MIT Industrial Liaison Program Faculty Knowledgebase Report

MIT Data Center Day

September 30, 2025 9:00 am - 5:00 pm

Registration

Welcome and Introduction
Jim Flynn
Program Director, MIT Industrial Liaison Program

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Before MIT, Jim was the assistant dean of research business development at the UMass Amherst College of Information and Computer Sciences. Jim founded, built, and sold multiple technology companies in fintech and online media. He has bootstrapped startups and closed venture capital, angel, and private equity funding rounds. Jim also served as the Chief Operating Officer of a public company and a subsidiary of Pitney Bowes. He began his career at AT&T as a software developer, hardware engineer, and national account manager. Jim has authored patents and wrote one of the first books on Java programming. Out of all the roles he's held, Jim's favorite job title by far is dedicated dad of four. He earned a BS from Manhattan College and an MBA with concentrations in finance and international business from New York University.

An introduction to the day's themes, objectives, and structure. A representative from MIT Corporate Relations will highlight the relevance of data center innovation in the era of AI and global digitization.

AI-Driven Demand: How Foundation Models Are Reshaping Compute and Infrastructure

AI workloads, particularly foundation models and real-time inference, are fundamentally reshaping compute demand. This session will examine their implications for infrastructure planning and capacity design.

AI and the Grid: Scaling Compute Sustainably and Responsively

As AI workloads surge, data centers are emerging as major electricity consumers. This session will explore how carbon-aware scheduling, demand flexibility, and machine learning for power systems can help align compute growth with decarbonization goals.

Building the Backbone: HVAC, Electrical, and Systems Architecture

High-performance data centers demand advanced thermal management, electrical design, and infrastructure resilience. This session will explore best practices and emerging frontiers in core systems engineering.

Coffee Break

Beyond Bricks: Modularity and Adaptive Infrastructure

Christopher Rienhart

Modular, climate-adaptive data centers offer greater flexibility and resilience. This session will examine how innovative design strategies and dynamic building envelopes can support evolving workloads.

Compute Without Chips: Quantum, Neuromorphic, and Novel Paradigms

Emerging compute models are challenging traditional infrastructure assumptions. This session will explore the physical environment requirements of quantum, neuromorphic, and molecular computing.

Beyond the Data Center: Embedding Compute at the Edge of Urban and Industrial Systems

As AI-enabled systems extend beyond the cloud, compute is increasingly embedded at the edge—co-located with logistics hubs, transportation networks, and urban infrastructure. This session examines how digital intelligence is being integrated into the built environment to enable autonomy, enhance operational responsiveness, and support the design of next-generation systems.

Lunch & Informal Roundtables

A relaxed lunch featuring topic tables on AI infrastructure, sustainability, modular systems, and startup partnerships, offering a chance to connect with peers and engage with MIT experts.

MIT Climate Project: Sustainable Materials and Circular Data Centers
Elsa Olivetti

Co-Director, MIT Climate and Sustainability Consortium
Jerry McAfee (1940) Professor, Department of Materials Science and Engineering
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Professor Olivetti received a BS in engineering science from the University of Virginia in 2000, and a PhD in materials science and engineering from MIT in 2007. She spent her PhD program studying the electrochemistry of polymer and inorganic materials for electrodes in lithium-ion batteries. In 2014, she joined DMSE as an assistant professor. As an educator, Olivetti overhauled DMSE's undergraduate curriculum and developed new courses, including one for the MIT Climate and Sustainability Consortium Climate Scholars. She's a member of the MIT Climate Nucleus and co-director of the MIT Climate & Sustainability Consortium.

Professor Elsa Olivetti's research focuses on improving the environmental and economic sustainability of materials. Specifically, she develops analytical and computational models to provide early-stage information on the cost and environmental impact of materials. Professor Olivetti and her research-group colleagues work toward improving sustainability through increased use of recycled and renewable materials, recycling-friendly material design, and intelligent waste disposition. The Olivetti Group also focuses on understanding the implications of substitution, dematerialization, and waste mining on materials markets.

Designing for Resilience: Scaling Infrastructure for Environmental and System Uncertainty

Data centers must be designed to operate reliably amid environmental shocks, resource constraints, and long-term uncertainty. This session explores how scenario modeling and system-level foresight can guide infrastructure planning, balancing performance, sustainability, and adaptability within an evolving energy and policy landscape.

AI Orchestration: Scheduling Intelligence at Scale

Vijay Gadepally

As AI workloads grow increasingly complex, orchestration is becoming a crucial layer in modern data centers. This session examines how intelligent scheduling, workload-aware optimization, and infrastructure co-design can enhance performance, reduce costs, and maximize the efficient use of compute, storage, and networking resources across edge, cloud, and hybrid environments.

Coffee & Networking Break

Take a break, refresh, and engage in one-on-one conversations with fellow attendees and MIT researchers.

MIT Startup Exchange: Lightning Talks
Tricia Dinkel
Manager of Partnerships & Engagement, MIT Startup Exchange

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Tricia Dinkel comes to Corporate Relations with several years of experience in the innovation ecosystem and managing relationships with startups and corporates. Tricia previously worked as Director of Navigate (NECEC's flagship innovation program) at the Northeast Clean Energy Council (NECEC) in Boston where she led all operations and partnership development for 400+ startups, 65+ innovation partners, and 200+ investors & corporates in North America and Europe. Prior to that role, Tricia held positions with increasing responsibility in program management at NECEC. Before that, her experience included Director of Data Analytics and Sustainability Reporting Manager at WegoWise Inc. in Boston, Associate Director at the Committee on Capital Markets Regulation in Cambridge, Senior Sustainability Coordinator at A Better City in Boston, and Assistant Director at The Green Alliance in Portsmouth, NH.

Tricia earned her B.A., in Environmental Studies/Natural Resource Policy at the University of Colorado, and her M.A., in Environmental Science Education at the University of New Hampshire. She served on the NECEC Diversity & Inclusion Committee and as a member of the USGBC (U.S. Green Building Council), Massachusetts Chapter.

Sorin Grama

Tim Carr

Visionary Keynote – Data Centers in 2040: From Racks and Silicon to Robots and Qubits
Neil Gershenfeld
Director, Center for Bits and Atoms

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Prof. Neil Gershenfeld is the Director of MIT's Center for Bits and Atoms, where his unique laboratory is breaking down boundaries between the digital and physical worlds, from pioneering quantum computing to digital fabrication to the Internet of Things. Technology from his lab has been seen and used in settings including New York's Museum of Modern Art and rural Indian villages, the White House and the World Economic Forum, inner-city community centers and automobile safety systems, Las Vegas shows and Sami herds. He is the author of numerous technical publications, patents, and books including *Designing Reality*, *Fab*, *When Things Start To Think*, *The Nature of Mathematical Modeling*, and *The Physics of Information Technology*, and has been featured in media such as The New York Times, The Economist, NPR, CNN, and PBS. He is a Fellow of the American Association for the Advancement of Science and the American Physical Society, has been named one of Scientific American's 50 leaders in science and technology, as one of 40 Modern-Day Leonardos by the Museum of Science and Industry, one of Popular Mechanic's 25 Makers, has been selected as a CNN/Time/Fortune Principal Voice, and by Prospect/Foreign Policy as one of the top 100 public intellectuals. He's been called the intellectual father of the maker movement, founding a growing global network of over two thousand fab labs in 125 countries that provide widespread access to prototype tools for personal fabrication, directing the Fab Academy for distributed research and education in the principles and practices of digital fabrication, and chairing the Fab Foundation. He is a co-founder of the Interspecies Internet and of the Science and Entertainment Exchange. Dr. Gershenfeld has a BA in Physics with High Honors from Swarthmore College, a Ph.D. in Applied Physics from Cornell University, honorary doctorates from Swarthmore College, Strathclyde University and the University of Antwerp, was a Junior Fellow of the Harvard University Society of Fellows, and a member of the research staff at Bell Labs.

View full bio

Imagine a radically different future for compute infrastructure. This keynote explores visionary architectures, self-configuring buildings, and the path from silicon to quantum systems.

Closing Reflections

MIT Corporate Relations wraps up the day with key takeaways and a look at where the Data Center conversation goes next.