

# MIT Industrial Liaison Program Faculty Knowledgebase Report

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2021 MIT Europe Conference

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March 24, 2021 5:00 pm - 8:20 pm

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24 March, 2021 (all times CET)

Welcome and Introduction  
 Harald Mahrer  
 President, [Austrian Federal Economic Chamber](#)



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 President  
[Austrian Federal Economic Chamber](#)

Harald Mahrer (born 1973) is President of the Austrian Federal Economic Chamber and was appointed President of the Austrian National Bank (Oesterreichische Nationalbank) in September 2018. He was Austrian Federal Minister for Education, Science and Business until December 2017. Prior to that, he was State Secretary in the same department from September 1st 2014. As graduate of the Vienna University of Economics and Business, he gained political experience as chairperson of the Austrian National Union of Students and subsequently completed a Doctorate in Social and Economic Science. After several years as a research assistant focussing on information systems and digital businesses he founded Austria's first incubator and his first company, legend consulting. He then took over as managing partner of Austria's leading PR & strategic communications agency, Pleon Publico. For more than 15 years, he has been an active business angel and promoted startups in different industries. From 2011 to 2015, he was also President of the Julius Raab Foundation – one of Austria's leading think tanks. He founded the Austrian Association of Philanthropic Foundations, worked intensively in the area of disruptive innovation, corporate social responsibility, social entrepreneurship, and individual freedom and establishing new strategic priorities for the development of Austria and Europe.

Margarete Schramböck  
 Austrian Federal Minister for Digital and Economic Affairs

Karl Koster  
 Executive Director, MIT Corporate Relations  
 Director, Alliance Management  
 MIT Office of Strategic Alliances & Technology Transfer



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Karl Koster is the Executive Director of MIT Corporate Relations. MIT Corporate Relations includes the MIT Industrial Liaison Program and MIT Startup Exchange.

In that capacity, Koster and his staff work with the leadership of MIT and senior corporate executives to design and implement strategies for fostering corporate partnerships with the Institute. Koster and his team have also worked to identify and design a number of major international programs for MIT, which have been characterized by the establishment of strong, programmatic linkages among universities, industry, and governments. Most recently these efforts have been extended to engage the surrounding innovation ecosystem, including its vibrant startup and small company community, into MIT's global corporate and university networks.

Koster is also the Director of Alliance Management in the Office of Strategic Alliances and Technology Transfer (OSATT). OSATT was launched in Fall 2019 as part of a plan to reinvent MIT's research administration infrastructure. OSATT develops agreements that facilitate MIT projects, programs and consortia with industrial, nonprofit, and international sponsors, partners and collaborators.

He is past chairman of the University-Industry Demonstration Partnership (UIDP), an organization that seeks to enhance the value of collaborative partnerships between universities and corporations.

## The Nature of Work After the COVID Crisis: Too Few Low-Wage Jobs

David Autor

Ford Professor of Economics

Co-Chair, MIT Task Force on the Work of the Future



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David Autor is Ford Professor in the MIT Department of Economics, co-director of the NBER Labor Studies Program, and co-leader of both the MIT Work of the Future Task Force and the JPAL Work of the Future experimental initiative. His scholarship explores the labor-market impacts of technological change and globalization on job polarization, skill demands, earnings levels and inequality, and electoral outcomes.

Autor has received numerous awards for both his scholarship—the National Science Foundation CAREER Award, an Alfred P. Sloan Foundation Fellowship, the Sherwin Rosen Prize for outstanding contributions to the field of Labor Economics, and the Andrew Carnegie Fellowship in 2019—and for his teaching, including the MIT MacVicar Faculty Fellowship. Most recently, Autor received the Heinz 25th Special Recognition Award from the Heinz Family Foundation for his work “transforming our understanding of how globalization and technological change are impacting jobs and earning prospects for American workers”.

In 2017, Autor was recognized by Bloomberg as one of the 50 people who defined global business. In a 2019 article, the *Economist* magazine labeled him as “The academic voice of the American worker.” Later that same year, and with (at least) equal justification, he was christened “Twerpy MIT Economist” by John Oliver of *Last Week Tonight* in a segment on automation and employment.

Autor is an elected Fellow of the Econometrics Society, the Society of Labor Economists, and the American Academy of Arts and Sciences, and a Faculty Research Associate of the National Bureau of Economic Research and the Abdul Latif Jameel Poverty Action Lab. He is co-director of the NBER Labor Studies Program, Co-Director of the MIT School Effectiveness and Inequality Initiative, and Scientific Advisor to the NBER Disability Research Center.

His teaching awards include the MIT MacVicar Faculty Fellowship for contributions to undergraduate education, the James A. and Ruth Levitan Award for excellence in teaching, the Undergraduate Economic Association Teaching Award, and the Faculty Appreciation Award from the MIT TPP program.

Autor earned a BA in Psychology from Tufts University and a PhD in Public Policy from Harvard’s Kennedy School of Government in 1999. Prior to graduate study, he spent three years directing computer skills education for economically disadvantaged children and adults in San Francisco and South Africa. Autor is the captain of the MIT Economics hockey team, which is reputed to be one of the most highly cited teams in the MIT intramural league.

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Prior to the onset of the COVID crisis, the industrialized world was undergoing rapid employment growth, so much so that The Economist magazine declared in May 2019, “Most of the rich world is enjoying a jobs boom of unprecedented scope”. Despite these encouraging trends, a cross-national Pew Research Center survey conducted in 2018 found that majorities of citizens in advanced and emerging economies anticipated that robots and computers would probably or definitely take over many jobs, exacerbating inequality, and making it more difficult to find work. The COVID crisis has upended these predictions, bringing to an end the longest economic expansion in U.S. history and causing a worldwide spike in unemployment. Ironically, technological advances generally, and automation specifically, had almost nothing to do with this reversal of fortune. Should we now stop worrying about technological unemployment and focus instead on conventional threats? Or are all prior bets simply off?

## What to Expect When You're Expecting Robots

Julie Shah

Associate Professor of Aeronautics and Astronautics



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Julie Shah is an Associate Professor in the Department of Aeronautics and Astronautics at MIT and leads the Interactive Robotics Group of the Computer Science and Artificial Intelligence Laboratory. Shah received her SB (2004) and SM (2006) from the Department of Aeronautics and Astronautics at MIT, and her PhD (2010) in Autonomous Systems from MIT. Before joining the faculty, she worked at Boeing Research and Technology on robotics applications for aerospace manufacturing. She has developed innovative methods for enabling fluid human-robot teamwork in time-critical, safety-critical domains, ranging from manufacturing to surgery to space exploration. Her group draws on expertise in artificial intelligence, human factors, and systems engineering to develop interactive robots that emulate the qualities of effective human team members to improve the efficiency of human-robot teamwork. In 2014, Shah was recognized with an NSF CAREER award for her work on "Human-aware Autonomy for Team-oriented Environments," and by the MIT Technology Review TR35 list as one of the world's top innovators under the age of 35. Her work on industrial human-robot collaboration was also recognized by the Technology Review as one of the 10 Breakthrough Technologies of 2013, and she has received international recognition in the form of best paper awards and nominations from the International Conference on Automated Planning and Scheduling, the American Institute of Aeronautics and Astronautics, the IEEE/ACM International Conference on Human-Robot Interaction, the International Symposium on Robotics, and the Human Factors and Ergonomics Society.

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As Covid-19 has made it necessary for people to keep their distance from each other, robots are stepping in to fill essential roles, such as sanitizing warehouses and hospitals, ferrying test samples to laboratories, and serving as telemedicine avatars. There are signs that people may be increasingly receptive to robotic help, preferring, at least hypothetically, to be picked up by a self-driving taxi or have their food delivered via robot, to reduce their risk of catching the virus.

As more intelligent, independent machines make their way into the public sphere, engineer Julie Shah is urging designers to rethink not just how robots fit in with society, but also how society can change to accommodate these new, "working" robots.

Claudia Unterweger

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Andrew McAfee

Principal Research Scientist  
MIT Sloan School of Management



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Andrew McAfee studies the ways that information technology (IT) affects businesses and business as a whole. His research investigates how IT changes the way companies perform, organize themselves, and compete. At a higher level, his work also investigates how computerization affects competition, society, the economy, and the workforce.

He and [Erik Brynjolfsson](#) are co-authors of the ebook [Race Against the Machine](#) : *How the Digital Revolution is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy*. The book brings together a range of data, examples, and research to show that the average US worker is being left behind by advances in technology.

He coined the phrase "[Enterprise 2.0](#)" in a spring 2006 [Sloan Management Review](#) article to describe the use of Web 2.0 tools and approaches by businesses. He also began blogging at that time, both about Enterprise 2.0 and about his other research. McAfee's [blog](#) is widely read, becoming at times one of the 10,000 most popular in the world (according to [Technorati](#) ). He also maintains a [Facebook profile](#) and [Twitter account](#).

In addition to the blog that is part of this site, McAfee also writes a [blog](#) as part of harvardbusiness.org's "[HBR Voices](#)." His posts are also regularly reprinted at [forbes.com](#).

McAfee's [book on Enterprise 2.0](#) was published in November 2009 by Harvard Business

## Predicting the Next AI Moment

Daniela Rus

Andrew (1956) and Erna Viterbi Professor of Electrical Engineering and Computer Science  
Deputy Dean of Research, MIT Schwarzman College of Computing  
Director, Computer Science and Artificial Intelligence Laboratory (CSAIL)



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Daniela Rus is the Andrew (1956) and Erna Viterbi Professor of Electrical Engineering and Computer Science, director of MIT's Computer Science and Artificial Intelligence Laboratory, and deputy dean of research for the Schwarzman College of Computing. She brings deep expertise in robotics, artificial intelligence, data science and computation. She is a member of the National Academy of Engineering and the American Academy of Arts and Sciences, and a fellow of the Association for the Advancement of Artificial Intelligence, the Institute of Electrical and Electronics Engineer, and the Association for Computing Machinery. She is also a recipient of a MacArthur Fellowship, a National Science Foundation Career award, and an Alfred P. Sloan Foundation fellowship. Rus earned her PhD in computer science from Cornell University.

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Artificial intelligence (AI) is one of the most important technologies in the world today. The United States and China compete for dominance in its development. CEOs believe it will significantly change the way they do business. And it has helped companies such as Facebook, Google, and Apple to become among the largest in the world. But how will this technology affect work in the future? Will it lead to a permanent underclass of people who are no longer employable because their jobs are being done by computers? Will super-intelligent computers someday take over the world, finding little use for the humans who created them? Or will robotic servants usher in a golden age of human leisure and prosperity?

18.55

Applying New Education Technologies to Meet Workforce Education Needs  
Sanjay Sarma  
Vice President for Open Learning  
Fred Fort Flowers (1941) and Daniel Fort Flowers (1941) Professor of Mechanical Engineering



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Vice President for Open Learning  
Fred Fort Flowers (1941) and Daniel Fort Flowers (1941) Professor of Mechanical Engineering

Sanjay Sarma is the Fred Fort Flowers (1941) and Daniel Fort Flowers (1941) Professor of Mechanical Engineering at MIT. He is the first Dean of Digital Learning at MIT. He co-founded the Auto-ID Center at MIT and developed many of the key technologies behind the EPC suite of RFID standards now used worldwide. He was also the founder and CTO of OATSystems, which was acquired by Checkpoint Systems (NYSE: CKP) in 2008. He serves on the boards of GS1, EPCglobal and several startup companies including Senaya and ESSESS.

Dr. Sarma received his Bachelors from the Indian Institute of Technology, his Masters from Carnegie Mellon University and his PhD from the University of California at Berkeley. Sarma also worked at Schlumberger Oilfield Services in Aberdeen, UK, and at the Lawrence Berkeley Laboratories in Berkeley, California. He has authored over 75 academic papers in computational geometry, sensing, RFID, automation and CAD, and is the recipient of numerous awards for teaching and research including the MacVicar Fellowship, the Business Week eBiz Award and Informationweek's Innovators and Influencers Award. He advises several national governments and global companies.

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What are the lessons from learning science and new technologies that could make online education, including workforce training, more effective? Our current workforce education system faces many gaps, from underinvestment to a deep disconnect between the still-separate worlds of work and learning. However, new models for workforce education delivery are developing to help fill these gaps. The coronavirus disease (COVID-19) has underscored the need for a better workforce education system to create better quality jobs. To meet the needed scale, online education, which has been growing in recent years, could be a key tool. But online education is a very different medium than the traditional classroom, and there are lessons from learning science only now being understood that will apply to it in different ways. For online workforce education to work and to scale, it will have to be a better system, incorporating learning lessons and advanced technologies to optimize the new medium.

19.15

[Panel Discussion] The Global Futures of Work and Cities

Katja Schechtner  
Research Fellow, MIT Senseable City Lab  
Advisor to the Austrian Minister of Climate Action, Environment, Energy, Mobility, Technology and Innovation

Georg Russegger  
Knowledge Transfer Centre, Academy of Fine Arts Vienna

Mary Anne Ocampo  
Lecturer of Urban Design, Department of Urban Studies and Planning  
Principal, Sasaki

Cognitive Science as a New People Science for the Future of Work  
John Gabrieli

Grover Hermann Professor of Health Sciences and Technology and Cognitive Neuroscience  
Director, Martinos Imaging Center  
MIT McGovern Institute for Brain Research



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Director, Martinos Imaging Center  
MIT McGovern Institute for Brain Research

McGovern Investigator John Gabrieli directs the research and administrative activities of the center, providing executive-level leadership and oversight to the center's operations. Gabrieli, who is also a professor in MIT's Department of Brain and Cognitive Sciences and the Harvard-MIT Division of Health Sciences and Technology, is interested in the neural basis of memory, thought and emotion in the human brain, and he also seeks to understand the brain abnormalities that underlie neurological and psychiatric disease.

[View full bio](#)

Traditional approaches to understanding skills and abilities in people (people science) do not satisfy the needs of the modern employer in regard to job fit, soft skills, fairness, and flexibility. The foundations of a new people science builds on advancements in fields like cognitive science and neuroscience that can be used to understand individual differences among humans. Best practices should govern the application of the new people science theories to real-world employment contexts. An example comes from one how one platform company has used the new people science to create hiring models for five high-growth roles. These insights need to be made actionable in the context of retraining employees for the future of work.



19.55

Constructive Communication in the Age of Fragmentation  
Deb K Roy  
Professor of Media Arts and Sciences at MIT  
Director of the MIT Center for Constructive Communication  
Executive Director at MIT Media Lab



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Deb Roy is Professor of Media Arts and Sciences at MIT where he directs the [MIT Center for Constructive Communication](#) and is Executive Director of the MIT Media Lab. He leads research in applied machine learning and human-machine interaction with applications in designing systems for learning and constructive dialogue, and for mapping and analyzing large scale media ecosystems.

Roy is also co-founder and Chair of [Cortico](#), a nonprofit social venture that is developing and operating the [Local Voices Network](#) to foster constructive public conversations across political and cultural divides. Roy was co-founder and CEO of [Bluefin Labs](#), a media analytics company that analyzed the interactions between television and social media at scale. Bluefin was acquired by Twitter in 2013, Twitter's largest acquisition of the time. From 2013-2017 Roy served as Twitter's Chief Media Scientist.

An author of over 160 academic [papers](#), his popular TED talk [Birth of a Word](#) presents his research on his son's language development that led to new ideas in media analytics. A native of Canada, Roy received his Bachelor of Applied Science from the University of Waterloo and PhD in Media Arts and Sciences from MIT.

Political, media and technological forces have driven us into isolated, like-minded camps hostile toward outside views and ripe for the spread of misinformation, mischaracterization of others, hateful discourse, and even violence. The loudest, most extreme voices now dominate the public sphere, stifling communication that might bridge ever-widening and increasingly dangerous divides. The MIT Center for Constructive Communication is bringing together researchers in AI, computational social science, digital interactive design, and learning technologies with software engineers, journalists, artists, public health experts, and community organizers to explore and address the effects of deepening societal fragmentation in America.

Led by Professor Deb Roy and based at the Media Lab, the Center will leverage data-driven analytics to better understand current social and mass media ecosystems and design new tools and communication networks capable of bridging social, cultural, and political divides.

20.15

Wrap Up & Closing

Mariana Kühnel  
Deputy Secretary General, Austrian Federal Economic Chamber

Michael Otter  
CEO of Advantage Austria, Austrian Federal Economic Chamber

20.20

Adjournment