

# MIT Industrial Liaison Program Faculty Knowledgebase Report

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## Digital Technology Integration

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November 3, 2020 9:00 am - 11:00  
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9:00am - 9:45am

Building the New Economy: Trusted Data, AI, and Risk Management

Alex Pentland  
Toshiba Professor  
Professor of Media Arts and Sciences  
Head, [Human Dynamics Research Group](#)



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Toshiba Professor  
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Alex "Sandy" Pentland directs MIT's Connection Science initiative and the MIT Media Lab Entrepreneurship Program and is a founding member of advisory boards for the World Economic Forum, AT&T, Telefonica, United Nations, and Nissan. He previously helped create and direct MIT's Media Laboratory, the Media Lab Asia laboratories at the Indian Institutes of Technology, and Strong Hospital's Center for Future Health.

Forbes magazine declared Pentland "one of the seven most powerful data scientists in the world," along with the founders of Google and the CTO of the United States. Pentland is among the most-cited computational scientists in the world, and a pioneer in big data analytics, computational social science, organizational engineering, and wearable computing. His research has been featured in *Nature*, *Science*, the World Economic Forum, and *Harvard Business Review*, as well as being the focus of TV features including "Nova" and "Scientific American Frontiers." His most recent books are *Social Physics*, and *Trust :: Data*.

Interesting experiences include winning the DARPA 40th Anniversary of the Internet Grand Challenge, dining with British Royalty and the President of India, staging fashion shows in Paris, Tokyo, and New York, and developing a method for counting beavers from space.

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The pandemic has laid bare many weaknesses in our national and global systems, especially around having timely data and data sharing, having AI that pulls out trends before they get large, and the need for greater levels of trust, reliability, and audibility. Drawing on discussions with National and Industry leaders from around the world, Sandy will discuss how leaders are evolving ways of addressing these problems, the policy changes that will affect businesses, and the technology being deployed that will support a new, more resilient, sustainable, and inclusive economy.

Digital Transformation Strategies – From IOT, Blockchain to Cloud Computing  
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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Abel Sanchez  
Executive Director, [MIT Geospatial Data Center \(GDC\)](#)



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Executive Director  
[MIT Geospatial Data Center \(GDC\)](#)

Dr. Abel Sanchez holds a Ph.D. from the Massachusetts Institute of Technology (MIT). He is the Executive Director of MIT's Geospatial Data Center, architect of "The Internet of Things" global network, and architect of data analytics platforms for SAP, Ford, Johnson & Johnson, Accenture, Shell, Exxon Mobil, and Altria. In cyber security, Dr. Sanchez architected impact analysis of large-scale cyber attacks designing Cyber Ranges for the Department of

10:30am - 11:30am

Panel Discussion  
Wilson Chu  
Chairman, [Defond Group](#)



Wilson Chu  
Chairman  
[Defond Group](#)

Wilson graduated from UC Berkeley engineering school in 1979 and joined Defond. Within 2 years Defond was the first switch maker in Hong Kong to obtain UL approval and quickly became the top supplier for that market. Today, Defond is the biggest global supplier of switches for the power tools sector. During the early '90s Defond started involvement in electronics and was the top supplier of Appliance Leakage Circuit Interrupters for the US market. With a combination of expertise on mechanical, electronics and firmware, Defond

Peter Weckesser  
Chief Digital Officer, [Schneider Electric](#)



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Chief Digital Officer  
[Schneider Electric](#)

Peter Weckesser is the Chief Digital Officer of Schneider Electric and a Member of the Executive Committee since June 2020, when he joined the company.

Prior to working at Schneider, Peter served as the Digital Transformation Officer of Airbus' Defense & Space division since 2017. Before joining Airbus, Peter had extensive experience as a Senior Executive at Siemens, most recently as the Chief Operating Officer of Siemens' Product Lifecycle Management, leading the IoT and Digital Enterprise business and activities. He also held other executive-level positions with Siemens such as the CEO of Industry Services and CEO of Value Services.

Peter's career began at Siemens where he worked in various roles in product management and development, including Director of Business Development in the United States. He holds a degree in physics as well as a PhD in Computer Science from the University of Karlsruhe, Germany. He currently resides in Germany.

Kalev Ruberg  
VP Future & Chief Innovation Officer, [Teck Resources Limited](#)



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[Teck Resources Limited](#)

Kalev Ruberg has been active in the information systems arena for over 40 years. As a BSc and Masters graduate from MIT, his studies included work at the Architecture Machine Lab (now the Media Lab) before carrying out digital simulation research at the National Bureau of

