascading traffic bottlenecks in real time.]

Lab researcher Jie Chen and another have devised a computationally efficient method that can automatically pinpoint anomalies in time series data in real time. Their artificial intelligence method, which learns to model the interconnectedness of the power grid, is much better at detecting these glitches than some other popular techniques.



John Cohn elected to National Academy of Engineering

[MIT alumni honored for significant contributions to engineering research, practice, and education.]

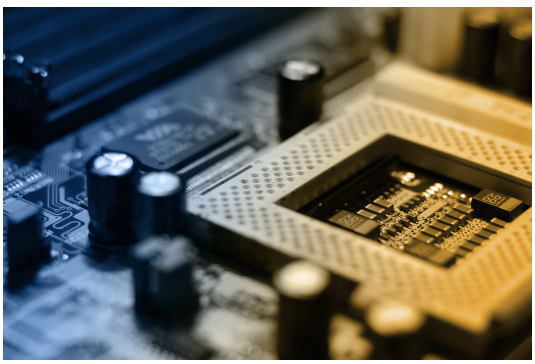
MIT alum John Cohn '81, an IBM Fellow in the Lab, was honored for improving design productivity of high-performance analog and mixed-signal circuits and for evangelizing STEM education. Cohn, a computer scientist with more than 100 worldwide patents, uses his playful love for science and technology to promote STEM careers.

In the Media

Innovation partnerships in the U.S.

[National Science Board (NSB) Subcommittee on Technology, Innovation, and Partnerships]

The Lab and IBM's Dario Gil, chair of the NSB Subcommittee on Technology, Innovation, and Partnerships, moderated a recent panel, discussing effective public/private partnerships and the importance of ensuring equitable access to our domestic STEM enterprise, no matter where a student lives.



Dario Gil on the global chip shortage

[Punchbowl News hosts a fireside chat.]

During a *Punchbowl News* discussion, Dario Gil, IBM Lab chair, IBM senior vice president, and director of Research, outlined a vision for an effective National Semiconductor Technology Center. "Semiconductor investment is key to restoring America as the global leader in the chip space."

Watch Our Recent Events

Small changes, big effects: how modeling choices affect machine learning predictions

During a "What's Next in AI" webinar, Soumya Ghosh of IBM Research and the Lab, discussed machine learning for spatial and time-series data — the sensitivity of their predictions to modeling choices and how innocuous changes in assumptions can have a large effect on the model's predictions.

Building an equitable quantum computing future

During this "What's Next" webinar, Kayla Lee, the Academic Alliance Lead at IBM Quantum, spoke about about how we can work to build a quantum future that includes those who have historically been excluded from science and technology.

AI and our human future

During a fireside chat, Lab chair and MIT Schwarzman College of Computing Dean Daniel Huttenlocher and co-founder of Schmidt Futures and former Google CEO & Chairman Eric Schmidt talk with MIT EECS head and moderator Asu Ozdaglar about how AI is changing our relationship with knowledge and society — and what this technology means for us all.

Education and Workforce Development for the U.S. Microelectronics Industry

In a recent workshop, MIT, SUNY, and Rensselaer Polytechnic Institute discussed approaches and best practices for preparing and expanding the U.S. semiconductor workforce.

Lab Highlights

MIT researcher Regina Barzilay elected to the AIMBE College of Fellows 2022 "for breakthrough contributions in machine learning for early cancer diagnosis and drug discovery." She was also named to the STATUS List by *Stat News.*

Effective July 1, Song Han and Phillip Isola will be promoted to associate professor, and David Sontag will be a full professor.

MIT and Lab researcher Phillip Isola was named a 2022 Sloan Research Fellow, which recognizes trailblazing research agendas.