

# MIT Industrial Liaison Program Faculty Knowledgebase Report

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## New Technologies for Improved Mining Operations

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November 6, 2025 10:00 am - 11:00  
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10:00 AM

Welcome and Introductions  
Eduardo Garrido  
Program Director, [MIT Industrial Liaison Program](#)



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Eduardo Garrido is a Program Director at the Office of Corporate Relations at MIT.

Eduardo Garrido has a strong multicultural and multidisciplinary background, with deep expertise in higher education, banking and management consulting, acquired in Argentina, Spain and USA. He currently serves as Program Director at the Industrial Liaison Program, Office of Corporate Relations (MIT), the largest conduit between corporations and MIT.

Before joining MIT, Eduardo was the Director of Santander Universities at Santander Bank, N.A., based in Boston, MA. In this role, he managed the institutional and business relationship with 46 universities, mainly in the northeastern US. He also served as Santander US representative at President Obama's 100,000 Strong in the Americas initiative and the Woman for Africa Foundation, among other relevant global higher education projects, and as Member of the Global President's Council at NYU and the Advisory Boards of the Deming Cup, ECLA (Columbia University) and Newcastle University Business School.

Before coming to the US, Eduardo had several roles at Banco Santander Rio (Argentina). As Director of Santander Universities, he started the first entrepreneurship initiative at Grupo Santander worldwide, including the launching of a business plan competition, the Technology Innovation Venture Capital Fund, and a national competitiveness development initiative. He also sponsored the first edition of MIT 50K in Argentina. As Director of Organization and Quality at Banco Santander Rio, he led the team that obtained the first Global ISO 9001:2000 certificate for a financial institution in Latin America, certifying all main processes and areas of the bank. He also steered the business process reengineering project for the whole Bank, partnering with Ernst & Young and McKinsey and Co and implemented the Retail Banking new operating model.

Before joining Banco Santander Rio, Eduardo was Senior Manager of the Financial Services and Capital Markets Group at Price Waterhouse Management Consultants in Madrid, Spain. He was the Practice Leader of Business Process Reengineering, Financial Risk Management and Risk Adjusted Profitability Measurement.

Before his assignment at Price Waterhouse he served as Director of Consulting Services at MSA International, Inc. and as Financial Control Manager at Citibank España, S.A.

Eduardo graduated as Industrial Engineer at Universidad de Buenos Aires and has a MBA degree from IE Business School.

Data Analytics - Digital Twins to Real Time Control  
Brian W Anthony

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



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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.

[View full bio](#)  
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Industry is undergoing a major transformation, shifting from automated to autonomous operations. The key to making this happen is the integration of digital technologies, including sensors, data, computing power, and information systems. At the heart of this shift are digital twins—virtual models that represent materials, processes, supply chains, and production lines. These digital replicas allow for simulation, monitoring, and improvement of operations in real-time using sensor data. When digital twins are combined with real-time control systems and machine learning, operations and factories become smarter and more adaptive. Real-time data flows from sensors to digital models and ML algorithms, enabling predictive maintenance, waste reduction, and optimizing production. A data-in-context connected ecosystem creates a highly efficient, data-driven environment in manufacturing and in mining.

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#### MIT Startup Exchange Lightning Talks

Tricia Dinkel

Manager of Partnerships & Engagement, [MIT Startup Exchange](#)



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Manager of Partnerships & Engagement

[MIT Startup Exchange](#)

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.

Tancredi Botto

[Muon Vision](#)

Tancredi Botto will present potential use cases demonstrating how muon radiography, an emerging technology in the mining industry, can drive a step change in the efficiency and sustainability of heap leaching operations.

Muon radiography is a well-established technique used for the characterization and digital mapping of large objects. The method is analogous to medical or industrial X-rays; however, instead of relying on a conventional radionuclide source or X-ray tube, muon radiography utilizes the naturally occurring flux of cosmic ray particles (muons) originating in the Earth's upper atmosphere. This benign background radiation is freely available everywhere on Earth and is intrinsically safe.

Bulk density measurements obtained through muon radiography are particularly valuable for inferring changes in the fluid saturation content of soils at shallow depths. The presentation will show how muon radiography enables operators to maintain a precise, quantitative 3D map of the volumetric fluid and air content within a leaching heap over time. These parameters are difficult to measure at scale in the field, yet they are key drivers of ultimate metal yields, operational costs, and both financial and geotechnical risk.

Brandon Fields

Fieldstone Bio is an MIT-connected startup spun out in 2023 from the Voigt lab in MIT's bioengineering department. Fieldstone uses microscopic biosensors to measure elements at a mining scale. Fieldstone's biosensors act as tiny, engineered sensors capable of being spread across cores, ore, or tailings to provide direct measurements of gold, copper, and other metals. Fieldstone can measure and process the signals from the biosensors using advanced imagery and AI to produce high-resolution heatmaps of the target element – providing mining companies with unprecedented data to augment existing modeling and increase the speed and accuracy of decisions.

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Closing Remarks  
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