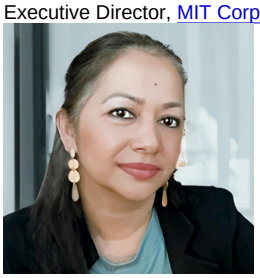
MIT Industrial Liaison Program Faculty Knowledgebase Report

2026 MIT Korea Conference

January 27, 2026 9:00 am - 5:00 pm

9:00 AM	Registration with Light Breakfast
9:30 AM	Opening Remarks Suehyun Chung Gayathri Srinivasan Executive Director, MIT Corporate Relations



Gayathri Srinivasan
Executive Director
MIT Corporate Relations

Dr. Srinivasan is a distinguished scientist who received her PhD in Microbiology from The Ohio State University in 2004, where she contributed to the discovery of the 22nd amino acid, Pyrrolysine (2002). She first came to MIT as an NIH Postdoctoral Fellow in Prof. Tom Rajbhandary's lab, where her research focused on understanding protein synthesis mechanisms in Archaea.

Dr. Srinivasan subsequently moved into the business development and technology licensing space, serving in MIT's Technology Licensing Office, where she helped commercialize technologies in medical devices and alternative energies. She then moved to UMass Medical School's Office of Technology Management in 2009 and to Emory University in Atlanta in 2014 as the Director of Public and Private Partnerships for the Woodruff Health Sciences Center. In 2019, Dr. Srinivasan joined Emory's Office of Corporate Relations as Executive Director, and in 2021, she led the Office of Corporate and Foundation Relations.

10:15 AM	Next-Generation Nanofabrication for Health and Technology Mark Bathe

Nucleic acids are conventionally known as molecular carriers of genetic information, the blueprint for life. Alternatively, nucleic acids can be used to fabricate complex 2D and 3D molecular assemblies with unprecedented nanometer-scale precision that replicates, and goes beyond, highly evolved naturally biological assemblies. In this talk, I will illustrate how we have used DNA-based virus-like particles (DVLPs) to elicit a potent immunological response that surpasses a clinical protein-based equivalent VLP due to the inert, immunologically silent nature of DNA. I will discuss how this next-generation DVLP platform opens up numerous possibilities in active immunotherapies for challenging infectious diseases as well as central nervous system disorders. Next, I will demonstrate how programmable DNA sequences can be used to encode complex "wet" databases of information, akin to a Google Books search engine for molecules. I will apply this database system to storing human and viral genomes at room temperature, bypassing the need for cold-chain logistics that currently limit global genomics to a very small fraction of the globe and global population. Finally, I will illustrate how lithographic semiconductor patterning can be used to interface organics with inorganics by using DNA to pattern single quantum emitters with nanometer-scale precision on chip-scale silicon wafers for quantum applications. I will highlight translational stories from these areas as our inventions at MIT transform into industrial innovations through start-ups cofounded by Bathe and lab members to impact the US and global economies.

10:55 AM — Networking Break

11:25 AM — Introducing MIT Learn

Kathleen Kennedy

By bringing together MIT's digital learning portfolio and embedding AI-driven capabilities, MIT Learn is a platform for continuous, adaptive, and lifelong learning for the world.

11:35 AM — MIT Startup Exchange Lightning Talks

Harshit Gupta

Scott Nill

Edward Chung

Marcie Black

Alexander O'Brien

Ken Sullivan

Michael Alexander

Ian Seiferling

Marco Ganouna

Arturo Deza

12:45 PM — Lunch with Startup Exhibit + VIP Lunch

2:10 PM — Wiring the Winning Organization: How Great Leaders Liberate Collective Intelligence to Generate and Deliver More and Better Value, Faster and with More Certainty

Steven Spear

As early as the 1970s and early 1980s, Japanese firms revealed a striking competitive paradox. Their best wasn't succeeding by making "the right tradeoffs" among quality, cost, features, and speed. Instead, they were delivering products of higher quality, with more variety, at lower cost, and at faster speed—while appearing to exert less effort. It was as if they were playing an entirely different game.

Close study revealed "the secret." While much of the industrial world focused on optimizing the flow of materials through machines with fancy math, with people as an afterthought, the best created conditions in which people could solve hard problems, develop outstanding solutions, and deliver exceptional value to society. Everyone else was competing on brawn power; they were winning on brain power.

Amidst today's turbulence—political realignments, economic disruptions, and rapid technological change—this approach to sustaining competitive advantage—seeing and solving problems better and faster than anyone else—is even more vital.

This talk explores how the best do this, by making problem solving easier to do, problems easier to solve, and problems easier to see earlier and more often, before they grow big. Examples will include both historical lessons from the pioneers and contemporary applications of these same principles.

2:50 PM

Seeing with Invisible Photons: Chip-Scale Technologies Leveraging the Unseen Spectrum

Juejun (JJ) Hu

Infrared photons, though invisible to the human eye, are rapidly moving to the forefront of technology, enabling breakthroughs in how we sense, measure, and see the world. In my group, we are developing chip-scale photonic technologies that render the invisible visible, turning tiny chips into powerful tools for sensing and imaging.

On the sensing front, we are creating low-cost, high-performance photonic chips that harness a wide range of optical signatures in the infrared, including Raman scattering, absorption, and refractive index perturbations. These platforms bring laboratory-grade spectroscopy into compact and robust form factors, enabling real-time detection of trace chemicals across diverse industries. Several of these technologies have already moved beyond the laboratory: InSpek is advancing process control in pharmaceutical and agri-food sectors, Lightfinder Inc. is enabling continuous monitoring in energy and chemical industries, and other platforms are addressing urgent challenges such as the detection of heavy metal contamination in water.

In parallel, we are reshaping imaging optics at the chip scale. By transforming chips into flat optical elements, we can achieve performance once thought impossible with conventional lenses. A salient example is our flat fisheye lens, now commercialized by 2Pi Inc., which provides panoramic imaging in a wafer-thin form factor. Building on this foundation, we are extending the concept further, creating optical components that conform seamlessly to curved surfaces and developing active elements that reconfigure their functions on demand through tunable materials.

Together, these advances chart a vision where invisible photons become an accessible and ubiquitous resource. From real-time chemical monitoring to adaptive infrared imaging, chip-scale photonics offers a new sensory frontier — one that blends fundamental science with tangible societal impact.

3:30 PM

Networking Break

4:00 PM

Scale the Package - The Semiconductor Package is the 21st Century Transistor

Anu Agarwal

Energy consumption is at an all-time high in data centers. Enhanced microchip functionality for next-generation applications, such as AI, 6G, LiDAR etc., can no longer depend solely on shrinking the dimensions of a transistor. The semiconductor package is the 21st-century transistor, and this must be scaled to obtain high-performance systems.

Generative-AI (Gen-AI) models require massive and rapid data movement between thousands of interconnected processors (GPUs/XPUs) and memory systems. Traditional electrical interconnects, which rely on long traces on a circuit board and power-hungry pluggable optical modules, have reached their physical and energy limits. The electrical signals degrade over distance, requiring additional components like digital signal processors (DSPs) and retimers, which consume significant power and add latency.

Co-packaged optics (CPO) is essential for this recent Gen-AI-driven revolution because it directly addresses the critical bottlenecks of power consumption, bandwidth density, and latency that are crippling traditional data center architectures. CPO overcomes these limitations by integrating optical engines directly onto the same package as the processing chip (ASIC). This dramatically shortens the electrical path from centimeters to mere millimeters, allowing data to be converted to light and transmitted much more efficiently.

Through FUTUR-IC, a global research alliance, we are enabling CPO within microchip systems, with high-performance, passively assembled chip-to-chip and chip-to-fiber couplers which employ graded-index and evanescent structures, fabricated using standard complementary metal-oxide-semiconductor foundry processes.

The urgency to align microchip system performance scaling with a commercially viable manufacturing value chain dominates business and technology decisions today, as the solutions are expected to power the next 40 years of progress for the semiconductor industry.

4:40 PM Challenges and Opportunities for Insect-Scale Autonomous Aerial Robots

Kevin Chen

Flapping-wing flight at the insect scale is incredibly challenging. Insect muscles not only power flight but also absorb in-flight collisional impact, making these tiny flyers simultaneously agile and robust. In contrast, existing aerial robots have not demonstrated these properties. Rigid robots are fragile against collisions, while soft-driven systems suffer from limited speed, precision, and controllability. In this talk, I will describe our effort in developing a new class of bio-inspired micro-flyers, ones that are powered by high bandwidth soft actuators and equipped with rigid appendages. We constructed the first heavier-than-air aerial robot powered by soft artificial muscles, which can demonstrate a 1000-second hovering flight. In addition, our robot can recover from in-flight collisions and perform somersaults within 0.10 seconds. This work demonstrates for the first time that soft aerial robots can achieve agile and robust flight capabilities absent in rigid-powered micro-aerial vehicles, thus showing the potential of a new class of hybrid soft-rigid robots. I will also discuss our recent progress in incorporating onboard sensors, electronics, and batteries.

5:20 PM Adjournment