

INDUSTRIAL AND SYSTEMS ENGINEERING

THE H. MILTON STEWART SCHOOL MAGAZINE | 2025-26

The Legacy We Are Creating Together



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The Future of AI-Powered Manufacturing



PLUS

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Opening in 2026, the Tech Square Phase 3 development includes the 18-story George Tower and 14-story Scheller Tower, future homes of ISyE and Scheller College of Business' graduate and executive programs.

INDUSTRIAL AND SYSTEMS ENGINEERING

2025-26



H. Milton Stewart School of Industrial and Systems Engineering

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INSIDE

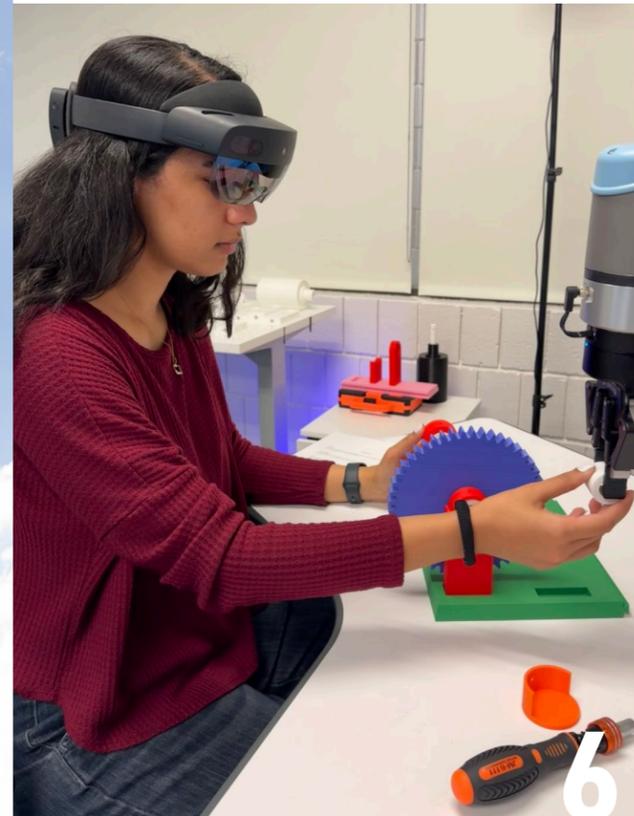
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Dear ISyE Community,

It is with great excitement and deep gratitude that I write to you as the new school chair of Georgia Tech's H. Milton Stewart School of Industrial and Systems Engineering (ISyE). Since stepping into this role on January 1, 2025, I continue to be inspired and energized by the passion, talent, and commitment that define our ISyE family.

We are in an era with the potential to positively transform ISyE and the field of industrial and systems engineering. The increasing availability of data and computing power is reshaping the landscape of science, engineering, business, and society. At ISyE, we are uniquely positioned to play a lead role in this transformation, building on our legacy in educational and research excellence. Our foundational methodologies — including statistics, optimization, simulation, and stochastics — have long been at the heart of what we now broadly refer to as artificial intelligence (AI). Our faculty and students are making academically rigorous and impactful contributions in many application areas, such as supply chains, healthcare systems, energy, financial engineering, and advanced manufacturing.

At this remarkable moment in time, the complex challenges facing society call for the systems thinking and analytical approaches that define our discipline, and ISyE and our field are poised to make truly transformative contributions.

As we look ahead, I am excited to share several strategic initiatives that will shape our path forward; these are outlined on the next page.

In this issue, you can also read about the future home of ISyE: George Tower. Currently under construction in Tech Square, this new facility will serve as a vibrant space for learning, research, and collaboration, supporting our aspirations for continued growth and positive impact. It will place us at the heart of Atlanta's innovation, technology, and entrepreneurship ecosystem — an ideal setting to catalyze new partnerships and collaborations both within and beyond Georgia Tech. We are deeply grateful to Bill and Penny George whose generous support and visionary leadership helped make this possible.

To our alumni and supporters: Thank you for your unwavering commitment to ISyE! Your generosity and support have been essential to our success. We look forward to continuing and deepening our connections and collaborations with you.

I would also like to express my appreciation to former ISyE school chairs for their leadership and service as well as leadership at Georgia Tech and all members of our ISyE family — faculty, staff, students, alumni, partners, and friends — for their many contributions and continued support.



This is both an exciting and challenging time for ISyE and our field as we navigate rapid technological changes and evolving societal and business needs. ISyE has long been recognized as the nation's top-ranked program in industrial and systems engineering at the undergraduate and graduate levels, a testament to the exceptional quality of our education, research, and community. I am honored to serve as the ninth permanent school chair of ISyE and follow in the footsteps of distinguished leaders who have established our legacy.

I look forward to working with all of you to advance ISyE's excellence in research and education; strengthen our leadership in the field; expand our impact across academia, industry, and society; and shape the future of our school and discipline.

In Progress and Service,

Pinar Keskinocak
H. Milton and Carolyn J. Stewart School Chair

ISyE's Strategic Initiatives

1 Advancing Educational Excellence



ISyE offers top-tier programs across the educational spectrum — from K-12 outreach to undergraduate concentrations, master's and Ph.D. programs, and continuing education. We see tremendous opportunities to grow these programs and foster synergies among them by revisiting the structure, content, and delivery of our academic offerings, so they reflect recent advances in technology, pedagogy, and industry/societal needs and incorporate systems thinking. We are also enhancing our offerings in professional skill development, such as business and technical communication, teamwork, and collaboration. Our goal is to better prepare our students not only for today's workplace but also for the evolving challenges and opportunities of the future — helping them thrive personally and professionally. Our collaborations with Georgia Tech's newly established College of Lifetime Learning will further expand ISyE's reach and impact as a vibrant nexus for supporting ongoing professional development and personal growth.

2 Advancing Research Excellence



ISyE is home to research leaders whose work spans a wide range of methodology and application areas. Building on ISyE's legacy of research leadership and impact in practice, we are launching new initiatives to help foster synergies and growth across research activities in ISyE, across Georgia Tech, and with external partners. Areas of focus include connections of methodology-focused research and AI as well as applied research initiatives, such as Manufacturing and AI, Healthcare and AI, Supply Chain and Logistics and AI, and emerging frontiers, such as Human-Centered Systems Engineering and Quantum Computing.

3 Enhancing Communication



Clear, consistent, and engaging communication is vital to our success — not only in how we share information but also in how we listen, learn, and respond. We are working to improve the ways that we connect within ISyE and with the broader community. We invite all members of our ISyE family — faculty, staff, students, alumni, partners, and friends — to actively participate in these efforts and help us shape and share our collective stories more effectively.

4 Community Building and Engagement



We are launching new initiatives to strengthen belonging and connection within our ISyE family — both socially and around shared interests and impact areas. Cross-sectional engagement and collaborations can help everyone feel valued and heard, while creating opportunities to contribute unique perspectives. By cultivating a more connected and inclusive environment, we aim to empower each member to help shape the future of ISyE and our field, and expand our collective impact — academically, professionally, and societally. These efforts will spark new ideas, strengthen partnerships, and ensure our progress reflects the varied strengths and aspirations of our ISyE family.

5 Cultivating Innovation, Leadership, and Entrepreneurship



We are committed to cultivating innovation, leadership, and entrepreneurship at every level — from our students to our faculty and staff — promoting opportunities for growth, experiential learning, interdisciplinary collaborations, and translational impact across ISyE's academic and research missions. Our aims include developing leaders who embody Georgia Tech's spirit of Progress and Service, increasing engagement with industry and innovation ecosystems, driving meaningful change, and positively influencing our community and society at large.

ISyE by the Numbers

Top-Ranked Programs

UNDERGRADUATE

No. 1 Industrial and Systems Engineering Undergraduate Program



U.S. News & World Report, 2025

GRADUATE

No. 1 Industrial and Systems Engineering Graduate Program

Degrees Offered

1 Bachelor of Science in Industrial Engineering Degree

With 7 Concentrations:

- Advanced Studies for Operations Research and Statistics
- Analytics and Data Science
- Economic and Financial Systems
- General Industrial Engineering
- Operations Research
- Quality and Statistics
- Supply Chain Engineering

9 Master's Degrees:

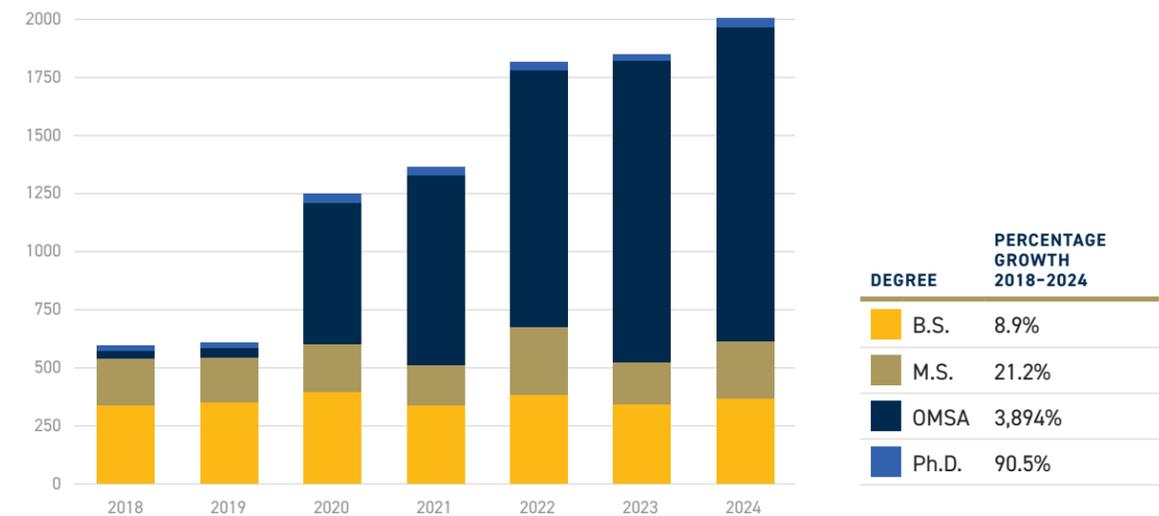
- Master of Science in Analytics*
- Master of Science in Computational Science and Engineering
- Master of Science in Health Systems
- Master of Science in Industrial Engineering
- Master of Science in Operations Research
- Master of Science in Quantitative and Computational Finance
- Master of Science in Statistics
- Master of Science in Supply Chain Engineering
- Master of Science in Urban Analytics

*Online Degree Available

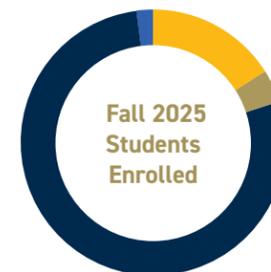
6 Doctoral Degrees:

- Ph.D. in Algorithms, Combinatorics, and Optimization
- Ph.D. in Bioinformatics
- Ph.D. in Computational Science and Engineering
- Ph.D. in Industrial Engineering With 4 Specializations:
 - Economic Decision Analysis
 - Statistics
 - Supply Chain Engineering
 - System Informatics and Control
- Ph.D. in Machine Learning
- Ph.D. in Operations Research

ISyE Degrees Awarded Growth



Students Enrolled and Degrees Awarded

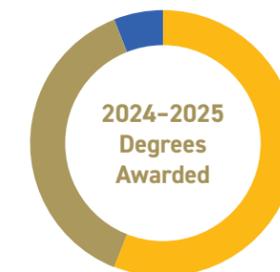


1,387
Undergraduate Students

326
Master's Students (In-Person)

6,858
Master's Students (Online)

215
Doctoral Students



DEGREE	AWARDED 2024-2025
B.S.	367
M.S.	246*
Ph.D.	40
Total	653

*On-Campus Master's Students



Faculty and Staff

80

Academic Faculty

24

Research Faculty

55

Staff

The Future of AI-Powered Manufacturing

BY ANNETTE FILLIAT

Manufacturing is at an inflection point. Across industries, companies are grappling with rapid digital transformation, the integration of artificial intelligence (AI), and the urgent need for resilient, sustainable systems. Industrial and systems engineering — with its deep roots in process and quality improvement and advanced analytics — is stepping into this moment to drive innovation in manufacturing ecosystems.



Photo by Joshua Smith. / Led by Principal Investigator Mohsen Moghaddam, Symbiotic and Augmented Intelligence Laboratory team members (left to right) Pantea Habibi, Austin Graves, Steven Yoo, and Seok Joon Kim explore how people can work alongside AI, XR, and robotics.

“It’s a pivotal time for collaboration,” said Pinar Keskinocak, H. Milton and Carolyn J. Stewart School Chair and professor in the H. Milton Stewart School of Industrial and Systems Engineering (ISyE). “We are uniquely positioned to connect foundational engineering principles with emerging AI technologies — helping shape the future of smart, efficient, resilient, and sustainable manufacturing systems.”

ISyE is launching its Manufacturing and AI Initiative to unite pioneering researchers with interdisciplinary partners in the development of research and education programs that address issues of industrial, societal, and global concern. The initiative focuses on the following key enabling technologies that are transforming modern industrial systems:

- AI-enabled manufacturing process optimization
- Integrated asset management and security
- Human-centered manufacturing

Together, these areas position ISyE at the forefront of shaping AI-powered manufacturing. And while these opportunities have the potential to create more innovative products, reduce costs, accelerate productivity, and increase sustainability, researchers are also addressing the potential challenges.

“Because data science is at the center of manufacturing and AI, we need to contextualize the immense amount of data to effectively enable AI,” shared Kamran Paynabar, associate chair for innovation, leadership, and entrepreneurship and Fouts Family Chair and professor in ISyE. “Some of the greatest challenges of modern manufacturing systems are to make sense of vast amounts of data and ensure efficient operations.”

ISyE’s Manufacturing and AI Initiative

KEY ENABLING TECHNOLOGIES

1

AI-ENABLED MANUFACTURING PROCESS OPTIMIZATION

Data Fusion
Digital Twins
Industrial Internet of Things
Advanced Manufacturing Technologies

2

INTEGRATED ASSET MANAGEMENT AND SECURITY

AI-Driven Methods for Diagnostics and Prognostics
Edge and Federated Computing
Cybersecurity

3

HUMAN-CENTERED MANUFACTURING

Extended Reality
Simulation
Robotics

1

AI-ENABLED MANUFACTURING PROCESS OPTIMIZATION

Data Fusion

Applying AI-Enabled Quality Improvement Methodologies to Multistage Manufacturing Systems

Multistage manufacturing systems (MMS) generate massive, complex data, and researchers are pioneering methods to turn that information into actionable insights.

“In MMS, the product quality can be affected by local variation and upstream influences,” explained Jianjun Shi, Carolyn J. Stewart Chair and professor in ISyE and a member of the National Academy of Engineering. “With the rise of advanced sensors, we can gather vast amounts of heterogeneous data, but the challenge lies in merging this data with engineering expertise using data science tools.”

Shi and his team’s In-Process Quality Improvement (IPQI) and Stream of Variation methodologies fuse data science with systems theory to improve the design and operation of MMS. These AI-enabled approaches allow process monitoring, diagnosis, and defect prevention, which move beyond traditional



Photo by Michael Biehler. / Jianjun Shi (left) advises Michael Biehler (Ph.D. IE 2024) in a 3D printing workshop for K-12 students.

quality control. The methodologies are being widely implemented in the aerospace, automotive, and semiconductor industries with substantial social and economic impacts.

“IPQI methodologies are enabling significant AI-powered developments because of the advancements of data analytics, AI/machine learning (ML) techniques, and unprecedented computational capabilities; the availability of tremendous sensing signals, data acquisition, and networking capabilities; and the requirements of high precision, performance, productivity, flexibility, agility, and low cost in manufacturing systems,” he added.

Recently, Shi and his team applied AI-enabled quality improvement

methodologies to the modeling, monitoring, diagnosis, and control of MMS. Supported by the Boeing Company and the NSF, they developed high-precision fuselage assembly for Boeing 787 aircraft with active shape control and optimal actuator placement by using sparse and reinforcement learning. Because the fuselage must withstand extreme environmental conditions, immense pressure loads, and constant vibrations, precision assembly is essential for ensuring an aircraft’s safety, structural integrity, and aerodynamic performance.

Digital Twins

Developing Digital Twins to Stress Test and Secure the Biomanufacturing Supply Chain

The supply chain of a biological product can be derailed at many junctions — from cyberattacks to pandemics. With support from the U.S. Department of Defense (DoD)’s BioMADE, Chelsea C. White III, Schneider National Chair in Transportation and Logistics and professor in ISyE, co-led the development of an affordable simulation platform that stress tests bioindustrial manufacturing facilities and supply chains.

“The simulation platform can be customized to evaluate the potential impact of various disruptions, then it can help a company decide how to respond, recover, possibly reconfigure supply chain or manufacturing processes, or even redesign a product,” said White, who worked alongside Ben Wang, professor emeritus in ISyE and former executive director of the Georgia Tech Manufacturing Institute (GTMI), and Kevin Wang, senior research faculty in GTMI.

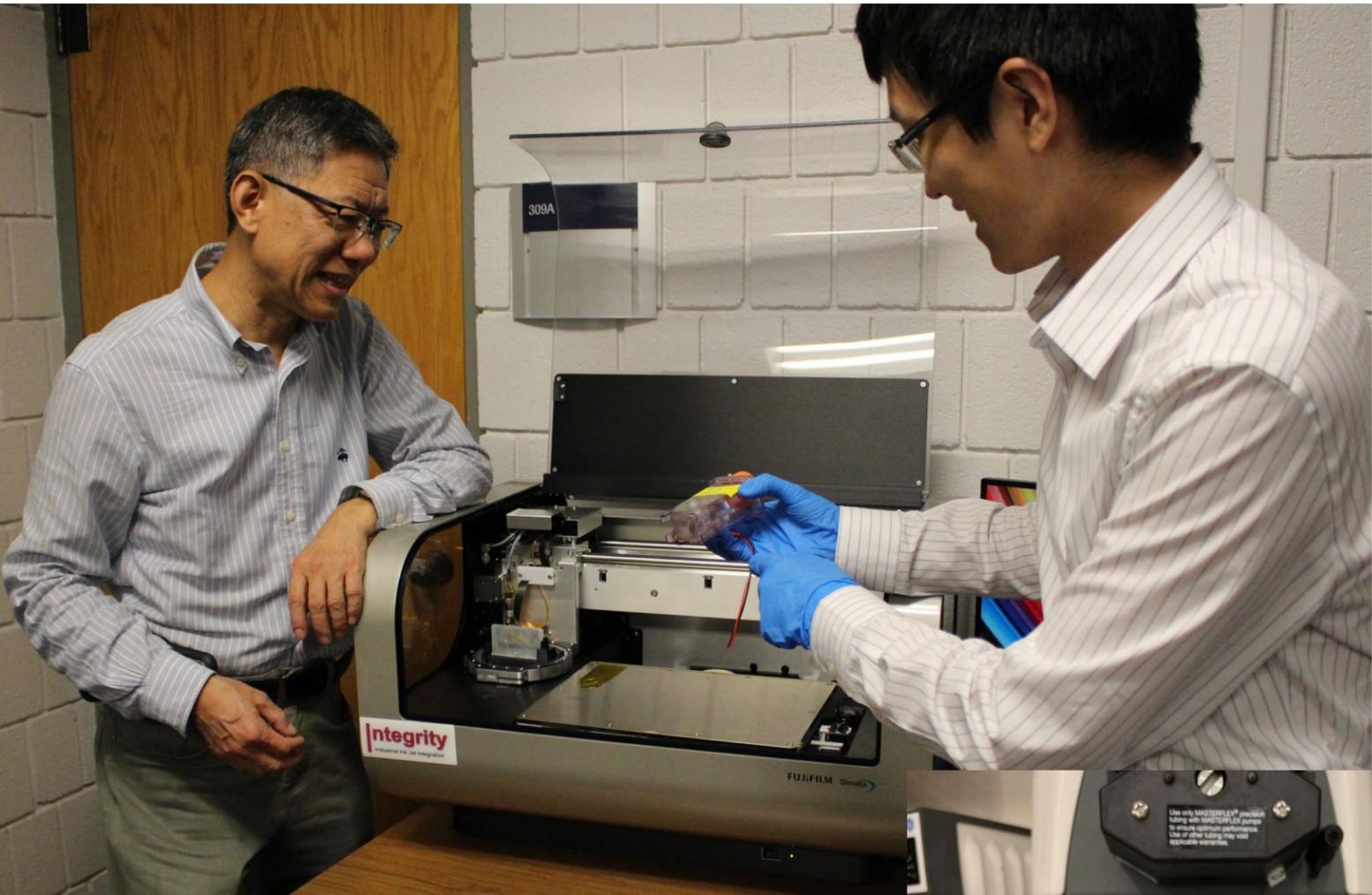
One disruption example is if a bio-based business loses a supplier and wants to know how much extra inventory to stock. The work’s significance extends beyond productivity. Melanie Tomczak, chief technology officer and head of programs at BioMADE, explained that the DoD is interested in this research to help secure the U.S. biomanufacturing supply chain — reducing reliance on foreign sources, enabling rapid response to crises, protecting from emerging threats, and promoting economic growth.

“We are interested in this research to help secure the U.S. biomanufacturing supply chain — reducing reliance on foreign sources, enabling rapid response to crises, protecting from emerging threats, and promoting economic growth.”

— MELANIE TOMCZAK, CHIEF TECHNOLOGY OFFICER AND HEAD OF PROGRAMS, BIOMADE

“It’s a pivotal time for collaboration. We are uniquely positioned to connect foundational engineering principles with emerging AI technologies.”

— PINAR KESKINOCAK, H. MILTON AND CAROLYN J. STEWART SCHOOL CHAIR AND PROFESSOR, ISyE



SIDEBAR

Advancing the 3D Bioprinting Field Through Transfer Learning

Bioprinting is a type of biofabrication technology — combining 3D printing with life sciences — that has diverse applications from creating transplantable organs to cell-cultured meats. The technology, however, is still in its infancy.

“Despite research efforts to enhance process modeling, optimize capabilities, and explore new conditions, a critical need remains to improve the process efficiency of bioprinting,” said Paynabar.

AI-driven approaches are emerging as powerful tools for optimizing bioprinting processes. In a European Union-funded study, Paynabar and collaborators introduced a transfer learning framework that enables resource-efficient modeling — addressing a key challenge in bioprinting when bioink formulations change.

“While ML has advanced bioprinting process optimization, it often struggles to produce reliable models,” he explained. “By enabling knowledge transfer, transfer learning overcomes this limitation and supports broader applications across diverse printing conditions and evolving technologies.”

Advanced Manufacturing Technologies

Biomanufacturing Immune Cells to Treat Hard-to-Cure Cancers

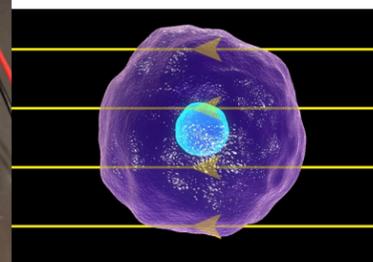
ISyE researchers are working to design biosensors that can improve the treatment of some of the most aggressive cancers.

Unlike chemotherapy, chimeric antigen receptor (CAR)-T-cell therapy engineers a patient’s own immune cells to fight cancer. “CAR-T-cell therapy shows great promise to treat hard-to-cure cancers, but its widespread adoption is limited by labor-intensive, expensive, and inconsistent cell manufacturing processes,” said Chuck Zhang, Eugene C. Gwaltney, Jr. Chair and professor in ISyE. “To address this challenge, the precise monitoring and control of the cell growth process are critical.”

Zhang and his team developed low-cost, disposable biosensors for real-time, in-line monitoring of suspension cell culture. By incorporating an AI/ML algorithm, they eliminated lengthy calibration processes for cell density sensing — enabling continuous monitoring, accurate time-to-delivery estimation, and improved quality assurance of the modified cells.

“These innovations are paving the way for more accessible, affordable, and high-quality CAR-T-cell therapy,” added Zhang.

Photos by Joshua Smith and Zhaonan Liu. / Chuck Zhang and Zhaonan Liu examine a flexible biosensor (above left). A flexible biosensor conforms inside a bioreactor, enabling cell density sensing at low media volumes (left). Biocapacitance sensors detect living cells by measuring the capacitance induced by the cell membrane (below).



2 INTEGRATED ASSET MANAGEMENT AND SECURITY



HOW IS AI REVOLUTIONIZING THE MANUFACTURING INDUSTRY?

“AI is transforming manufacturing by enabling real-time optimization of key performance indicators, such as throughput, yield, quality, and tardiness. With predictive and prescriptive analytics, operations can shift from reacting to problems to anticipating and preventing them. This revolution makes manufacturing more efficient, flexible, and capable of delivering high-quality output at scale.”

— Ayush Mohanty
Graduate Student, ISyE

“These innovations are paving the way for more accessible, affordable, and high-quality CAR-T-cell therapy.”

— CHUCK ZHANG, EUGENE C. GWALTNEY, JR. CHAIR AND PROFESSOR, ISyE

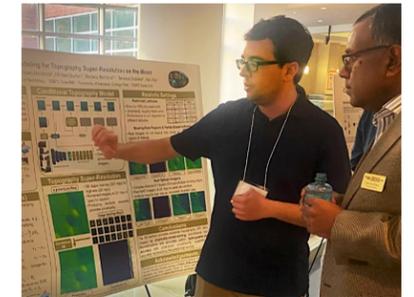


Photo by Pinar Keskinocak. / Matthew Repasky, a Ph.D. student in Machine Learning, presents a poster about his research.

AI-Driven Prognostics

Predicting and Monitoring Aircraft Coating Degradation for Preemptive Maintenance

Coating protects aircraft from environmental damage and stress from flying, but traditionally, there has not been an effective way to perform real-time monitoring and assessment of the coating degradation over time — until now.

In collaboration with Lunar Technology, ISyE’s Coca-Cola Foundation Chair and Professor Yao Xie and her team predicted coating degradation in military aircrafts by introducing a statistically principled framework that used Hawkes point processes with detection to represent discrete degradation events. The algorithm relied on real-time data collected through edge devices and sensors, combined with AI models to support predictive maintenance.

“These methods projected how factors, including flight load, humidity, and temperature, can cause future damages and failures,” explained Xie, whose research was supported by the DoD’s Strategic Environmental Research and Development Program. “As a result, our framework can support smarter, more efficient preemptive maintenance decisions in aerospace and materials science applications.”

Edge and Federated Computing

Developing Methodologies for Distributed Plants to Operate More Efficiently

ISyE's Georgia Power Early Career Professor Nagi Gebraeel and his Predictive Analytics and Intelligence Systems (PAIS) team are using AI to improve operational efficiency and performance of distributed, multi-site manufacturing plants. The PAIS team is exploring how internet of things (IoT) interconnectivity and decentralized data analytics can drive real-time decision-making and adaptive control by enabling collaborative intelligence across sites — without costly centralized data aggregation.

In collaboration with Novelis and supported by the NSF, the team developed novel methods for uncovering causal relationships between geographically distributed machines and processes without the need to share raw data.

“By uncovering latent causal structures through this novel federated mechanism, our approach enables distributed plants to coordinate more effectively, anticipate downstream disruptions, and implement system-wide optimizations,” said Gebraeel. “Knowing ‘what drives what’ provides an auditable causal map that production engineers can inspect, validate, and act upon.”

“We are excited about this direction,” he added, “because it opens new avenues for intelligent coordination in complex manufacturing networks and sets the foundation for more explainable and trustworthy AI systems in industrial operations.”



Photos by Joshua Smith. / Nagi Gebraeel advises graduate student Michael Ibrahim in the PAIS laboratory (right).



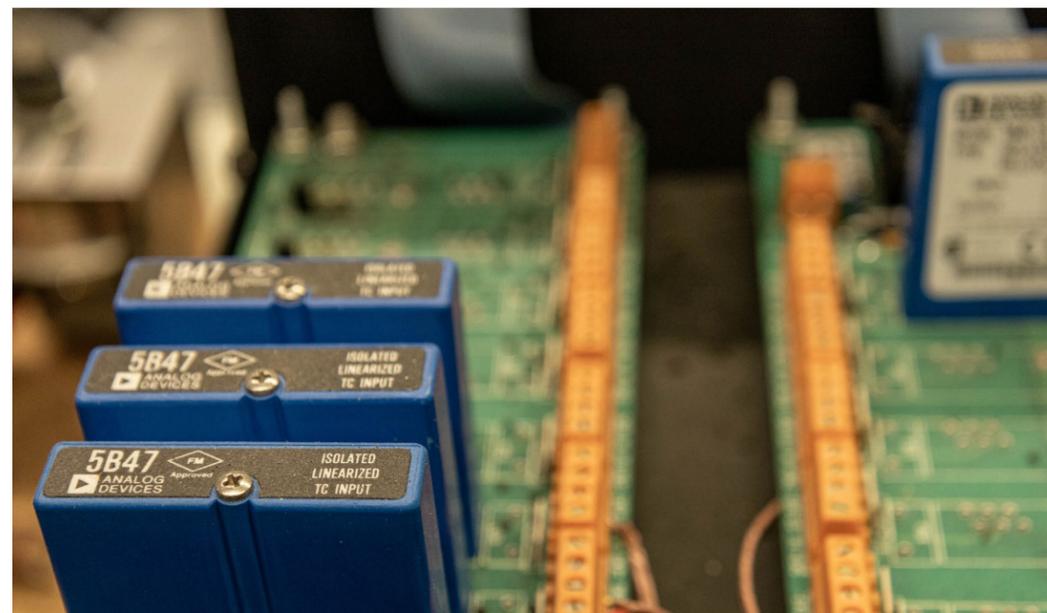
“We are excited about this direction because it opens new avenues for intelligent coordination in complex manufacturing networks.” — NAGI GEBRAEEL, GEORGIA POWER EARLY CAREER PROFESSOR, ISyE

HOW IS ISyE DEVELOPING STUDENTS TO BECOME LEADERS IN ADVANCED MANUFACTURING AND SOLVE COMPLEX, REAL-WORLD PROBLEMS?



“ISyE brings together cutting-edge research, a rigorous curriculum, and strong industry connections all in one place, but what stands out to me is its energy and sense of community. From day one, I felt pushed to think bigger and bolder, take risks, and tackle real-world challenges in ways I had not imagined before.”

— Michael Biehler (Ph.D. IE 2024)
Assistant Professor, University of Wisconsin-Madison



WHAT SKILLS WILL ISyE STUDENTS NEED FOR THE FUTURE OF AI-POWERED MANUFACTURING?



“We will need to speak three languages at once: data, machines, and people. Knowing how AI and other ML tools work is essential, but so is critical thinking to ask whether a model fits the problem instead of using it on autopilot.”

— Mahya Qorbani
Graduate Student, ISyE



Photo by Joshua Smith. / Kamran Paynabar discusses electron backscatter diffraction measurements, including grain size and crystal orientation (above).

Cybersecurity

Detecting Covert Cyberattacks of SCADA Systems

Supervisory Control and Data Acquisition (SCADA) systems are frequently used in critical infrastructures, including manufacturing. Traditionally, these systems relied on isolated communication networks to ensure security and operational stability. The increasing integration of IoT, however, has expanded their connectivity — introducing new vulnerabilities to cyberattacks.

In 2024, U.S. utilities experienced a nearly 70% increase in cyberattacks compared to the previous year according to Check Point Research, and the nationwide power infrastructure is becoming more vulnerable as the grid grows rapidly to meet demand and assets are digitized (Reuters).

Supported by the U.S. Department of Energy, Paynabar, Gebraeel, and Dan Li, an ISyE Ph.D. graduate, recently developed ML methods to detect covert cyberattacks of SCADA systems. “These methods enable the detection of sophisticated attacks that are disguised as the natural behavior of SCADA systems and can help with distinguishing these attacks from system faults,” said Paynabar.

HOW IS ISyE DEVELOPING STUDENTS TO BECOME LEADERS IN ADVANCED MANUFACTURING AND SOLVE COMPLEX, REAL-WORLD PROBLEMS?

“ISyE offers one of the nation’s most comprehensive programs in our field — spanning advanced manufacturing, engineering statistics, and optimization. In addition to ISyE’s broad curriculum and faculty expertise, students benefit from research opportunities with leading global companies, such as Apple, Boeing, and Samsung, to solve real-world challenges.”

— **Shancong Mou (M.S. CSE 2021, Ph.D. IE 2024)**
Assistant Professor, University of Minnesota Twin Cities



Extended Reality

Augmenting, Not Replacing: How AI-Powered Extended Reality Could Expand Human Capabilities

Will smart machines replace human workers? ISyE researchers envision a future where intelligent technologies augment humans — cognitively and physically — rather than replacing them.

In the Symbiotic and Augmented Intelligence Laboratory (SAIL), Mohsen Moghaddam, ISyE’s Gary C. Butler Family Associate Professor, and his team are developing intelligent systems — driven by AI, extended reality (XR), and robotics — that expand human capabilities. The team is also advancing human-robot interaction where XR acts as a translator between people and machines.

“We are exploring how to build AI capabilities into XR that would serve as intelligent companions to look over your shoulder, understand what is happening around you, provide you with the right interventions, and help you complete various manufacturing tasks, such as assembly, inspection, and robot interaction,” said Moghaddam. “This symbiotic relationship would accelerate the progression of workers from novices to experts in future factories.”

Photo by Joshua Smith. / The SAIL research team is developing intelligent systems — driven by AI, XR, and robotics — that expand human capabilities.

HUMAN-CENTERED MANUFACTURING



ISyE graduate student Akhil Ajikumar puts it simply: “At SAIL, we are using state-of-the-art XR and AI to create the future of work and enhance human capability. Imagine Tony Stark and J.A.R.V.I.S.”

Supported by the NSF, SAIL studied assembly and inspection in the aviation industry where the spatial and causal reasoning and decision-making abilities of workers are enhanced by partnering with intelligent XR technologies. “This research is addressing the urgent need for breakthrough technologies to enable the rapid upskilling of the manufacturing workforce,” Moghaddam added.

“We are using state-of-the-art XR and AI to create the future of work and enhance human capability. Imagine Tony Stark and J.A.R.V.I.S.” — AKHIL AJIKUMAR, GRADUATE STUDENT, ISyE



Robotics

Automating Assembly to Mitigate Workforce Absenteeism and Meet Demand

Many medical products are manually manufactured and assembled without the use of automation. How could automation have reduced some of the healthcare equipment challenges during the Covid pandemic — or even future pandemics?

“Manufacturers in this space are often small and midsize businesses without access to funding or the latest information about product design and processes,” said White, who co-led the project with Ben Wang and Kevin Wang. “Furthermore, any product design or

process changes can, and would have, run into regulatory constraints.”

Georgia Tech and Texas A&M University researchers, funded by the Advanced Robotics for Manufacturing Institute, conducted a retrospective study of robot applications during Covid. One finding is that when demand surged for oxygen concentrators, as an equipment example, workforce absenteeism also increased, thus reducing manufacturing capacity.

“The team tested some ‘what-ifs’ using a digital twin by inserting cobots into the final assembly process for the oxygen concentrator, and we found that they mitigated the workforce absenteeism surge and accelerated the time to proficiency of novice workers who can replace sick peers,” added White.

“The team tested some ‘what-ifs’ using a digital twin by inserting cobots into the final assembly process for the oxygen concentrator, and we found that they mitigated the workforce absenteeism surge and accelerated the time to proficiency of novice workers.”

— CHELSEA C. WHITE III, SCHNEIDER NATIONAL CHAIR IN TRANSPORTATION AND LOGISTICS AND PROFESSOR, ISyE

The U.S. manufacturing sector is experiencing a skills gap that could result in

2.1 million

unfilled jobs by 2030.

— Deloitte and The Manufacturing Institute



MANUFACTURING THE NEXT GENERATION OF SKILLED WORKERS

The U.S. manufacturing sector is experiencing a skills gap that could result in 2.1 million unfilled jobs by 2030 according to Deloitte and The Manufacturing Institute. “That’s not just a workforce issue — it’s an economic and national security issue,” warned Carolyn Lee, president and executive director of The Manufacturing Institute, as these vacant jobs could potentially cost \$1 trillion.

“The next generation of employees must be open to retraining as technology advances,” said Aaron Stebner, associate professor in the School of Materials Science and Engineering. “Education is going to be a lifelong learning process, and Georgia Tech can be at the forefront of that.”

ISyE is upskilling and reskilling the pipeline of K-12 to graduate students to become leaders in manufacturing and solve complex, real-world problems. In 2026, ISyE is moving into a new 18-story home, George Tower, in Tech Square — providing a vibrant hub for strategic partnerships and interdisciplinary collaborations that advance its research and education programs.

“Moving forward, we are excited to expand ISyE’s leadership and impact in research and education across key areas — from advanced manufacturing and supply chains to optimization, AI, health systems, sustainability, and beyond,” shared Keskinocak.

SIDEBAR

GTMI Accelerates Interdisciplinary Manufacturing Research From Lab to Market

GTMI — along with the Georgia Tech Research Institute and faculty from multiple schools including ISyE — partners with academia, industry, and government to lead research initiatives that accelerate progress in advanced manufacturing, sustainability, and workforce development. To facilitate both basic and applied research, GTMI has a variety of state-of-the-art facilities and equipment across campus.

GTMI’s flagship facility, the Advanced Manufacturing Pilot Facility (AMPF), was made possible by a \$3 million gift from the Delta Air Lines Foundation. AMPF convenes industry experts with researchers and students to take early-stage concepts from idea to reality — housing innovative projects from additive manufacturing to industrial robotics.

“AMPF is a shared-use research and development facility where partners from government, industry, and academia come together to tackle the hardest challenges in



advanced manufacturing,” said Steven Ferguson, principal research scientist at GTMI. “Our mission is to connect the dots by linking talent, technology, and real-world needs to the challenges — streamlining the translation of research into practice.”

ISyE faculty affiliated with GTMI include Christos Alexopoulos, Nagi Gebraeel, Jye-Chyi Lu, Leon McGinnis, Dima Nazzal, Kamran Paynabar, Jianjun Shi, Chelsea White, Jeff Wu, and Chuck Zhang.



WHAT SKILLS WILL ISyE STUDENTS NEED FOR THE FUTURE OF AI-POWERED MANUFACTURING?

“Beyond strong technical skills in data analytics, optimization, and ML, students will need deep domain knowledge of manufacturing processes and the ability to collaborate effectively with domain experts across engineering and operations teams. AI alone cannot solve problems without context.”

— **Richie Chen**
Graduate Student, ISyE

Learn More

The faculty and students featured in this story represent a subset of researchers in ISyE’s Manufacturing and AI Initiative. Please visit our website for a comprehensive overview of the school’s research endeavors in this area.

isye.gatech.edu





Education Evolved

BY BRANDY BLAKE AND DIMA NAZZAL



From First Steps to Future Leaders

The H. Milton Stewart School of Industrial and Systems Engineering (ISyE)'s undergraduate and graduate programs have long set the national standard in the field because of its world-class faculty, groundbreaking research, and innovative education portfolio.

The School's expansive portfolio began with the leading Bachelor of Science in Industrial Engineering (BSIE), a flexible, multi-track undergraduate program with seven concentrations. Over time, ISyE added multiple master's degrees; a rigorous Ph.D. pathway; a broad offering of technical, professional, and executive master's education certificates; and robust K-12 outreach programs.

Today, as technological, economic, and societal systems become more interconnected and complex, ISyE is reviewing its educational portfolio to prepare graduates to navigate, and lead within, these evolving environments. Few fields are better suited than industrial and systems engineering to confront this growing complexity.

"We're reviewing the content of our programs to identify core principles and advanced competencies — particularly those unlocked by our domain strength of systems thinking in an artificial intelligence (AI)-powered world — that our graduates will lead with over the next few decades," explained Dima Nazzal, associate chair for academic administration at ISyE.

Guided by this vision, ISyE is redesigning its curriculum and delivery of tools and modes that harness the latest educational technologies, including project-based and interactive learning, and embedding opportunities to build cross-cutting skills, such as collaboration, communication, leadership, and independent thinking. These experiences ensure that graduates can navigate rapid innovation and complex systems with confidence and a growth mindset.

To put this vision to practice, a faculty steering committee — chaired by Nazzal who is joined by Brandy Blake, Yu Ding, Alan Erera, Johannes Milz, Alejandro Toriello, and Chen Zhou — was recently formed. Committee members identified four strategic pillars: **Systems Thinking**, **Business and Technical Communication**, **AI Integration**, and **Experiential Learning**. These pillars will guide ISyE's curriculum design and delivery — ensuring students receive a rigorous and relevant education grounded in real-world problem solving.

"Higher education is going through yet another major transformation," said Pinar Keskinocak, H. Milton and Carolyn J. Stewart School Chair and professor in ISyE. "We will continue to build on our strengths, be intentional and innovative in advancing our educational programs, empower our students with essential skills, and support lifelong learning and well-being."

ISyE's Education Portfolio Throughout the Learning Lifecycle



Reimagining Curriculum Design and Delivery

ISyE'S FOUR STRATEGIC PILLARS

- 1 Systems Thinking**
Advance students' ability to analyze and design complex, interconnected systems through modeling tools, interdisciplinary collaborations, and real-world case studies.
- 2 Business and Technical Communication**
Strengthen students' ability to deliver audience-targeted messaging — from data visualizations to cross-functional presentations — and benchmark this approach against industry standards, thus ensuring graduates communicate with clarity and influence.
- 3 AI Integration**
Integrate AI/machine learning foundational and decision-making competencies across core courses — selecting platforms, defining essential skills, curating real-world case studies, and emphasizing ethical considerations — for graduates to lead responsibly in an AI-enhanced world.
- 4 Experiential Learning**
Bridge theory and practice by expanding industry partnerships, deepening domain-specific experiences, enhancing project-based and case study-based learning, and engaging career-track advocates across the consulting, finance, IT, manufacturing, and logistics fields.



Empowering Future Engineers and Data Scientists

K-12 INITIATIVES AND OUTREACH

High school students interested in STEM are often introduced to mechanical or computer engineering through robotics or coding classes. Whereas, industrial and systems engineering — the unseen force behind countless industries — remains a hidden gem to students because its problem-solving applications are so varied.

Through its K-12 initiatives and outreach, ISyE is educating high school students about the career possibilities within the dynamic world of engineering and data science.

Inspiring Young Innovators

iExperience Summer Program Introduces High School Students to ISyE and Its Partners

iExperience is a weeklong, immersive summer program that introduces high school students across Georgia to the vast career opportunities in the industrial and systems engineering field. From playing computer games about supply chains to learning how AI recognizes human faces, students gain insights on how the field is solving complex problems. Students also explore the Georgia Tech campus and visit partner companies and organizations.

Last summer, students toured The Coca-Cola Company and PwC to see real-world applications of industrial and systems engineering as well as "a day in the life" of a Georgia Tech graduate.

Cash Gilmore, a rising senior from Seoul Foreign School in South Korea, enjoyed a firsthand look at the inner workings of one of the world's most iconic brands, The Coca-Cola Company. "It was interesting how the company uses partners to manage different areas of the supply chain," he said. "It's all connected, and they are able to work together to create a finished product and deliver it to their customers."

His observation highlights the complexity and collaboration needed

for Coca-Cola's operations — a system built not on a single factory but on strategic partnerships that add syrup and carbonated water to its recognizable bottles around the world.

For Samantha Stetter, a rising senior at Dunwoody High School, she embraced each site visit as a chance to reimagine what a career in industrial and systems engineering could be.

"Our goal is to help students discover the career possibilities within our field while also developing essential skills like teamwork and communication,"



Photo by Camille Carpenter Henriquez. / High school students learn about career opportunities in the industrial and systems engineering field during iExperience, a weeklong, immersive summer program.

said Nicoly Myles, director of ISyE's Center for Academics, Success, and Engagement, which hosts the program in partnership with the Center for Education Integrating Science, Mathematics, and Computing (CEISM). "It's exciting to watch students connect their passions with real-world applications and start envisioning themselves not just as future college students, but as future problem solvers."

Planting Seeds of Possibility

ISyE High School Research Interns Become Published Scholars

The Industrial and Systems Engineering High School Research Internship immerses ambitious high school students in real-world research while exploring core concepts of industrial engineering.

Guided by Tuba Ketenci, director of educational outreach at ISyE, four students — Makaylah Deshield, Rana Kalayci, Thihini Nagendran, and Hansika Yerramseti — recently completed the internship. Over the course of three

curated classes and two data science projects, these researchers developed and published studies on key educational factors, which, according to Ketenci, is an impressive feat for any high schooler.

To raise awareness about this internship opportunity, Ketenci and team visited local high schools — reaching more than 300 students — and engaged them in interactive sessions, group discussions about college life, and hands-on demonstrations.

"Most importantly, our outreach planted seeds of possibility — showing students what's out there and what's possible for them," added Ketenci.



Photo by Jackelyn Bjorne, AI4OPT. / High school students explore programming and AI in the Seth Bonder Summer Camps.

Unlocking the Power of AI at an Early Age: Seth Bonder Summer Camps Bring Over 100 High School Students to Georgia Tech

In addition to iExperience, the Seth Bonder Summer Camps brought 117 high school students from across the region to Georgia Tech last summer for an immersive journey into computational thinking, data science, and AI. Hosted by NSF’s AI Institute for Advances in Optimization (AI4OPT) and CEISMC and supported by the Seth Bonder Foundation, the camps ran in two sessions — the first two levels in June and the next two levels in July — to provide a structured pathway from beginner programming to advanced AI exploration. By offering a clear progression, the Seth Bonder Summer Camps are playing a vital role in building a diverse and well-prepared pipeline of future engineers, scientists, and innovators.

Calling the Next Generation of Statistical Thinkers

Probability and Statistics Competition Draws Over 100 High School Students Across the Globe

Each year, ISyE hosts its Probability and Statistics Competition, a two-stage event drawing talented high school students across the globe.

The competition starts in February with an online round that attracts over 100 students, then the top 40 scorers advance to the finals, which are held in April on Georgia Tech’s campus. Samhitha Kovi, a student at Lambert High School who is dual enrolled at Georgia Tech, won the competition in 2025.

“We’ve been consistently impressed by these terrific, bright students,” said ISyE’s

Coca-Cola Foundation Professor David Goldsman. “They’re going to make great industrial engineers!”

Finalists experience a vibrant day of intellectual exploration — participating in interactive workshops, live demonstrations, and discussions with graduate students and industry professionals. The event wraps up with a campus tour, offering a glimpse into life at one of the top engineering schools.

“This competition sparks an early appreciation for the beauty and impact of probability and statistics, inspiring students to think critically about uncertainty in the world around them,” said Debankur Mukherjee, Leo and Louise Benatar Early Career Professor and associate professor in ISyE.



Photo by Camille Carpenter Henriquez. / ISyE’s top-ranked undergraduate program offers a solid foundation for students to develop analytical and problem-solving skills and opens doors to a wide range of career opportunities.



Opening Doors for Undergraduates

EVOLVING THE NATION’S LEADING BSIE PROGRAM

ISyE’s Bachelor of Science in Industrial Engineering (BSIE) has been ranked the No. 1 program of its kind in the nation for 25 consecutive years according to *U.S. News*

& *World Report*. While its national reputation draws many students, the program is also distinguished by its concentrations and diverse learning pathways.

As part of ISyE’s broader Strategic Initiative to review and redesign the curriculum, the School is strengthening the BSIE program to ensure it reflects emerging competencies and evolving industry expectations.

ISyE’s Advisory Board recently launched a task force — comprising Don Shinedling (chair), Ciera Gillis, Ken Klaer, Errika Moore, and Kyle Zeman — to work in close collaboration with ISyE’s Faculty Steering Committee. Together, they are ensuring that BSIE graduates continue to possess the skills and knowledge needed for a rapidly changing technological and professional landscape.

The Advisory Board contributes industry perspective, real-world use cases, market alignment, and insight into current and future skill needs. The Faculty Steering Committee brings cutting-edge research, disciplinary depth, and expertise in the analytical and systems models that define the field — combined with leadership in curriculum design, pedagogical innovation, and accreditation and implementation. This collaboration unites the best of academia and industry to advance a BSIE curriculum that is both intellectually rigorous and aligned with the evolving demands of practice.

Culminating Project to Solve Real-World Problems

Senior Design Winning Team Supports Expansion, Saves \$5.2 Million for BMW

All BSIE graduates culminate their education with Senior Design, a large-scale, team-based capstone experience in which more than 340 students each year work on real-world engineering projects for local, national, and international clients.

“Senior Design challenges students to think broadly, work across constraints, and deliver practical value to a real client,” said Nazzal. “It’s a systems thinking and design experience that prepares them for the complexity of practice.”

In Spring 2025, the “Grand Slammers” team won Georgia Tech’s Capstone Design Expo Monodisciplinary Industrial Engineering Award while the Best of ISyE Senior Design Award — based on a comprehensive evaluation of technical strength, communication, and professionalism — was awarded to the “Smooth Operators” team who collaborated with BMW to support its expansion goals

in Spartanburg, S.C. They analyzed the company’s 8 million-square-foot production campus — focusing on how to improve high transit times, queue spikes, and yard usage — to save BMW \$5.2 million in one year.

Over a period of eight months, the team learned the importance of leveraging their resources (including faculty feedback) and leaning into their strengths. “We were able to scope the project based on our strengths, such as creating Python code and doing financial analysis,” explained Anna Harper (IE 2025).

“This project gave me the confidence to take into my future career,” said Athena Malek (IE 2025). “BMW implemented our team’s solutions, which proved the last four years of hard work at Tech was definitely worth it.”

Some of the Capstone Design Expo finalists’ projects included improving picking efficiency and new automation technology in a Coca-Cola warehouse in Argentina and reducing inventory costs and idle time in aluminum production for Novelis.

SENIOR DESIGN



TEAM Grand Slammers ▲

CLIENT Atlanta Braves

MEMBERS Ethan Asbell, Oliver Davidson, Tyler Hankin, Bre Kaplan, Apoorva Mahendranath, Diego Mora, Anna Taylor, Hailey Toepfner

ADVISOR Craig Tovey

PROJECT The team developed a data-driven methodology to strategically place promotions and giveaways that could maximize ticket sales for the Atlanta Braves — generating up to \$1.6 million in additional annual revenue.

AWARDED Winner of the Capstone Expo Monodisciplinary Award, Spring 2025



TEAM Smooth Operators ▲

CLIENT BMW

MEMBERS Neal Damani, Anna Harper, Amy Kim, Athena Malek, Aman Momin, Hagen Shook, Sydney Tang, Anna Zhao

ADVISOR Arthur Delarue

PROJECT The team addressed traffic flow challenges arising from the continued expansion of BMW’s Spartanburg, S.C. campus. Their recommendations generated \$5.2 million in annual savings, positioning BMW to handle a 50% increase in production volume.

AWARDED Winner of the Best of ISyE Senior Design Competition, Spring 2025

SENIOR DESIGN



TEAM Scrap Happens ▲

CLIENT Novelis

MEMBERS Hannah Flesher, Rhese Goodsite, Mckenna Hall, Parker Hallock, Caleb Key, Matthew Manno, Ted Moll, Jack Stewart

ADVISOR Craig Tovey

PROJECT By proposing a reduction in intermediate SKUs through delayed product differentiation, and managing any associated cost, they developed a solution that simplifies operations and enhances system flexibility. Their recommendations enable Novelis to accept more contracts and meet deadlines without expanding existing storage capacity.

AWARDED Finalists in the Best of ISyE Senior Design Competition, Spring 2025



TEAM Freight Club ▲

CLIENT Arauco North America

MEMBERS Pantach Anantapong, Meera Bharadwaj, Allison Butler, Arnav Hiray, Christine Ling, Isabella Magdusian, Emily Stone, Zachary "Miles" Young

ADVISOR Oktay Gunluk

PROJECT The team developed interactive methods and tools to receive, distribute, and store Arauco's wood products from ports to warehouses. Their design involved identifying the least costly routes and shipment plans, minimizing penalty costs at ports by incorporating risk models, and allocating products to maximize warehouse capacity utilization.

AWARDED Finalists in the Best of ISyE Senior Design Competition, Spring 2025



TEAM Picking the Pop ▲

CLIENT The Coca-Cola Company

MEMBERS Emma Blazejewski, Aden Cobb, Elizabeth Lawrence, Courtney Maley, Catherine Serek, Kaitlyn Thompson

ADVISOR Gunter Sharp

PROJECT The team redesigned a Coca-Cola Argentina warehouse to increase efficiency and reduce costs — delivering short-term and long-term picking time improvement, reducing reliance on external warehousing, and significantly improving full pallet retrieval.

AWARDED Finalists in the Best of ISyE Senior Design Competition, Spring 2025

TEAM The Missing Ingredient

CLIENT Neighborhood Meals on Wheels

MEMBERS Charles Callahan, Christian Crosby, William Daly, Michael DuBose, Varen Sharma, Prat Verma, Faith Xu

ADVISOR Oktay Gunluk

PROJECT The team worked to equip Meals on Wheels with data-driven tools to optimize their three core planning processes: menu creation, procurement, and inventory storage. The solution improved inventory visibility, reduced waste and grocery trip frequency, and lowered costs, ultimately enabling Meals on Wheels to feed more people on a limited budget.

AWARDED Design With Implementation and Impact Award, sponsored by KS2 Technologies, Spring 2025

TEAM HexHive

CLIENT Hextronics

MEMBERS Laura Castaño, Carlos Cuni Cuervo, Alexia Goodall Mata, Henriquez Orozco, Ernesto Mealla, Juan Morales, Chloé Sanoli

ADVISOR Anton Kleywegt

PROJECT The team helped Hextronics to scale its operations and improve the efficiency, visibility, and quality of its drone battery-swapping process. They redesigned the facility layout without incurring additional costs, planned quality control measures, and built a functional data infrastructure.

AWARDED Design With Implementation and Impact Award, sponsored by KS2 Technologies, Spring 2025



Developing Pioneering Research Leaders

TOP GRADUATE AND DOCTORAL PROGRAMS

For the past 35 years, ISyE's graduate program has been ranked the top program in the nation by *U.S. News & World Report*. These master's degree programs offer a rigorous and comprehensive graduate education — grounded in the core disciplines of industrial engineering, operations research, statistics, and data science.

With an emphasis on both foundational methodologies and real-world applications, these programs equip students with the analytical and technical skills needed to tackle complex challenges across many industries. Supported by ISyE's distinguished faculty, students can choose from nine distinct master's degree options — each designed to align with diverse educational goals and career ambitions.

Additionally, ISyE's six doctoral programs develop pioneering researchers who are ready to make a difference. With a strong foundation in methodology and focus on producing meaningful work, doctoral students lead the industrial and systems engineering field — equipped to push boundaries in academia, government, and industry.

Shaping the Future of Data-Driven Leadership

Master of Science in Analytics Reaches 10-Year Milestone, Cultivates Network of Over 7,000 Alumni Worldwide

Since its launch in 2014, ISyE's Master of Science in Analytics (MSA) program has equipped students with the technical tools to model and analyze data and the strategic insights to solve real-world problems.

Under the leadership of Director Joel Sokol, Harold E. Smalley Professor in ISyE with a joint appointment in the College of Lifetime Learning, the MSA has developed an interdisciplinary curriculum that balances rigor with relevance — covering predictive modeling and optimization to big data infrastructure and applied AI.



Students who enroll in the in-person Master of Science in Analytics program participate in an on-campus bootcamp at the beginning of the semester.

"From its inception, the MSA program set itself apart by focusing on data science, machine learning, and business strategy," said Sokol. "Our graduates not only understand the math and code behind the models but also know how to turn insights into action."

More than 10 years since its inception, the program graduates up to 100 in-person and 1,500 online students annually and has grown into a thriving academic community of more than 7,000 alumni worldwide. Many alumni hold leadership roles in data science, engineering, operations research, and AI strategy.

ISyE offers two options for students seeking an MSA: a full-time, in-person curriculum to be completed in a single year and a self-paced, remote curriculum to be completed in two to three years. As Sokol explained, "MSA's fully online format has democratized access to top-tier analytics education, allowing professionals from over 150 countries to pursue the degree while remaining embedded in their industries."

This global reach has cultivated a rich, interconnected alumni network that spans industries from healthcare to finance, sports to logistics, and technology to public policy. MSA graduates are shaping the future of data-driven leadership — wherever they are in the world.

The MSA program has been ranked as high as No. 1 in Data Analytics, No. 3 in Data Science, and No. 3 in Business Analytics. But rankings only tell part of the story.

"Our true impact lies in the world-renowned program's unwavering commitment to innovation, applied learning, and expanding access to top-tier education," added Sokol. "Now entering its second decade, the MSA program continues to evolve and

lead — from launching new courses in ethical AI, hosting virtual global summits, or forging partnerships with leading companies."



Investing in New Initiatives for Lifetime Learners

On the other end of its education portfolio, ISyE is investing in lifetime learning initiatives by providing courses and certificates through the Supply Chain and Logistics Institute and Center for Health and Humanitarian Systems. These units deliver short courses, certificates, and workforce development programs in areas such as supply chain engineering, logistics, health systems, and humanitarian operations, serving professionals across sectors and geographies.

These efforts are closely aligned with Georgia Tech's recently launched College of Lifetime Learning (CLL). By offering new degree programs and workforce development opportunities, CLL is transforming the learning ecosystem to empower lifetime learners with access, options, and community.

Learn More

Please visit our website to learn more about ISyE's innovative education portfolio.

isy.e.gatech.edu





Expanding on the Success of Tech Square

Technology Square (Tech Square) began when Georgia Tech purchased eight acres of blighted and abandoned land in 1997 across the Midtown/Downtown Connector. By 2003, this land was transformed when Tech Square opened. Tech Square has since become a premier destination and economic engine for innovative corporations, university research and academic enterprises, and startups.

The second phase of Tech Square, the 21-story Coda building, opened in 2019 and has drawn more top-tier tech companies to work as close to Georgia Tech's campus as possible.

Now, the third phase is building on the momentum of Tech Square, along with that of the top-ranked H. Milton Stewart School of Industrial and Systems Engineering (ISyE) and Scheller College of Business, to expand Tech's success in cultivating one of the country's fastest-growing business and technology ecosystems. Slated to finish in 2026, Tech Square Phase 3 encompasses 416,500 square feet of new space for research and collaboration as well as a large outdoor plaza for street-level retail. The project is anchored by two multistory towers that are connected by a shared elevator.

These towers will be named for philanthropists who played vital roles in advancing Georgia Tech's mission of Progress and Service. One tower, named for Ernest "Ernie" Scheller Jr., IM 1952, HON Ph.D. 2013, will house the graduate and executive education programs of the Scheller College of Business. The second tower will be named George Tower in recognition of Penny and William "Bill" George, IE 1964, HON Ph.D. 2008, to house ISyE.

Tech Square Phase 3 is poised to become a catalyst for innovation — fostering collaborative research opportunities, cross-disciplinary breakthroughs, and dynamic business ventures. The space will provide students with access to corporate innovation centers, incubators, and accelerators and offer opportunities to engage with business partners, receive hands-on experience through capstone projects and practicums, and learn from industry leaders.

A New Home: George Tower

The 18-story George Tower will be the new home for ISyE, the highest-ranked industrial and systems engineering undergraduate and graduate program for 25 consecutive years and graduate program for 35 consecutive years, providing an inspiring environment for students and faculty to innovate and excel. ISyE's home in George Tower will



Photo by Nancy Sandlin. / George Tower is named for William "Bill" and Penny George because of their generous philanthropic support of ISyE and Georgia Tech.

See Inside

Scan to learn more and take a virtual tour of Tech Square Phase 3.



George Tower

The New Home for the Nation's Top Industrial and Systems Engineering Undergraduate and Graduate Programs

BY BEVERLEY SYLVESTER

Opening in 2026, Tech Square Phase 3 includes the 18-story George Tower and 14-story Scheller Tower, future homes of ISyE and Scheller College of Business' graduate and executive programs.

strengthen its ties to local academic and corporate partners.

"We are excited about moving ISyE's home to George Tower, placing us at the center of the 'Tech Square Innovation District,'" said Pinar Keskinocak, H. Milton and Carolyn J. Stewart School Chair and professor in ISyE. "George Tower offers an ideal setting for us to build on ISyE's legacy of leadership and excellence in research, education, innovation, and impact. It also helps us create new opportunities for strategic partnerships and collaborations. We deeply appreciate the generous support from Bill and Penny George and all our alumni."

An Inspiring Investment and Legacy

Bill George and his wife Penny — and their strategic philanthropic support of ISyE and Georgia Tech — were key to making all of this come to life.

Bill George is an executive fellow at Harvard Business School where he was a professor of management practice and senior fellow teaching leadership from 2004–22. He previously served as chair and chief executive officer of Medtronic, a leading medical technology company. Earlier in his career, George was a senior executive with Honeywell and Litton Industries and served in the U.S. Department of Defense.

George has been named one of the "Top 25 Business Leaders of the Past 25 Years" by PBS, "Executive of

the Year — 2001" by the Academy of Management, and "Director of the Year — 2001–02" by the National Association of Corporate Directors.

He earned his bachelor's degree in industrial engineering with high honors from Georgia Tech and his MBA with high distinction from Harvard University where he was a Baker Scholar. He is also the author of *True North: Emerging Leader Edition*.

Drawing from her career as a consulting psychologist and her experience healing from breast cancer, Penny George is a revered leader in the national movement toward whole-person health and well-being. She received a bachelor's degree from Duke University, a master's degree in educational psychology from the University of Minnesota, and a doctorate in counseling psychology from the University of St. Thomas.

Bill and Penny George are members of the Hill Society, the most prestigious donor recognition society at Georgia Tech. In addition to the couple's visionary philanthropy, George provided volunteer service and leadership to the Institute through his extensive involvement on the Georgia Tech Foundation Board of Trustees, Transforming Tomorrow: The Campaign for Georgia Tech Steering Committee, and Georgia Tech Advisory Board, among others.

Bill George credits his educational experience at Georgia Tech for helping him develop both hard and soft skills that

he has relied upon throughout his career, particularly the Institute's dedication to collaboration. With ISyE's upcoming move to George Tower, current and future generations of industrial and systems engineering students will have even more opportunities for collaborative research, development, and learning.

Opportunities to Support George Tower

Private philanthropy is essential for equipping George Tower's internal spaces, including classrooms, offices, and conference rooms. Support for Tech Square Phase 3 will ensure that students, faculty, and industry leaders have the resources they need to continue transforming education and innovation at Georgia Tech. Naming opportunities are available at various giving levels beginning at \$100,000.

Gifts and commitments to Tech Square Phase 3 are included in Transforming Tomorrow: The Campaign for Georgia Tech, a more than \$2 billion comprehensive campaign that will build a foundation for advancing the Institute and its impact — on people's lives, on the future of collaborative work to create innovative solutions, and on the world — for decades to come.

For more information about making a gift in support of Tech Square Phase 3, contact Nancy Sandlin, senior director of development for ISyE, at nancy.sandlin@isye.gatech.edu.



Photo by Joshua Smith. / Advisory Board members pose with faculty, staff, and leadership during the annual meeting.

ISyE Welcomes New Advisory Board Members

The H. Milton Stewart School of Industrial and Systems Engineering (ISyE) is proud to welcome 15 new members to its Advisory Board who are serving a four-year term: Jeff Anderson, Sheereen Brown, Joe Depa, Jason Dorris, Ciera Gillis, John Hanson, Peyton Johnston, Jason E. Linscott, Sam Millson, Fay Cobb Payton, Bob Robertson, Matlock Rogers, Kofi Smith, Johnna M. Stueck, and Kyle Zeman. This group was selected over the past three years.

Introduced in 2023, ISyE created additional Advisory Board seats for one student leader and two recent graduates to share insights about the needs of current students and newer alumni with board members. Currently, student Sujan Ganesh Kumar is serving a one-year term, and alumni Carson Earnest (Delta Airlines) and Arjun Patra (JP Morgan Chase) are serving a two-year term in these roles.

“We are excited to welcome these new members with their unique

expertise in industry and academia — from AI to supply chain management,” said Pinar Keskinocak, H. Milton and Carolyn J. Stewart School Chair and professor in ISyE. “Their collective experience will help the school refine strategies, enhance educational initiatives, and expand global partnerships.”

The new Advisory Board members, along with the existing members, give valued support, advice, and guidance on the strategic priorities and development goals of ISyE.

“Moreover, we’d like to thank Mitali Bidkar, Catherine Cooper, Eleana Padilla Acosta, and Esha Patra who recently completed their board service,” added Keskinocak.

Under Cooper’s leadership, Advisory Board Task Forces — originally focusing on Student Engagement, Development, Diversity, and Travel — were established in 2023 to align board members’ expertise with the needs of ISyE.

In 2025, after collecting feedback on

the impact of the initial Task Forces, the Advisory Board, led by Chair Evren Ozkaya and Vice Chair Anderson, and ISyE leaders restructured the Task Forces to amplify board initiatives in the following high-impact areas:

- **Alumni/ISyE Engagement**
- **Education Strategic Initiatives**
- **Industry Engagement and Partnerships**
- **Communications and Branding**

“The Task Forces are designed to be flexible and adaptable to serve ISyE’s strategic, long-term goals,” explained Ozkaya, founder and CEO of Supply Chain Wizard. “This restructuring will leverage the knowledge of alumni to enhance student development, enrich curriculum to prepare students for the careers of tomorrow, build relationships with key corporate and research partners, and increase reputational awareness among external audiences.”

Executive Committee

CHAIR

Evren Ozkaya

Founder and CEO, Supply Chain Wizard, LLC
Ph.D. IE 2008

VICE CHAIR

Jeff Anderson

Chief Growth Officer, Kaizen Analytics
IE 1991

IMMEDIATE PAST CHAIR

Kenneth Klaer

Executive Vice President, President — Retired, Comcast Cable, Comcast Technology Solutions
IE 1981

Advisory Board Members

Omar Balkissoon

Founder and CEO, Geospark Analytics
IE 2000

Susan Bonds

CEO, Animal Repair Shop
IE 1984

Sheereen Brown

CEO & Co-Founder, Between
Senior Business Analyst, The Task Force for Global Health, Inc.
IE 2013, M.S. HS 2014

Roberto Castro

Senior Business Advisor, CapTech
IE 2007

Joe Depa

Global Chief Innovation Officer, EY
IE 2005, M.S. ANLT 2020

Jason Dorris

CEO, Dorris & Associates International, LLC
IE 1994

Carson Earnest

Analytics Specialist, Operations, Analytics & Performance, Delta Airlines, Inc.
IE 2021

Sujan Ganesh Kumar

Current Student;
President, GT IISE
IE 2026

Ciera Gillis

Global Account Executive, Google, LLC
IE 2013

John Hanson

Co-Chief Investment Officer & Principal, Riverstone Advisors, LLC
IE 2011

Peyton Johnston

Chief of Staff to the EVP, The Home Depot
IE 2006

Scott D. King

Director, Worldwide Design and Engineering, Amazon
IE 2004, PMASE 2011

Megan Langley

Partner, ASH Atlanta Investment Partners
IE 2009

Jason E. Linscott

Principal, Stein Investments Group
IE 2000

Sam Millson

Founder, The Millson Group, LLC
IE 2018

Arjun Patra

Associate, Chase Strategy, JP Morgan Chase & Co.
IE 2019

Fay Cobb Payton

Director, Institute of Data Research and Innovation Science and Professor, Rutgers University
IE 1989

Bob Robertson

Senior Manager, Veridian
IE 1998

Matlock Rogers

Vice President Logistics, Labatt Breweries of Canada (formerly VP, Supply Chain Planning, Anheuser-Busch)
IE 2011

Kofi Smith

CEO, Keystone Management, Inc.
IE 1999, MBA 2009

Johnna M. Stueck

VP of Manufacturing & Logistics, McKenney’s, Inc.
IE 2003

Kyle Zeman

Partner, McKinsey & Company, Inc.
IE 2012



Building a Pathway of Progress

The Visionary Service and Philanthropy of Andrea Laliberte

Industrial and systems engineers are known for creating smart systems and developing innovative solutions to strategic challenges. Andrea Laliberte (IE 1982, M.S. IE 1984, HON Ph.D. 2025) exemplifies this mindset through her visionary service and philanthropy.

After a successful career at Coach, she returned to Georgia Tech in 2013 looking to give back. Laliberte served as the Edenfield Executive-in-Residence and Professor of the Practice in ISyE, participated on several Georgia Tech boards, and was chair of the Alumni Association in 2016–17. Currently, she is a member of the Georgia Tech Foundation and the Campaign Steering Committee for Transforming Tomorrow: The Campaign for Georgia Tech.

“I met so many amazing people at the Institute — from astronauts to Olympians to CEOs — but what struck me was how many impressive alumnae we have,” she said. “There are, and have been, amazing women here, but no one knew about them.”

Laliberte wanted to raise the visibility of alumnae stories in a public, visually compelling way. That’s when she envisioned an innovative solution — launching Pathway of Progress: Celebrating Georgia Tech Women, a permanent art installation on campus to honor the current and continuing story of women at the Institute.

Funded by Laliberte and designed by Merica May Jensen (MGT 2008, M. Arch 2011), the installation contains nearly 3,000 mirrored tiles, each of which will one day tell the story of Tech alumnae, students, faculty, and staff who made a lasting impact — at the Institute, in their field, and in the world.



“Andrea’s passion, energy, and commitment have left a lasting and growing impact on our ISyE community.”

— PINAR KESKINOCAK, H. MILTON AND CAROLYN J. STEWART SCHOOL CHAIR AND PROFESSOR, ISyE

Three Questions With Andrea Laliberte

→ **What role did Georgia Tech have in preparing you for your career?**

Like many graduates of my time, it took me a while to “forgive” the Institute for what it put me through. It wasn’t until my 25th reunion that I realized how my Georgia Tech education prepared me well for success in my engineering career. I learned as a student how to problem solve, persevere, and be tenacious.

→ **What do you hope the Pathway of Progress will accomplish?**

I hope that people take the time to learn the stories about the women being honored and their amazing accomplishments as well as the history of women at Georgia Tech. Ultimately, the goal of this installation is to inspire future generations — not just women — to make a difference and give back.

→ **Why is it important to give back to Georgia Tech?**

When you invest in Georgia Tech, what you get back is far greater than what you give. There is a sense of joy and accomplishment to see the impact from your gift — from student scholarships to athletic championships to state-of-the-art academic facilities.



Funded by Andrea Laliberte (left) and designed by Merica May Jensen, the Pathway of Progress installation contains nearly 3,000 mirrored tiles, each of which will tell the story of Georgia Tech alumnae, students, faculty, and staff who made a lasting impact. One of the first honorees, Zola (Zalesky) Lopeman (IE 2017, M.S. HS 2018), shows her tile to her son (left).



For decades, women at Tech have been making history. Read more about the meaningful milestones and accomplishments of Georgia Tech women.

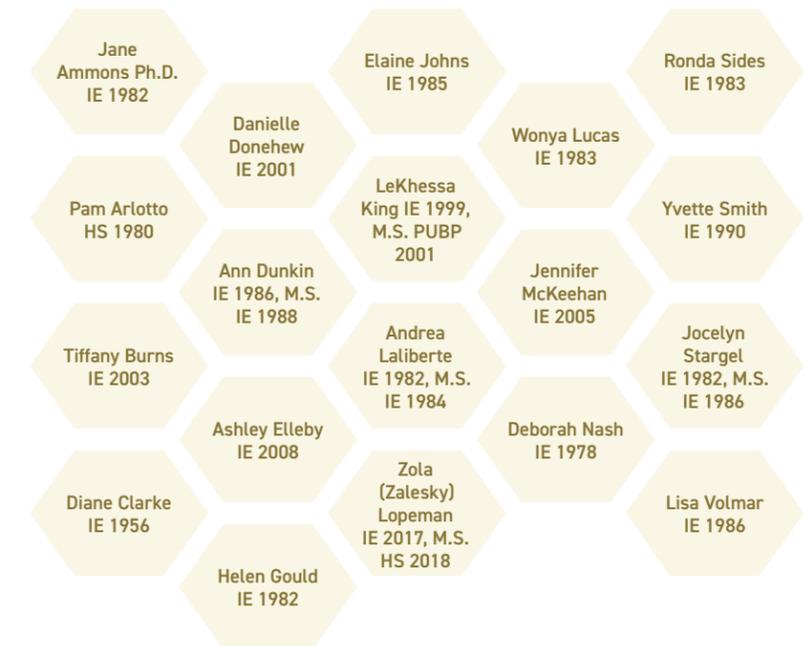


A Call to Action for ISyE Alumni

Interested in amplifying your impact through service and philanthropy to inspire future generations of ISyE leaders?

Visit isye.gatech.edu/engage/alumni to get involved.

Pathway of Progress: The First ISyE Women Trailblazers



Learn more about Pathway of Progress at celebratingwomen.alumni.gatech.edu.

2025 Recognition and Awards

NEW FACULTY AND STAFF

Moise Blanchard, Souvik Dhara, and **Shixin Wang** joined as Assistant Professor.

Christine Brown joined as Senior Director, Student Career Development.

Erin Whitlock Brown joined as Communications Manager II.

Yongzheng Dai, Anna Deza, Elif Konyar, Jisun Lee, Meichen Song, Jiaqi Wang, and **Zikai Xiong** joined as Postdoctoral Fellow.

Kelleena Greaves-Rowe joined as Senior Development Assistant.

Akane Fujimoto Wakabayashi, Hongzhao Guan, and **Jihye Jung** joined as Research Engineer II.

Abbey Hale joined as Corporate Relations Manager.

Caroline Layton joined as Academic Advisor.

Eunice Lee joined as HR Coordinator.

Joshua Smith joined as Communications Officer II.

APPOINTMENTS AND PROMOTIONS

Kathryn Ballard was promoted to Manager, Alumni and Industry Engagement.

Brandy Blake was promoted to Principal Academic Professional.

Lisa Cox was promoted to Assistant Director, Human Resources.

Mathieu Dahan, Debankur Mukherjee, Eunhye Song, and **Weijun Xie** were promoted to Associate Professor with Tenure.

Alan Erera was appointed Senior Associate Chair.

Jing Li was appointed Associate Chair for Faculty Development and Research.

Dima Nazzal was appointed Associate Chair for Academic Administration.

Kamran Paynabar was appointed Associate Chair for Innovation, Leadership, and Entrepreneurship.

Arthi Rao was appointed Associate Director of Center for Health and Humanitarian Systems.

Lauren Steimle was appointed Co-Lead of the Data Science, Machine Learning, and Artificial Intelligence (Pillar 1) Initiative within the Children's Healthcare of Atlanta Pediatric Technology Center at Georgia Tech.

Gamze Tokol-Goldsmán was promoted to Senior Lecturer.

FACULTY AWARDS AND NEWS

Mathieu Dahan and **Kamran Paynabar** were named to the inaugural cohort of Georgia Tech's Research Leadership Academy.

Yu Ding was named an INFORMS Fellow and Editor-in-Chief of *INFORMS Journal on Data Science*.

Oktay Gunluk was named Editor-in-Chief of *INFORMS Journal on Optimization*.

Ronald Johnson was named Black Engineer of the Year by *U.S. Black Engineer and Information Technology*.

Pinar Keskinocak and **Kamran Paynabar** were named IISE Fellows.

Jing Li received the Data Mining Prize from the INFORMS Data Mining Section.

Xiao Liu was named a Climate Tech Fellow for Breakthrough Wildfire Innovation.

Renato Monteiro received the INFORMS John von Neumann Theory Prize.

Debankur Mukherjee received the ACM SIGMETRICS Rising Star Research Award and Outstanding Service Award.

Dima Nazzal was elected for the third consecutive year as Chair of the Georgia Tech Faculty Executive Board.

Ashwin Pananjady received the Google Research Scholar Award.

Kamran Paynabar received the SME S.M. Wu Research Implementation Award.

Srinivas Peeta was named Co-Editor-in-Chief of *Transportation Research Part B: Methodological*.

Katya Scheinberg was named a SIAM Fellow.

Jianjun Shi received the ASA Deming Lecture Award and ASQ Shainin Medal.

Xiaochen Xian was named a Class of 1969 Teaching Fellow at Georgia Tech.

Juba Ziani received the INFORMS Minority Issues Forum Early Career Award.

STAFF AWARDS AND NEWS

Marsi Ellis received the College of Engineering Culture Champion Award.

Marianne Russell received the College of Engineering Soaring Jacket Award.

STUDENT AWARDS AND NEWS

Shalin Bhatia, Priyanka Joseph, and **Shivani Murugapiran** were named Millennium Fellows.

Anna Park was named a Georgia Tech Stamps Fellow.

Abel Sapirstein received the INFORMS Seth Bonder Scholarship for Applied Operations Research in Health Services.

Rohin Shah received the College of Engineering Honors Day Award.

Lucia Touma received the IISE Excellence in Leadership Award.

ALUMNI AWARDS AND NEWS

Latanza W. Adjei (IE 1998) was named a College of Engineering Academy of Distinguished Engineering Alumni.

Anish Bhatt (IE 2010) and **Tanay Rajore** (IE 2014) were named 40 Under 40 Georgia Tech Alumni.

Ken Klaer (IE 1981) was named a College of Engineering Academy of Distinguished Engineering Alumni.

Alexandra Mandrycky (IE 2013) was named a College of Engineering Council of Outstanding Young Engineering Alumni.

H. Ronald Nash Jr. (IE 1970) was inducted into the College of Engineering Alumni Hall of Fame.

Jocelyn Stargel (IE 1982, M.S. IE 1986) received the Gold and White Joseph Mayo Pettit Distinguished Service Award.

Connect With ISyE

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Are you interested in collaborating with us? The H. Milton Stewart School of Industrial and Systems Engineering (ISyE) welcomes your engagement and offers many ways to get involved. ISyE works closely with business and industry leaders on a variety of research efforts and other projects, as well as student enrichment activities. You can also connect with ISyE through sponsorships and philanthropy that bring the best education possible to our students and support our faculty as they tackle issues to improve the quality of life for all.

UNDERGRADUATE CURRICULUM AND RECRUITMENT

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GRADUATE CURRICULUM AND RECRUITMENT

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Partnership Opportunities

isye.gatech.edu/engage

Core Research Areas

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K-12 Outreach

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In April 2025, the team “Grand Slammers” won Best Overall Project for Industrial and Systems Engineering at Georgia Tech’s Capstone Design Expo. As part of their Senior Design project, they developed a data-driven methodology to strategically place promotions and giveaways that could maximize ticket sales for the Atlanta Braves – generating up to \$1.6 million in additional annual revenue.

Congratulations to the ISyE team for their grand slam strategy (left to right): Ethan Asbell, Diego Mora, Anna Taylor, Breanna Kaplan, Tyler Hankin, Apoorva Mahendranath, Oliver Davidson, and Hailey Toepfner.

Photo by Camille Carpenter Henriquez.