2022 MIT Digital Technology and Strategy Conference

October 12, 2022 - October 13, 2022

Day 1: October 12 (Wednesday)

| 8:00 AM | Registration and Light Breakfast |

9:00 AM

Welcome and Introduction
John Roberts
Executive Director (Interim), MIT Corporate Relations

John Roberts
Executive Director (Interim)
MIT Corporate Relations

John Roberts has been Executive Director of MIT Corporate Relations (Interim) since February 2022. He obtained his Ph.D. in organic chemistry at MIT and returned to the university after a 20-year career in the pharmaceutical industry, joining the MIT Industrial Liaison Program (ILP) in 2013. Prior to his return, John worked at small, medium, and large companies, holding positions that allowed him to exploit his passions in synthetic chemistry, project leadership, and alliance management while growing his responsibilities for managing others, ultimately as a department head. As a program director at MIT, John built a portfolio of ILP member companies, mostly in the pharmaceutical industry and headquartered in Japan, connecting them to engagement opportunities in the MIT community. Soon after returning to MIT, John began to lead a group of program directors with a combined portfolio of 60-80 global companies. In his current role, John oversees MIT Corporate Relations which houses ILP and MIT Startup Exchange.

Graham Rong
Director, MIT Corporate Relations

Graham Rong
Director
MIT Corporate Relations

Dr. Rong is a Director of Corporate Relations at MIT. He currently supervises a group of ILP program directors who promote and manage the interactions and relationships between the research at MIT and companies worldwide to help them stay abreast of the latest developments in technology and business practices.

Previously, Dr. Rong founded IKA, LLC. He has led corporate development and product innovation and provided strategic advice to companies in corporate strategy, IT leadership, digital transformation, AI, enterprise content management, and customer relationships. He held senior roles in Harte-Hanks and Vignette Corporation. He held an EU postdoctoral research fellowship at the University of Edinburgh in Scotland where he started global collaborative research.

Dr. Rong is on the board of multiple organizations, including the MIT Sloan Alumni Association of Boston from 2009 to 2012. He chaired MIT Sloan CIO Symposium from 2009-2011. He is a senior expert invited by international organizations.

Dr. Rong holds an M.B.A. in global and innovation leadership from the MIT Sloan School of Management and a Ph.D in numerical computing from the University of Guelph in Canada.

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9:15 AM

Keynote: Metaverse and Synthetic Realities
Federico Casalegno
Executive Vice President at Samsung Electronics
Former MIT Associate Professor of the Practice

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Former MIT Associate Professor of the Practice

Federico is Executive Vice President of Design at Samsung Electronics. He heads the Samsung Design Innovation Center (SDIC) in San Francisco CA Next-Generation Experience Planning Team in Seoul and Experience and Insights teams within Samsung Research. Federico leads global multidisciplinary teams in the USA Asia and Europe to design new generation of experiences and envision future products. As a designer innovator and social scientist he focuses on the impact of networked digital technologies on human behavior and society and designs products services and meaningful experiences to improves people's lives. Before joining Samsung Federico was an Associate Professor of the Practice at the Massachusetts Institute of Technology teaching at MIT and MIT Media Lab. He also founded and directed the MIT Design Lab and the MIT Mobile Experience Lab. He previously worked at Motorola Inc. and Philips Design envisioning and creating innovative product experiences. He has been awarded honorary professorships at the Glasgow School of Art University of Glasgow and the Jiangnan University School of Design in Wuxi China. He has published several scientific papers in peer-reviewed journals along with books and articles and he has won several awards for his design and innovation work. Federico earned the PhD degree in Sociology of Culture and Communication from the Sorbonne University Paris V with a focus on mediated communication and social interaction in networked communities and smart cities.

Federico Casalegno will discuss the evolution of interaction in digital environments, including the promises of the Metaverse, virtual and augmented reality, digital twins, and ambient computing, among others. He will presents ideas about the future of interaction, and how the design of Synthetic Realities will be the next big challenge to craft innovation for human benefits.

Metaverse and Synthetic Realities, are not about mere technologies. We are designing new powerful hybrid human environment that support social interaction. And the future of interaction will require that we shift our thinking beyond simple interaction with a single device or service to design interaction with a constellation of devices, ecosystem of services and connected learning systems who proactively takes autonomous decisions.

In these new digital environments, before focusing products and technologies, we need to focus on the experiences that we want to have in these new spaces. Today we have the opportunity to design a humanity-centered Metaverse with purpose, good for humans and the planet.

9:55 AM   Keynote: Understanding Cloud Data Tools and Why Complexity still Defeats Good Teams
John Williams
Professor of Information Engineering, MIT Department of Civil and Environmental Engineering

John Williams
Professor of Information Engineering
MIT Department of Civil and Environmental Engineering

John Williams holds a BA in Physics from Oxford University, a MS in Physics from UCLA, and a Ph.D. in Numerical Methods from University of Wales, Swansea. His research focuses on the application of large-scale computation to problems in cyber-physical security and energy. He is director of MIT's Geospatial Data Center and from 2006-2012, was Director of the MIT Auto-ID Laboratory, where the Internet of Things was invented. He is author or co-author of over 250 journal and conference papers, as well as the books on Rock Mechanics and RFID Technology. He contributed to the 2013 report for the UK Office for Science Foresight Project- The Future of Manufacturing. Alongside Bill Gates and Larry Ellison, he was named as one of the 50 most powerful people in Computer Networks. He consults to companies including Accenture, Schlumberger, Shell, Total, Exxon, SAP Research, Microsoft Research, Kajima Corp, US Lincoln Laboratory, Sandia National Laboratories, US Intelligence Advanced Research Projects Activity, Motorola, Phillip-Morris Inc., Ford Motor Company, Exxon-Mobil, Shell, Total, and ARAMCO. His international collaborations include Oxford and Cambridge Universities, HKUST, KACST, Alfaisal University, PolyU Hong Kong, Imperial College of Science and Technology UK, Malaysia University of Science and Technology (MUST), and Masdar Institute of Science and Technology Abu Dhabi. He organized the first Cyber-Physical Security Conference in the UK (2011), and along with Dr. Sanchez, he runs the MIT Applied Cyber Security Professional Education summer course. At MIT, he teaches courses Architecting Software Systems (MIT 1.125) and Engineering Computation and Data Science (MIT 1.00/1.001). .

In data engineering and data science, early work included simulation of Ford's global network, and analysis of SAP smart grid billing system. For Altria, he analyzed the performance of item level tagging and also their implementation of an anti-counterfeiting system using the Electronic Product Code (EPC)

In password security, Dr. Williams was a PI that developed the algorithms for a negative password authentication system for the Intelligence Advanced Research Projects Activity (IARPA) agency.

Dr. Williams advises companies in the Americas, Europe, the Middle East, and Asia.

Dr. Williams affiliations include:

- MIT Department of Civil and Environmental Engineering
- MIT Center for Computational Science and Engineering (CCSE)
- MIT Geospatial Data Center (GDC)
- MIT Auto-ID Laboratory
- MIT Center for Complex Engineering Systems (CCES)
- MIT Consortium for Improving Critical Infrastructure Cybersecurity (IC3)

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Last year I was really pleased that I could load a 1 million row table into a Pandas DataFrame on my Mac. This year I could rip through a 12 billion row table in a couple of seconds using Google's BigQuery. That's a 10,000 times improvement in one year. Oh, and it cost me nothing. So what's the problem? Why are companies still struggling with their Digital Transformations? Why is there no silver bullet? In this talk, we'll look at the modern data stack offerings on AWS, Google, Azure, Databricks, and Snowflake and talk about why other companies, such as dbt, Fivetran, Confluent and Apollo solve problems with your APIs and data pipelines. We'll see that ultimately its still a "people problem" and that our experience with DevOps, LeanDevOps and Agile teams show that C2 Command and Control is giving way to other organizational structures that leverage SO, Self-Organization, and our knowledge of Complex Adaptive Systems.
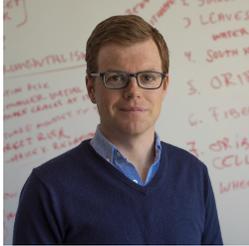
10:35 AM	MIT Professional Education Myriam Joseph Assistant Director, Marketing and Business Development, [MIT Professional Education](#)
10:40 AM	Networking Break
11:10 AM	Positive-Sum Automation Ben Armstrong Executive Director, [MIT Industrial Performance Center](#)

Ben Armstrong
Executive Director
[MIT Industrial Performance Center](#)

Ben?Armstrong?is the executive director of MIT's Industrial Performance Center, where he co-leads the Work of the Future initiative. His research examines how workers, firms, and regions adapt to technological change. His current projects include a working group on generative AI, as well as a book on American manufacturing competitiveness. His work has been published or featured in academic and popular outlets including the?New?York?Times, Harvard Business?Review,?Forbes,?Sloan Management Review, Times?Higher Education, the?Boston Review, Daedalus, and Economic Development Quarterly. He received his PhD from MIT and formerly worked at Google Inc.

What firms gain from automation in productivity, they often risk losing in flexibility. When firms make this tradeoff, we call it zero-sum automation. But this doesn't have to be the case. How technologies are designed, who is involved in implementing them, and the ways that organizations define success can all shape the eventual impact that automation technology has. There's an emerging set of technologies and management approaches that can enable firms to automate flexibly. This presentation focuses on how lower-code programming interfaces, bottom-up approaches to integrating new technologies, and a new way of thinking about the role of automation within the firm can contribute to automation that improves productivity and flexibility. These ideas are part of MIT's Work of the Future initiative, an applied research, and education program to understand how employees and organizations make technology work in practice. As part of the initiative, MIT researchers partner with organizations to learn the problems they aim to solve with new technologies, the challenges they face in deploying them, and the consequences for their workers, customers, and society.

11:50 AM

MIT Startup Exchange Lightning Talks
Catarina Madeira
Director, MIT Startup Exchange

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Director
MIT Startup Exchange

Catarina has been working with the Cambridge/Boston startup ecosystem for over 10 years
and joined Corporate Relations with a solid network in the innovation and entrepreneurial
community. Prior to MIT, she was part of the team that designed and launched the startup
accelerator IUL MIT Portugal, which was later rebranded as Building Global Innovators. She
was based in Lisbon and worked in direct relation with the Cambridge team. She held
positions including Operations Coordinator, Program Manager, and Business Developer.
The accelerator soon achieved steady growth in large part due to the partnerships that
Catarina led with regional and global startup ecosystems. After that, she worked at NECEC,
leading a program that connects cleantech startups and industry. In this role, she developed
and built a pipeline of startups and forged strong relationships with both domestic and
European companies. She has also held positions in Portugal and France, including at
Saboaria e Perfumaria Confiança and L'Oréal as Technical Director and Pharmacist.
Catarina earned her bachelor's in chemistry and pharmaceutical sciences in Portugal. She
went on to earn her Master of Engineering for Health and Medicines in France.

Vishal (Vish) Punwani
CEO and Co-Founder
SoWork

Lucas Liebenwein
Principal Research Scientist
OmniML

Elaheh Ahmadi
Co-founder and CEO
Themis AI

Carter Prince
Head of Business Development
Syntegra

Michele Cardello
Head of Sales for the Americas
Ennoventure

Max Kleiman-Weiner
CEO & Co-Founder
Common Sense Machines (CSM)

Piali De
CEO
Senscio Systems

Chad Spensky
Founder and CEO
Allthenticate

Andy Wang
CEO
Prescient Devices

12:30 PM	Lunch with Startup Exhibit

SoWork | **OmniML** | **Themis AI** | **Syntegra** | **Ennoventure** | **Common Sense Machines (CSM)** | **Senscio Systems** | **Allthenticate** | **Prescient Devices**

Startups at Lunch Exhibit Only

- **Claira:** Optimizing Human Capital

- **iQ3 Connect:** iQ3Connect --Industrial Metaverse Platform for Remote Training& Collaboration
- **serviceMob:** High Fidelity Customer Service Analytics Platform specifically designed for customer
- **Einblick:** Data science at the speed of thought
- **Aura Systems**: Reimagining Radar for Autonomous Vehicles and Drones
- **Skylla Technologies**: Intelligent Automation for Object Handling and Precision Manipulation

1:25 PM	Afternoon Introduction: Peter Lohse Program Director, MIT Corporate Relations

Peter Lohse
Program Director, MIT Corporate Relations

Dr. Peter Lohse joined the Office of Corporate Relations (OCR) in October 2018 as Program Director.

Lohse comes to OCR with deep and broad knowledge and expertise in the pharma, biotech, and other life sciences-driven industries including agro, nutrition, chemical, and consumer products. As a scientist and entrepreneur, he has an extensive background developing business and managing partnerships with large corporations, early-stage companies, academia, and non-profit organizations. Most recently, Lohse was V.P, Operations and Business Development for InnovaTID Pharmaceuticals in Cambridge. Before that, he was a Strategy Consultant for Eutropics Pharmaceuticals, an emerging biotech company in Cambridge.

Prior to this, Dr. Lohse was Director, Scientific Operations & Innovation Program Director for Eli-Lilly's open innovation platform, InnoCentive, Inc. in Waltham. Earlier in his career, he held positions with increasing responsibility at ArQule of Woburn, Phylos in Lexington, and Novartis Pharma in Switzerland.

Lohse earned his M.S., Chemistry & Applied Sciences and his Ph.D., Organic Chemistry at Federal institute of Technology (ETH) in Switzerland. He earned his M.B.A., Strategy, Finance, Marketing as a Sloan Fellow at MIT. He also held the position Research Fellow, Molecular Biology at Harvard Medical School - Massachusetts General Hospital, Boston (with Professor J. Szostak, Nobel Prize 2009), This was a Swiss National Science Foundation Postdoctoral Fellowship -- In vitro selection of functional RNAs.

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1:30 PM

The 'Intelligent' Future of KPIs: [Machine] Learning to Optimize Key Performance
Michael Schrage
Research Fellow, MIT Initiative on the Digital Economy, MIT Sloan School of Management

Michael Schrage
Research Fellow, MIT Initiative on the Digital Economy
MIT Sloan School of Management

Michael Schrage is a research fellow with the MIT Sloan School of Management's Initiative on the Digital Economy. His research, writing, and advisory work focuses on the behavioral economics of models, prototypes, and metrics as strategic resources for managing innovation risk and opportunity. He is author of the award-winning book The Innovator's Hypothesis (*MIT Press*, 2014), Who Do You Want Your Customers to Become? (*Harvard Business Review Press*, 2012), and Serious Play (*Harvard Business Review Press*, 2000). His latest book, Recommendation Engines, was published in September 2020 by *MIT Press* as part of its Essential Knowledge series. He's done consulting and advisory work for Microsoft, Procter & Gamble, British Telecom, BP, Siemens, Embraer, Google, iRise, the Office of Net Assessment, and other organizations

Schrage has run design workshops and executive education programs on innovation, experimentation, and strategic measurement for organizations all over the world and is currently pioneering work in selvesware technologies designed to augment aspects, attributes, and talents of productive individuals. He is particularly interested in the future co-evolution of expertise, advice, and human agency as technologies become smarter than the people using them.

View full bio

This brief talk describes a research and innovation trajectory combining digital instrumentation, machine learning and portfolio management to redefine how organizations measure and manage key performance. Drawing on the insight that 'KPIs' and other metrics can be recast as 'software agents,' this talk suggests that successful 'digital transformations' will be organized around the measures that matter most. This disruptive shift poses unique risks and opportunities for leaderships and boards alike.

2:10 PM   Panel: How Can Digital Technology Enable Us to Realize ESG and Net-Zero
                 Michael Schrage
                 Research Fellow, MIT Initiative on the Digital Economy, [MIT Sloan School of Management](#)

Michael Schrage
Research Fellow, MIT Initiative on the Digital Economy
[MIT Sloan School of Management](#)

Michael Schrage is a research fellow with the MIT Sloan School of Management's Initiative on the Digital Economy. His research, writing, and advisory work focuses on the behavioral economics of models, prototypes, and metrics as strategic resources for managing innovation risk and opportunity. He is author of the award-winning book The Innovator's Hypothesis (*MIT Press*, 2014), Who Do You Want Your Customers to Become? (*Harvard Business Review Press*, 2012), and Serious Play (*Harvard Business Review Press*, 2000). His latest book, Recommendation Engines, was published in September 2020 by *MIT Press* as part of its Essential Knowledge series. He's done consulting and advisory work for Microsoft, Procter & Gamble, British Telecom, BP, Siemens, Embraer, Google, iRise, the Office of Net Assessment, and other organizations

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Patrick Sheridan
Global Head Digital Sustainability
[Syngenta](#)

Mak Joshi
Director of Strategy, Innovation, and Standards, Schneider Digital
[Schneider Electric](#)

Gregory Norris
Director
[Sustainability and Health Initiative for NetPositive Enterprise (SHINE) at MIT](#)

Marcelo Lu
Senior Vice President, Care Chemicals North America
[BASF Corporation](#)

3:00 PM	MIT Sloan Executive Education
	Eric Bergemann
	Senior Director, Executive Programs, [MIT Sloan Executive Education](#)

Eric Bergemann
Senior Director, Executive Programs
[MIT Sloan Executive Education](#)

Eric Bergemann is Senior Director of Executive Programs at the MIT Sloan School of Management, where he oversees a portfolio of non-degree executive programs. He has worked with firms in the fields of energy, pharmaceuticals/life science, mobility, high technology, banking/finance, and consumer products. Bergemann is active in business development, and is the Executive Education capability development leader in Program & Instructional Design Methodology and Improvement. In 2009, he received the MIT Sloan Appreciation Team Award.

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3:05 PM	Networking Break

3:30 PM

Preparing the Enterprise for Web3
Peter Evans
Co-Chair of the MIT Platform Strategy Summit, and
Chief Strategy Officer, McFadyen Digital

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Co-Chair of the MIT Platform Strategy Summit, and
Chief Strategy Officer
McFadyen Digital

Before becoming the Chief Strategy Officer at McFadyen Digital, Peter Evans was a Managing Partner at the Platform Strategy Institute, a consultancy dedicated to management strategy and application of platform business models across a wide range of sectors. Dr. Evans has over 20 years of experience leading teams in identifying, framing, assessing, and communicating high-priority marketplace trends and disruptions that support business planning and investment prioritization. He has specialized in helping companies see around corners, anticipate key market trends, and craft seminal thought leadership that framed major multi-year growth initiatives.

At KPMG, he was a Partner in the Innovation and Enterprise Solution group responsible market and emerging technology sensing, innovation portfolio management and business development. To support the firm's intelligent automation strategy, he led a major study of how the world's largest enterprises are adopting artificial intelligence.

Prior to joining KPMG, Dr. Evans was Vice President at the Center for Global Enterprise a nonprofit established by Sam Palmisano, former Chairman and CEO of IBM. He was instrumental in framing and delivering on the Center's research, business education, and global CEO engagements.

Previously, Dr. Evans held key strategy and market intelligence roles at General Electric. He was the lead author of GE's seminal white paper 'Industrial Internet: Pushing the Boundaries of Minds and Machines," which articulated the macro trends behind GE's shift to a 'digital industrial' enterprise and led to the establishment of Predix.

He also worked as an independent consultant for a variety of corporate and government clients, including the US Department of Energy, the OECD, and the World Bank.

He received his master's degree and Ph.D. degree from the Massachusetts Institute of Technology. He is a lifetime member of the Council on Foreign Relations and an International Academy of Management Fellow. He is the co-chair of the MIT Platform Strategy Summit and the Founder of MusicTech Connect in Atlanta.

A shift to a more decentralized, blockchain-based internet will have important implications for the enterprise. The next phase of the internet, often referred to as Web3, will require adapting to a shifting external environment. Changes to customer identity and data sovereignty will have important implicants for marketing, product design and data analytics. Web3 will also require internal adjustments. These changes include developing new business processes that are more on-chain and involve new technologies like NFTs, the Metavserse, and tokenized digital twins. A shift from static to dynamic certificates will change internal training and development in ways that will incentives and reward continuous learning. In short, web3 will create a new enterprise frontier, requiring a new wave of innovation and investment to keep pace.

4:10 PM   Future Ready: The Four Pathways to Capturing Digital Value
Stephanie Woerner
Director and Principal Research Scientist , MIT Center for Information Systems Research (CISR)

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Director and Principal Research Scientist
MIT Center for Information Systems Research (CISR)

Stephanie Woerner is a Research Scientist at the Center for Information Systems Research (CISR) at the MIT Sloan School of Management. Stephanie is an expert on how companies use technology and data to create more effective business models and her research centers on how companies manage organizational change caused by the digitization of the economy. In 2016, she was a subject matter expert on enterprise digitization for the Wall Street Journal CEO Council Conference. She has a passion for measuring hard-to-assess digital factors such as connectivity and customer experience, and linking them to firm performance. Recent articles (with Peter Weill) include "Thriving in an Increasingly Digital Ecosystem," and "Is Your Company Ready for a Digital Future?", in *Sloan Management Review*. Stephanie is the coauthor, with Peter, of *What's Your Digital Business Model? Six questions to help you build the next generation enterprise*, (Harvard Business Review Press, 2018).

As the world rapidly digitizes, companies are racing to first create new value from digital and then capture that value from digital in their financial performance. A digital economy not only creates opportunities for many companies but also erects barriers to those that can't adapt fast enough, putting the viability of existing business models at stake. The goal of a digital business transformation is to improve customer experience and be more efficient – we call the companies that have learned to do both simultaneously and consistently future-ready. In this presentation, Stephanie will describe the four pathways a company can take in its digital transformation to future-ready and what needs to be done to enable companies to capture and accumulate new digital value.

4:50 PM   Networking Reception

Day 2: October 13 (Thursday)

8:30 AM   Registration with Light Breakfast

9:00 AM   Welcome and Introduction

Jong Hoon (Jon) Kim
Program Director
MIT Corporate Relations

9:10 AM   Automation of Operations with Organizations using AI and Data
               Devavrat Shah
               Andrew (1956) and Erna Viterbi Professor, [MIT Department of Electrical Engineering and Computer Science](#)

Devavrat Shah
Andrew (1956) and Erna Viterbi Professor
[MIT Department of Electrical Engineering and Computer Science](#)

Devavrat Shah is Andrew (1956) and Erna Viterbi Professor of AI and Decisions at MIT where he is currently the faculty director of Deshpande Center for Technology Innovation as well as founding director of Statistics and Data Science Center. His research focuses on algorithms for Statistics and Machine Learning. He is a Kavli Fellow of National Academy of Sciences, distinguished alumni of his alma mater IIT Bombay. Previously he co-founded retail analytics start-up Celect which is now part of Nike since 2019. Currently, he is focused on making AI functionalities accessible. Towards that, he co-founded Ikigai Labs in 2019 with the mission of enabling the use of AI with the ease of spreadsheets.

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Physical to digital transformation has led to the rise of business "data operators": individuals in organizations, from the ground level to the C-suite, who are using data as their primary "sensors" to run mission-critical operations. The day-to-day workflow of such a data biz operator requires accessing data from multiple sources, "stitching" them together, extracting current status as well as insights, making decisions and communicating to the downstream task in a collaborative manner. While there are a number of tools for data analysts, data scientists and data engineers, the tool-set for data operators has been absent and subsequently leading to widespread reliance on spreadsheets.

In this talk, we shall discuss how AI-native cloud-data platform can enable such data operators to "program" their biz ops seamlessly. We shall discuss how AI can enables stitching disparate data sources seamlessly with human-in-the-loop workflows. We shall also discuss the opportunities that can be realized by recent advances in causal inference and reinforcement learning for "what if" scenario analysis.

9:50 AM   Ending the Arms Race with Security by Construction
Adam Chlipala
Professor, MIT Electrical Engineering & Computer Science Department

Adam Chlipala
Professor
MIT Electrical Engineering & Computer Science Department

Adam Chlipala has been on the faculty in computer science at MIT since 2011. He did his undergrad at Carnegie Mellon and his PhD at Berkeley, and his research focuses on clean-slate redesign of computer-systems infrastructure, typically taking advantage of machine-checked proofs of functional correctness. Much of his work uses the Coq proof assistant, about which he has written a popular book, "Certified Programming with Dependent Types." He most enjoys finding opportunities for drastic simplification over incumbent abstractions in computer systems, and some favorite tools toward that end are object-capability systems, transactions, proof-carrying code, and high-level languages with whole-program optimizing compilers. Some projects particularly far along the real-world-adoption curve are Fiat Cryptography, for proof-producing generation of low-level cryptographic code, today run by Chrome for most HTTPS connections; and Ur/Web, a production-quality domain-specific language for Web applications.

View full bio

Most of cybersecurity at today's typical large corporation is reactive: we accept that the computer systems we deploy will be riddled with security vulnerabilities, so we focus on rapid response as individual issues are discovered. It's a cutthroat arms race against bad actors, who work to find new vulnerabilities as quickly as we can patch them. The venerable idea of formal verification offers a more principled solution: if we can build our systems alongside mathematical proofs of security, then we get out of the business of being surprised by specific vulnerabilities. The 21st century has actually seen very good progress on real-world realization of this idea, and I will give some examples from my work at MIT CSAIL, including our Fiat Cryptography project, which is used by all major web browsers to provide proved-correct code for cryptographic arithmetic. I will also explain the bigger-picture promise and remaining challenges of related technology.

10:30 AM   Networking Break

11:00 AM

Digitalization in manufacturing and human health from sensors, to data, to AR/VR
Brian W Anthony

Principal Research Scientist, Department of Mechanical Engineering
Associate Director, MIT.nano
Director of Technical Operations, Center for Clinical and Translational Research

Brian W Anthony

Principal Research Scientist, Department of Mechanical Engineering
Associate Director, MIT.nano
Director of Technical Operations, Center for Clinical and Translational Research

Dr. Brian Anthony is a leading expert in the design of intelligent, or smart, instruments and methodologies for monitoring, measuring, and controlling complex physical systems. His interdisciplinary work spans mechanical, electrical, and optical engineering, seamlessly integrated with computer science and optimization, to deliver innovative solutions across manufacturing, healthcare, and other industries.

At the core of Dr. Anthony's research is computational instrumentation—the development of advanced tools and techniques to observe and manage intricate systems, particularly in manufacturing and medical diagnostics. His contributions include pioneering measurement and imaging technologies that enhance precision and performance in both industrial and clinical settings.

With over 30 years of experience, Dr. Anthony combines deep academic insight with practical industry expertise in technology innovation, product development, and entrepreneurship. He has successfully guided market-driven solutions from concept to commercialization, especially at the intersection of information technology and advanced manufacturing. His achievements include receiving an Emmy Award from the Academy of Television Arts and Sciences for technical innovation in broadcast engineering.

In the classroom, Dr. Anthony is dedicated to teaching the modeling and analysis of large-scale systems to support decision-making in domains such as manufacturing, medicine, and entertainment. He also leads efforts in developing optimization algorithms and software tools for system design and evaluation.

Dr. Anthony's dual roles in academia and industry position him as a bridge between cutting-edge research and real-world application, driving impactful technologies that shape the future of engineering and innovation.

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View on LinkedIn

Digital technologies are changing the world, the way we live, manufacture, and learn!

You are likely familiar with digital technologies in the home. Voice technology assistants, thermostats, light bulbs, robotic vacuum systems. These devices collect data using sensors to perform tasks and provide automated responses to changing conditions.

New types of Computation, enable new opportunities in the manufacturing and process controls industry. New types of Displays, Sensors, and Algorithms… these digital technologies serve to help automate and improve manufacturing processes and to bring better products to market faster and cheaper! Smart technologies perform similar tasks on the factory floor, monitoring processes, troubleshooting on-the-fly, monitoring the condition of the factory, worker, and supply chain.

Similarly, digital technologies are changing the way that humans monitor their personal health.

We explore concepts driving the digitalization of manufacturing and healthcare -- the convergence of automation, data analytics and machine learning from the machine to the supply chain, from the individual to the health-care system. We will explore cases that will help you innovate now and in the future.

11:40 AM   Towards Teleportation and Telepathy: Imaginaries and Futures of Metaverse

Cagri Hakan Zaman
Director, MIT Virtual Experience Design Lab
Lecturer of Design and Computation
MIT Department of Architecture

Originally introduced in a sci-fi novel, the term Metaverse has become a popular term in recent years to describe infinitely many possibilities brought forward by emerging technologies of virtual and augmented reality, high speed networking, and blockchain technology. You are probably familiar with the promise that you will soon teleport to any place you want –real or imaginary- with a click of a button, and meet with your friends and colleagues as if they are just across the room. The idea of metaverse comes with a lot of fantasies and hype just like these. How much of these are actually true and impactful? How should we design these digital immersive spaces and integrate them to the physical space? We study and develop immersive media technologies that tackle these questions. Putting the human factor to the center, we explore many exciting futures such as remote training and maintenance, human- AI collaborative spaces, intelligence augmentation, and more.

12:20 PM   Adjournment with Bagged Lunch