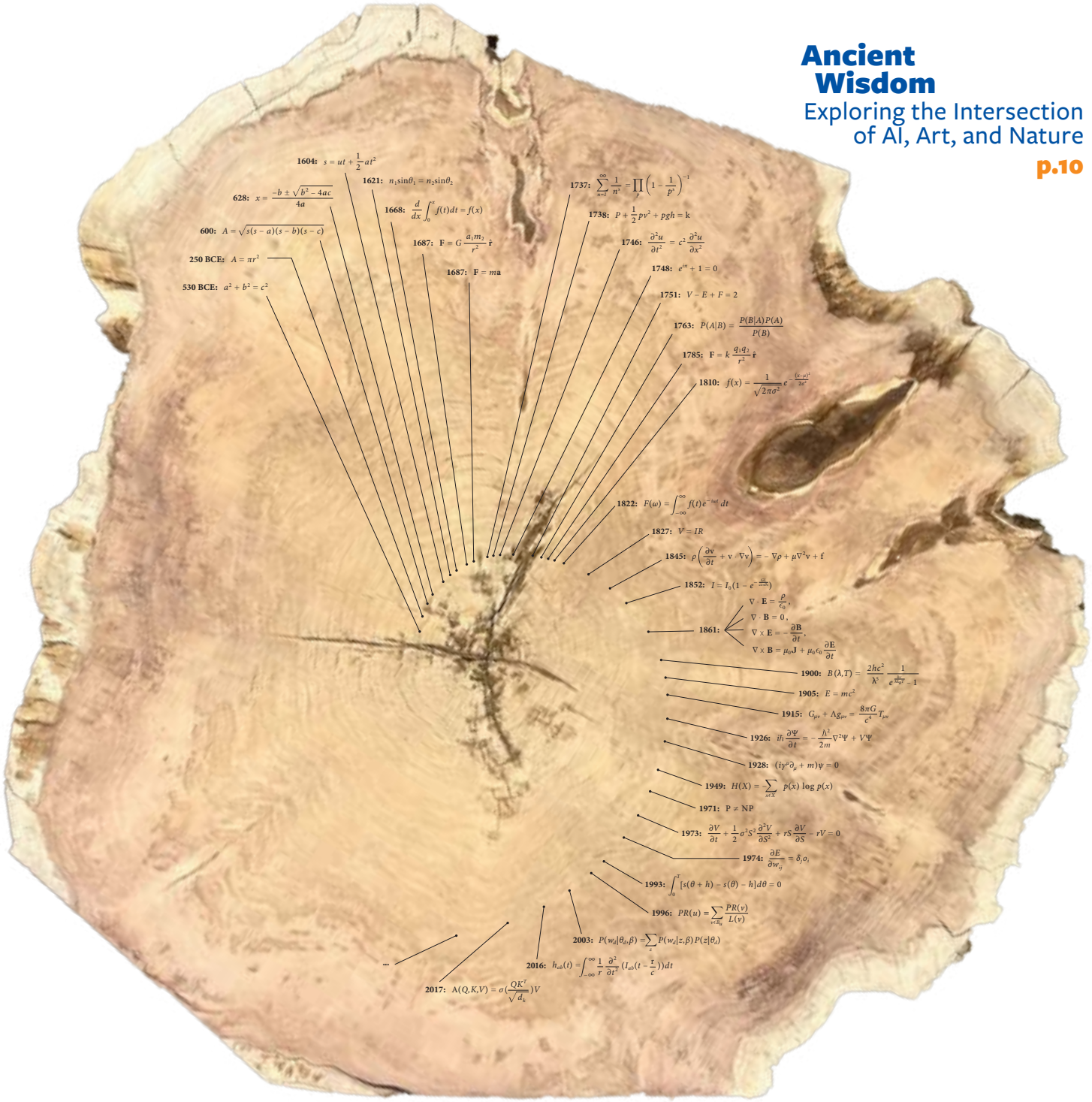
UC Berkeley
DEPARTMENT OF INDUSTRIAL ENGINEERING & OPERATIONS RESEARCH



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UC Berkeley Department of Industrial Engineering & Operations Research

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From the Chair

"We are engineering transformative solutions to some of the world's most urgent challenges, including green logistics, biopharmaceutical production, and ethical decision-making."

As we stand at the forefront of an era defined by AI and data-driven innovation, the Department of Industrial Engineering and Operations Research (IEOR) is shaping a smarter, more efficient future. Across industries like healthcare, energy, transportation, and logistics, the rising demand for data-driven automated decisions highlights the critical need for IEOR expertise. It is no wonder that IEOR is ranked as the second highest-paying major according to PayScale's 2024 College Salary Report— our field is surging in relevance and opportunity.

Our department has achieved exceptional milestones in recent years**. Our undergraduate and graduate enrollments have more than doubled in the last five years.** We've closed the gender gap, with the majority of our students now self-identifying as women or non-binary, a rare accomplishment in engineering. Additionally, our undergraduate program ranks 5th nationally, and our graduate program has risen to 3rd, a striking achievement when considering that we operate with less than half the faculty size of our peers.

Berkeley IEOR students and alumni have always been innovative problem-solvers and solution-builders. In this data age, and with our new mantra, "From Data to Solutions," we are channeling ourselves into a bold vision for the future. By harnessing the power of data and analytics, we are engineering transformative solutions to some of the world's most urgent challenges, including green logistics, biopharmaceutical production, and ethical decision-making. Grounded in our strong foundations in optimization, stochastics, and data analytics, this vision ensures our position at the cutting edge of innovation.

To sustain and amplify our impact, Berkeley IEOR is embarking on a decade of strategic growth with the support of Dean Liu and the Berkeley IEOR Advisory Board. This includes hiring 15 new faculty members in critical areas such as renewable energy systems, healthcare optimization, grid-edge logistics, and fintech to expand our research and teaching capabilities. Our initiatives, such as the NSF AI Institute for Advances in Optimization and collaborations on renewable energy grid logistics, exemplify the kind of innovative and impactful work this expansion will enable.

As valued alumni and members of our community, we invite you to partner with us in shaping the future of our field as we embark on this bold new chapter. Together, we can inspire and empower the next generation of engineers, drive transformative research, and deliver innovative solutions that create meaningful and lasting change in society.

Thank you for your continued support and partnership. Let's make this vision a reality—together.

Sincerely,
Alper Atamturk
Department Chair and Professor
Earl J. Isaac Chair in the Science and Analysis of Decision Making
Berkeley IEOR

Navigating High-Tech Ethics: Berkeley's Changemaker Course Challenges Future Innovators

Professor Lee Fleming's course, "Ethical and Effective Entrepreneurship in High Tech," part of the UC Berkeley Changemaker® program, engages students in rigorous debates and case studies that probe the ethical and strategic dilemmas facing today's business leaders. Each class centers on a distinct case that invites students to engage with high-stakes issues, from intellectual property rights to compensation equity.

In one case, students confront the predicament of a tech employee who refuses to relinquish patent rights, despite signing ownership agreements with the company. The scenario sparks spirited debates on intellectual property rights and management decisions, with students tasked to decide whether to fire the employee, concede to the employee's demands, or pursue legal action.

Another real-world case prompts students to assess accountability when MBA students pitch a promising innovation from the College of Engineering to venture capitalists without informing the professors behind the idea. This scenario raises questions about communication breakdowns, the motivations of researchers, and the delicate balance universities strike between fostering innovation and pursuing commercialization.

Another case focused on employee compensation fairness, where students explored the economic, ethical, and social dimensions of equitable pay reforms within high-profile companies like Google and Salesforce. Through examining Google's widely criticized pay practices and Salesforce's active efforts to close the gender wage gap, students analyze the systemic impacts of compensation decisions on corporate culture and societal trust.

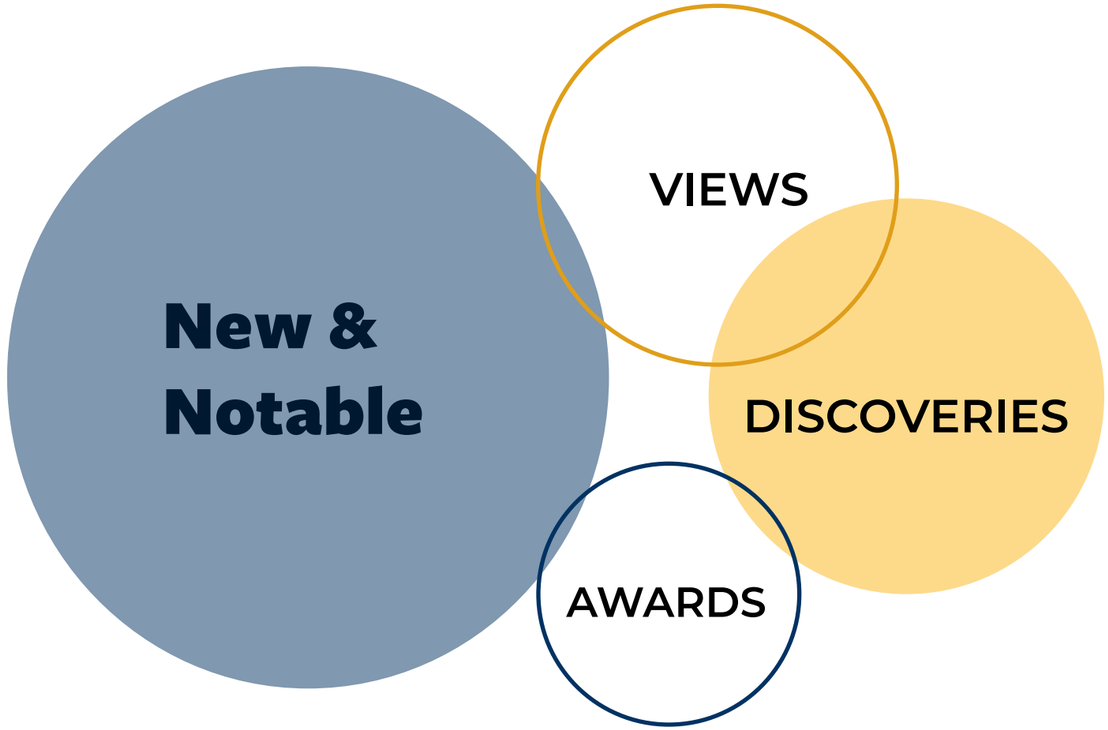
In each class session, students engage in Socratic-style debates, dissecting complex scenarios with competing ethical, legal, and business interests. Professor Fleming provides guiding questions but lets students drive discussions, honing their critical thinking and communication skills. These carefully selected cases expose students to a range of high-stakes ethical dilemmas they may one day face in high-tech industries.

Beyond individual discussions, students collaborate on a final project, using the Margolis framework to analyze a high-tech business model or ethical challenge, considering its legal, economic, and social impact. These projects, presented at semester's end, foster teamwork and emphasize practical, ethical leadership.

As one student shared, "This class opened my eyes to the ethics behind AI and engineering. Debating with my peers about corporate decisions changed how I see the role of technology in society." By examining the gray areas in entrepreneurship, students leave the class prepared to lead with integrity in an increasingly complex tech landscape.

"IEOR 171 with Professor Lee Fleming has been my favorite class, sparking my passion for the intersection of ethics, AI, and engineering. The early 8 a.m. start was worth it for the thought-provoking discussions and debates with peers about the ethics of major corporations and their practices."

—SERAFINA ALHADAD '24



Berkeley IEOR Welcomes Two New Faculty

Phillip Kerger joins as an Assistant Teaching Professor, with a focus on pedagogical innovation and academic program development. He holds a PhD in Applied Mathematics from Johns Hopkins University, where he specialized in optimization and quantum algorithms. His work at NASA's Quantum Artificial Intelligence Laboratory further honed his expertise in distributed quantum algorithms.

Huiwen Jia joins as an Assistant Professor in Sustainable and Resilient Supply Chains. She earned her PhD from the University of Michigan, Ann Arbor, and previously worked as an Applied Scientist at Amazon. Her research includes stochastic and robust optimization, machine learning, and sustainable service system design, with applications in transportation and revenue management.

Professor Dorit Hochbaum Awarded 2024 Khachiyan Prize

Professor Dorit S. Hochbaum was awarded the 2024 INFORMS Khachiyan Prize in recognition of her extensive contributions to optimization, including her work on the design and analysis of algorithms and their applications across various domains.

The award citation highlights Professor Hochbaum's innovative use of combinatorial algorithms in data mining and image segmentation, along with her research in neuroscience. Among her notable achievements is the development of the PseudoFlow algorithm for the maximum flow problem and parametric flow techniques for convex Markov Random Fields. Her recent work addresses challenges in machine learning, including recognizing bias in labeled data and enhancing experimental design methods. Her contributions are noted for their mathematical precision and application to practical problems, such as improving semiconductor manufacturing processes, enhancing clustering methods in machine learning, and analyzing patterns of neuronal activity.

Berkeley Shines at INFORMS 2024

Professor Emeritus **Philip M. Kaminsky** was named a 2024 INFORMS Fellow for academic leadership and contributions to research, education, and practice of supply chain management and logistics in multiple application domains.

Shuo Sun, Berkeley IEOR PhD candidate, was named a finalist for the Revenue Management and Pricing Section's 2024 Jeff McGill Student Paper Award for her paper, "A Unified Algorithmic Framework for Dynamic Assortment Optimization under MNL Choice."

Professor Emeritus **Max Shen** won the Wagner Prize from INFORMS for his paper, "JD.com Improves Fulfillment Efficiency with Data-driven Integrated Assortment Planning and Inventory Allocation," co-authored with Shuo Sun and colleagues.

Rebecca Pauling Honored with 2024 Excellence in Management Award for Outstanding Leadership

Rebecca Pauling was a recipient of the 36th Annual Excellence in Management Award in recognition of her leadership and extraordinary dedication to staff development. After over three decades of remarkable service to UC Berkeley—14 of them with Berkeley IEOR—Rebecca retired in December 2024.

During her tenure at Berkeley IEOR, Rebecca played a pivotal role in navigating enrollment surges and managing the rapid growth of Berkeley IEOR's Master of Engineering and Master of Analytics programs. Her vision and guidance transformed the department's operations, growing the staff from a modest team of three to a thriving group of ten.

Renamed Degree Highlights Demand for Data-Driven Decision-Making

As of August 2024, the Bachelor of Arts in Operations Research and Management Science (ORMS), a degree that has graduated hundreds of successful students since its inception in 2006, is renamed the Bachelor of Arts in Analytics. The BA in Analytics is offered to students in the College of Letters and Science.

The name change, along with curricular updates, reflects the continuously evolving landscape of data-driven decision-making, the rising demand for analytics professionals across industries, and the increasing importance of analytics methods—such as optimization, stochastic modeling, and machine learning—in harnessing the power of data more effectively in the workforce.

The new degree program introduces a Python for Analytics course, equipping students with highly sought-after Python skills, the go-to programming language for building AI applications, machine learning models, and contributing meaningfully to cutting-edge projects in today's data-driven world. In addition, courses on machine learning and database design are added as requirements to the new Analytics degree.

2nd Annual Analytics Workshop for Community College Educators

In partnership with the NSF Artificial Intelligence Institute for Advances in Optimization (AI4OPT), UC Berkeley IEOR hosted the second annual *Journey Through the World of Analytics Workshop*, a three-day professional development event for community college educators. Adopting a "teach the teachers" approach, the workshop trains educators to integrate cutting-edge analytics and optimization methods into their curricula.

Welcomes

Berkeley IEOR welcomed **Joshua Smothers** as Assistant Director of Career Services & Employer Engagement and **Jill Fujisaki** as our new Department Manager!

Rajan Udwani Receives NSF Career Award

Berkeley IEOR Assistant Professor Rajan Udwani received the National Science Foundation's (NSF) Faculty Early Career Development Program (CAREER) Award. The CAREER award is the NSF's most prestigious award given to support early-career faculty members "who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization."

Professor Udwani's winning proposal, titled "Next Generation Online Resource Allocation," will pioneer advanced models tailored for modern online resource allocation environments, accompanied by the design of intuitive algorithms geared towards scalability and optimal theoretical performance. His work will focus on identifying general structural properties conducive to broadly applicable and resilient algorithms, with a particular emphasis on developing analytical methods for adaptive online algorithms capable of navigating stochastic uncertainties.

Master of Analytics Program Expands Industry Engagement Opportunities for Students

The Master of Analytics program at UC Berkeley continues to foster connections between students and industry professionals. This year, the program collaborated with companies from various sectors, including KONE, Intuit, Qube Research & Technologies (QRT), Google, Tesla, Coca-Cola, and Taiwan Semiconductor Manufacturing Company (TSMC).

INDUSTRY INSIGHTS: Alumni and students in the Master of Analytics program engage in various industry events.

Fall 2024 featured a range of events aimed at enhancing career readiness and networking opportunities. Students participated in info sessions, coffee chats, site visits, and panels, gaining perspectives from industry experts while presenting their skills to potential employers.

One notable event was a visit from KONE, a global provider of urban mobility solutions. Senior IT and Analytics leaders from the company discussed KONE's approach to leveraging generative AI for industry transformation. The session also included contributions from program alumni Raushan Khuller and Kairan Wang, now data scientists at KONE, who shared insights into their roles and highlighted ongoing projects.

Another key event was a November 6 alumni panel organized by Analytics @ Berkeley, a student group dedicated to supporting Master of Analytics students. Alumni from organizations such as Google, Tesla, and GoFundMe shared career advice, explored emerging trends in analytics, and offered guidance for navigating the job market.

Interested in partnering with UC Berkeley Master of Analytics?

Contact **manalyticscareer@berkeley.edu**.

Learn more about UC Berkeley Master of Analytics at **analytics.berkeley.edu**.

Artificial Intelligence in the Ancient Wisdom Exhibit

The cover of this edition of Berkeley IEOR Magazine showcases artwork from *Ancient Wisdom: Trees, Time, and Technology*, an exhibition by Ken Goldberg and Tiffany Shlain currently on view at the Skirball Museum in Los Angeles through March 2025. Part of the Getty Museum's city-wide Pacific Standard Time quadrennial, the exhibit examines the intersection of art and science. The cover image, ***Abstract Expressions*, features a six-foot cross-section of a fallen redwood engraved with a timeline of over 30 significant scientific equations, curated by Goldberg and Shlain with contributions from ChatGPT and UC Berkeley faculty.**

As Walter Benjamin observed about photography in 1935, technologies cannot replace art—but they can profoundly change how we think about it. The astonishingly rapid advancements in generative AI mirror photography's transformative potential, introducing entirely new ways for artists and the public to create original texts, images, and videos. At the same time, generative AI raises significant ethical and societal questions: How do corporations exploit copyrighted material to train AI systems? How reliable is AI when prone to "hallucinations?" How can we mitigate the dangers of AI-created deepfakes used for political and economic manipulation? What is the impact on jobs in creative fields like illustration, graphic design, and filmmaking? Perhaps most pressing of all, what existential risks could arise if AI's goals diverge from humanity's?

UC Berkeley IEOR Professor Ken Goldberg and his wife Tiffany Shlain have independently explored the intersection of art and technology for decades. Both are acclaimed artists with exhibitions at the Whitney Museum and NY MoMA, as well as technologists with significant contributions in their fields. At UC Berkeley, Goldberg leads a robotics research lab and chairs the Berkeley AI Research (BAIR) steering committee. He has published over 300 papers on robotics and frequently speaks at universities and corporate events on AI and robotics. Shlain's engagement with media technology began in high school when she served as a student ambassador to the Soviet Union, discussing the potential of networked personal computers. In the 1990s, she founded the Webby Awards and pioneered the integration of cutting-edge technologies into filmmaking and live events. Together, they bring a critical lens to technology, as evidenced in their Emmy-nominated series *The Future Starts Here*, with episodes like *Why We Love Robots* and *Robots, Botox, and Google Glass* (watch at **tiffanyshlain.com/futurestartshere**).

In *Ancient Wisdom: Trees, Time, and Technology*, Goldberg and Shlain explore AI's creative potential while critically examining its implications. The exhibition includes a provocative aerial video portrait of Los Angeles and an interactive platform allowing participants to create personalized "tree tributes" combining AI-generated textual and visual elements. Historical timelines in the exhibit contextualize AI within a broader narrative, referencing humanity's enduring Faustian tradeoff: exchanging blissful ignorance for the dangers and complexities that accompany technological progress.

Artificial intelligence and its physical counterpart, robotics, have roots stretching back to ancient civilizations, including the Egyptians. The modern era of AI began with Alan Turing's seminal 1950 paper, *Computing Machinery and Intelligence,* which introduced the Turing Test—a measure of whether a machine can mimic human intelligence convincingly. While ChatGPT arguably passes the Turing Test, questions persist about whether it exhibits true intelligence. Goldberg and Shlain's *Tree of Knowledge* explores this ambiguity, posing philosophical questions like "What is knowledge?", "What is intelligence?" and "Can machines think?" By linking these queries to the biblical story of Adam and Eve, the work

Tiffany Shlain and Ken Goldberg's Ancient Wisdom, installation view 2024, photo by Stefanie Atkinson Schwartz; Courtesy of Skirball Cultural Center, Los Angeles

situates the quest for AI within a broader philosophical and ethical framework.

In *Abstract Expressions*, a six-foot cross-section of a redwood is etched with 39 pivotal scientific equations tracing the trajectory of scientific discovery (the complete list of equations found at **bit.ly/AbstractExpressions-Equations**). The timeline includes milestones such as Bayes' 1763 theorem on statistical inference, Shannon's 1949 definition of information theory, and the 2017 development of the transformer network that underpins modern generative AI. It also highlights Goldberg's own contribution: a 1993 equation proving the completeness of robot part orienting. The sculpture serves as a powerful reminder of AI's deep roots in centuries of scientific inquiry.

Another installation, *If We Lose Ourselves*, reflects on humanity's efforts to preserve knowledge for future generations. The artwork evokes a hypothetical scenario where society must rebuild, emphasizing the critical role of archives and information repositories.

The exhibit's video art piece, *Speculation, Like Nature, Abhors a Vacuum*, is a tribute to Ed Ruscha's *Every Building on the Sunset Strip*. Goldberg and Shlain collaborated with researchers at UC Berkeley, MIT, and Google DeepMind to create a geographically and biologically precise portrayal of LA treescapes using advanced AI. They combined aerial and Street View imagery data, the Los Angeles tree census, and manual data collection, analyzing it with innovative AI techniques that integrate graph neural networks. The result is a stunning visualization of the city's urban ecology along four major thoroughfares.

The final component, *Seeing the Forest*, is an interactive online platform where participants can create personalized "Tree Tributes" using GPT-4o, OpenAI's latest generative AI system. With prompts developed by Goldberg, Shlain, and Berkeley students, each tribute weaves together unique details about a tree's genus, age, location, and history. The diverse outputs generated by the platform highlight both the positive and the negative potentials of AI, echoing the exhibit's invitation for viewers to reflect on the promise and complexities of our evolving relationship with technology.

—Goldie Negelev

On View at the Skirball Cultural Center
Los Angeles: October 17, 2024 – March 2, 2025

Top 5

Five Everyday Items with Fascinating Supply Chain Stories

BY **ADARSH GUPTA**

1 A Hershey's Chocolate Bar: Engineering Sweet Success

When you enjoy a Hershey's chocolate bar, you're tasting the result of advanced industrial engineering (IE) and operations research (OR). It all begins with cocoa trees, which take five years to produce pods. These are often harvested manually, but in areas with high labor costs, mechanical harvesters optimize efficiency. Strategic scheduling maximizes yields, and solar dryers with moisture sensors ensure consistent drying quality. Throughout the process, statistical process control (SPC) monitors variables like temperature and pH, adjusting as needed to maintain perfect flavor. Every bite of Hershey's is the result of careful planning and precise engineering.

2 The High-Tech Journey of Your Favorite T-Shirt

While we can't pluck a shirt off a tree, the production of Nike and Gucci apparel starts in vast cotton fields. Traditionally hand-picked to protect fibers, cotton is now mostly harvested by machines for efficiency—though this requires more cleaning and waste management. Here, industrial engineering finds the balance between speed, cost, and quality.

Advanced spinning techniques, such as air-jet spinning, create strong, high-quality yarns for different fabrics. Automated dyeing with spectrophotometers ensures consistent color across large batches. During cutting and sewing, process optimization minimizes fabric waste. Supply chain efficiency is enhanced by Supplier Relationship Management (SRM) software and Just-In-Time (JIT) practices, ensuring timely delivery and reduced inventory costs.

Finally, logistics and distribution are optimized with tools like Route4Me and SAP Transportation Management, using data analysis and forecasting to perfect production schedules and inventory levels. From cotton field to closet, industrial engineering ensures your shirt is produced efficiently, with minimal waste and maximum quality.

3 From Ingredients to Pearly Whites

When you brush your teeth, you're benefitting from a complex supply chain that ensures your toothpaste is ready to use every morning and night. It all starts with precision sourcing of key ingredients like fluoride, calcium carbonate, and silica. Industrial engineering comes into play with supplier selection based on strict quality and compliance criteria, using procurement software like SAP Ariba to streamline sourcing and manage relationships. Sustainability is also a priority, with manufacturers opting for natural, biodegradable ingredients and Fair Trade suppliers.

In the manufacturing process, automated mixers precisely control ingredient addition, temperature, and mixing speed, while real-time data monitoring ensures consistent quality. High-speed filling lines dispense the perfect amount of toothpaste into each tube, with sensors and vision systems making adjustments for uniformity. Statistical process control, Cp and Cpk analysis, and root cause analysis tools like fishbone diagrams maintain batch consistency and address any variations.

Finally, distribution teams ensure that toothpaste reaches global markets efficiently. Consolidated shipments reduce trips, while vendor-managed inventory (VMI) allows suppliers to control inventory levels and avoid overproduction.

4 The Supply Chain Behind Every Balloon Pop

When you hear the pop of a balloon, you're experiencing the end result of a meticulously engineered supply chain. It all starts with natural rubber latex, collected through low-impact tapping that keeps the trees productive for longer. Integrated Pest Management (IPM) uses natural predators and organic solutions to protect the plants while minimizing chemical use. Industrial engineering emphasizes supplier diversification and the use of efficient procurement software like SAP Ariba to ensure a steady supply of materials.

The latex is then dyed, molded, and vulcanized—a process that enhances the rubber's elasticity, strength, and durability. Automated vulcanization equipment ensures consistent quality by precisely controlling temperature and timing, while optimized systems reduce costs. Additive optimization further improves rubber properties while limiting waste. Quality control involves both visual inspections and advanced automated vision systems, with statistical sampling and control charts monitoring tensile strength and elasticity.

Finally, packaging and distribution are designed for efficiency. Balloons are packed with inks and materials that meet modern production standards, and packaging is optimized to reduce unnecessary bulk and improve handling. Thanks to industrial engineering, the balloon you inflate is the result of a perfectly optimized system, ready to bring joy with every pop.

5 The Perfect In-N-Out Animal Fries: From Field to Fryer

As you savor In-N-Out's animal fries, take a moment to appreciate the journey that brought those crispy delights to your plate. It all begins in fertile potato fields, where precision agriculture—using GPS-guided equipment and Variable Rate Technology (VRT)—optimizes planting, fertilization, and irrigation. By managing soil pH, nutrients, and crop rotation, farmers maximize yield while ensuring sustainability. Harvesting combines manual labor and mechanical techniques, with climate-controlled storage facilities keeping potatoes fresh until processing.

In the processing phase, potatoes are cleaned, peeled, sliced, blanched, and flash-frozen using advanced machinery. IE applications fine-tune steam and abrasive peelers to minimize waste and employ laser-guided slicers for uniform cuts. Precise blanching and quality control—using automated systems and chemical analysis—ensure safety and consistency. Frozen fries are then packaged and transported via refrigerated trucks, with Just-In-Time (JIT) inventory systems like Fishbowl ensuring efficient supply management.

At In-N-Out, high-efficiency fryers with built-in filtration systems cook the fries to golden perfection. Workers are trained to maintain consistency, with HACCP systems and Statistical Process Control (SPC) techniques like X-bar and R-charts monitoring fry quality. Process capability analysis ensures that each batch meets the ideal standards for color and texture.

Flying Hope

How Drones Are Transforming Healthcare in Africa

At a remote health facility near Ghana's northern border with Burkina Faso, a drone descends from the sky, delivering a small box of life-saving medicine. Children race to retrieve the package, carrying it eagerly to a nurse. This isn't just a delivery—it's a lifeline. For Pablo Piñeiro Cruz, a UC Berkeley IEOR Master of Science alum, moments like this define his work at Zipline, where drones are reshaping healthcare access across Africa.

Through a combination of cutting-edge technology and operational precision, Zipline is addressing the logistics challenges that once made access to critical medicines impossible in remote areas. For Piñeiro, the impact of this work is deeply personal, rooted in stories of lives saved and communities transformed.

BY ASHLEE LIU

From Hours to Minutes: Delivering on Hope

"Feeling fulfilled at Zipline is easy," Piñeiro explains. "We regularly hear stories where our deliveries saved a life—where a 30-minute delivery made the difference between life and death."

Piñeiro recalls one study in Rwanda that found a staggering 51% reduction in postpartum hemorrhage deaths thanks to Zipline's work. "That's hundreds of mothers' lives saved," he says. "Our processes and systems are optimized for speed in emergencies. Being fast saves lives, and knowing that our work has this kind of impact is incredibly fulfilling."

But it's not just emergencies that make Zipline's work rewarding. On a visit to northern Ghana, Piñeiro witnessed firsthand the trust and efficiency the system inspires. "A nurse told me, 'The kids know the box contains medicine for their family and friends. We've never lost a single box, and I always know when the delivery is here.' That kind of reliability transforms communities."

Lessons in Simplicity and Innovation

Piñeiro's role overseeing operations has taught him to embrace simplicity as a guiding principle. When the team sought to improve communication with customers, they initially considered an app to track orders in real time. But a visit to the field quickly highlighted a problem: limited internet connectivity. "In most cases, phone calls or SMS were the only options," Piñeiro explains. The team adapted, using SMS for delivery notifications—a solution that works perfectly.

This experience reinforced another critical insight: customers adapt quickly to improvements. "When we reduced delivery times from days to hours, people began expecting that level of service every time," he says. "They relied on it, and we had to meet those expectations consistently. It showed me the importance of maintaining trust in the systems we build."

Engineering Efficiency at Scale

Managing peak-hour demand at Zipline's busiest distribution centers presented Piñeiro with one of his biggest operational challenges. "Drones were fully utilized for just a few hours each day, causing delays despite overall capacity being underutilized," he recalls.

To address this, the team redefined service agreements, prioritizing urgent deliveries while scheduling non-emergency shipments for off-peak hours. They also developed real-time capacity management tools for call center staff, allowing them to better align customer expectations with available resources. The result? A 25% increase in capacity and near elimination of delays—all without adding more drones.

A Vision for the Future of Drone-Enabled Healthcare

Zipline's drones currently deliver vaccines, blood supplies, and essential medicines to health facilities in Ghana, Rwanda, Côte d'Ivoire, Kenya, and Nigeria. But Piñeiro envisions a future where autonomous drones play an even greater role in healthcare.

"Delivering medical supplies is just the beginning," he says. "We can also transport medical samples from remote areas to centralized labs, enabling faster diagnoses. We could even deliver directly to patients, supporting home healthcare and improving supply chain resilience during

"The possibilities are endless when you combine remote medicine with autonomous drone delivery. It's about showing people just how much better things can be—for everyone."

disasters."

The challenges ahead are largely regulatory, Piñeiro notes. "Many countries are still developing the frameworks to integrate drone technology into their healthcare systems. Building trust with communities is also essential—we need to show that drones are safe and serve their interests."

Advice for the Next Generation of Innovators

For students eager to explore the intersection of technology, logistics, and global health, Piñeiro offers this advice: "Keep an open mind. The challenges we're solving now are unprecedented, and there's no playbook. You'll be part of creating the standards for this new field."

Piñeiro also sees tremendous opportunities for industrial engineering and operations research professionals. "Startups often focus on proving a concept, but scaling is where IEOR professionals thrive. We analyze and design systems that work efficiently under high demand, ensuring technology scales seamlessly as adoption grows."

Transforming Access, One Flight at a Time

As Zipline continues to expand, Piñeiro is determined to make the system even more efficient, reducing costs while maintaining high standards. "If we can do that, we can scale this solution to serve even more communities—whether they're in Africa, Asia, or rural America," he says.

For Piñeiro, the impact of Zipline's work is measured not just in numbers but in lives transformed. "The possibilities are endless when you combine remote medicine with autonomous drone delivery. It's about showing people just how much better things can be—for everyone."

Sandra and Gabe, both Class of 2001 IEOR graduates, pictured in their regalia.

From Study Sessions to Soulmates
Sandra and Gabe Tang's Unexpected Love Story

Sandra Shen Tang '01 never planned to major in Industrial Engineering and Operations Research—and certainly didn't expect it to lead her to her future husband, Gabe Tang '01.

Growing up in Los Angeles, Sandra had ambitions in journalism or medicine, but her path took an unforeseen turn. After missing the deadline to apply to UC Berkeley's College of Letters and Science, she hastily filled out an outdated version of her brother's application, inadvertently selecting IEOR under the College of Engineering.

"I thought, well, I'll just go to Cal and transfer to L&S," Sandra recalled. But during orientation, her advisor firmly discouraged the idea, urging her to give it one semester: "Nobody wants to transfer out of the College of Engineering!"

Sandra reluctantly agreed—and quickly discovered a love for IEOR's blend of math, statistics, and practical problem-solving. She also fell in love with the program's collaborative community. "I'm so glad I stayed," she said. "It felt like a small school within a large campus."

For Gabe Tang, the road to IEOR was equally unexpected. Growing up in Sunnyvale, California, Gabe initially entered UC Berkeley undeclared, unsure of what to study but gravitating toward chemical engineering after excelling in chemistry. During his sophomore year, a biking accident on campus became a pivotal moment.

"I flipped over my handlebars because of my heavy backpack full of chemistry books," Gabe explained. "While recovering from a broken clavicle, I had time to really think about whether chemistry was the right path for me."

Through conversations with his sisters and friends, Gabe discovered IEOR, a field that offered the variety and balance he sought. He transferred into the program the following semester and quickly realized it was the perfect fit. "IEOR gave me the tools to connect ideas across different areas, from supply chains to decision-making, which has proven very valuable in my career."

An Unexpected Meeting in the Library

Gabe and Sandra first met in one of UC Berkeley's most iconic settings: the library. Both were studying for a demanding statistics exam. Gabe, struggling with the material, sought advice from classmates, all of whom pointed him to Sandra.

"Everyone said she was the expert," Gabe shared. But when he approached Sandra at the library, his high expectations and layered questions left her second-guessing her own grasp of the material.

"I felt pretty good about this exam before he came," Sandra laughed. "But he just hit me with these complex questions that made me feel like I needed to study way more!"

While their initial meeting was memorable, it would take time for their story to truly begin.

Collaboration and Connection

A year later, Sandra and Gabe's paths crossed again in an organizational behavior class, where they were assigned to the same project team. Sandra initially bristled at being separated from her close-knit group of friends. However, the new team—despite its challenges—offered an unexpected silver lining: it showcased Gabe's patience and collaborative nature.

"He was the highlight of that group," Sandra admitted. Gabe added with a laugh, "The stars really aligned for me. I wasn't fighting with everyone else in the group, so by comparison, I looked great!"

Sandra and Gabe began spending more time together, often talking for hours on the phone. "He would talk until his phone died, then switch to another phone and keep going," Sandra recalled.

Their bond continued to grow during frequent car rides to a South Bay company for their project work. On a cold evening, Sandra's hands were visibly shaking, and Gabe reached over to warm them—a thoughtful gesture that left a lasting impression.

Their first unofficial date—a walk to King Yen, a local restaurant—was simple but meaningful.

"By then, we'd already spent so much time talking," Sandra said. "It didn't feel like a first date; it felt like a continuation of something already special."

Building Careers and a Family

After graduating in 2001, Sandra and Gabe's relationship only grew stronger. They married in 2003, began building their careers, and started a family. Both initially worked at Accenture, taking on consulting roles for different clients while remaining deeply committed to staying close and prioritizing family.

"I was upfront during all my job interviews about valuing work-life balance, and that honesty shaped my entire career," Sandra explained.

Sandra later joined Google, where she now thrives as the Head of Program Managers for Strategic Analysis & Launch. In her role, Sandra manages teams of technical program managers for Data Science & Engineering.

Gabe transitioned to Apple, where he now leads engineering program teams, crediting IEOR for teaching him to connect ideas across disciplines. "IEOR prepared us not just for our careers but for life," Gabe said. "The ability to synthesize information, adapt, and manage uncertainty is something we use daily, both at work and at home."

Gabe and Sandra during one of their visits back to UC Berkeley, captured here on the steps of Sproul Hall.

A Partnership Rooted in Teamwork

Sandra and Gabe's life together is a testament to teamwork. With three children and careers to balance, they've learned to rely on each other's strengths. "We approach everything as a team," Sandra said. "If one of us is overwhelmed, the other steps in."

Even their family vacations are meticulously planned with the precision of two program managers. "We have spreadsheets, contingency plans, and daily schedules with QR codes," Sandra said. "It sounds intense, but it allows us to fully enjoy the experience once we're there."

Reflections and Advice

Sandra and Gabe often visit Berkeley with their children, reflecting on the place where their journey started.

"UC Berkeley gave us so much more than an education," Gabe said. "It gave us a community and, most importantly, each other."

For current students, they offer simple but profound advice: stay curious and embrace the unexpected.

"College is a time to explore," Sandra said. "Be open to new paths. You never know where they might lead."

Their journey—from academic uncertainty to professional success and a loving family—underscores the power of taking chances, embracing change, and building connections. For Sandra and Gabe, UC Berkeley will always hold a special place as the beginning of their story.

—Goldie Negelev

Sandra and Gabe, Berkeley IEOR alums who met at Cal, now proud parents of three boys pictured here.

CONVERSATIONS

Meet our most recent Cal Grads

A little Q&A with our Class of 2024 alums

Xin (Jennifer) Chen

BS IEOR

Current position

PhD student, Stanford Department of Management Science and Engineering.

Highlights of your academic journey

What I cherished the most about Berkeley IEOR was the supportive community. During my four years, I discovered my career goals, academic interests, and cultivated deep relationships.

Anushka Baid

MEng IEOR

Current position

Senior Consultant, Keppler

Highlights of your academic journey

The IEOR advisors who genuinely cared about my aspirations and let me switch concentrations based on the best possible career trajectory for me.

Serafina Alhadad

BS IEOR
Minor in Data Science

Current position

Application Modernization Technical Specialist, IBM

Favorite Cal memory

My favorite memory is laying out on the Glade in the beautiful sun.

Victor Moises Gutierrez Solis

BA Analytics

Highlights of your academic journey

What I absolutely adore about my time at Berkeley was the genius people I got to collaborate with! They're not just brainy—they're like human Google searches, but with better social skills! These folks have inspired me and pushed me to up my game, especially my friends who've had my back more reliably than my Wi-Fi connection. Another thing I'll miss? The classroom vibe. There's nothing quite like swapping thoughts with classmates and professors, diving into a sea of wild ideas.

Yunlu Li
MEng IEOR

Current position

Data Scientist, Meta

Highlights of your academic journey

I really enjoyed the wide range of course offerings from the IEOR department. I easily found courses that aligned with my academic and professional objectives. I appreciated the guidance and instructions from IEOR faculty and advisors.

Sophie Wiener
BA Analytics & Economics

Current position

Equity Research Associate, Franklin Templeton

Advice to current students

Never underestimate the power of simply showing up. Being present, actively participating, and asking questions have opened doors to opportunities. It's remarkable how far engagement can take you! Also, take classes in as many different departments as possible! It's fun and refreshing to meet people with different skills and ways of thinking. It also helped me realize how relevant IEOR and decision making is in so many different fields!

Manuel Loaeza
MAnalytics

Current position

System Analyst, Central Bank of Mexico

Favorite Cal memory

Participating in the Analytics Lab Showcase event! It was incredibly rewarding to show our team's hard work and innovative solutions to complex data challenges in front of industry experts and peers. This event not only marked the culmination of my academic efforts but also strengthened my passion for analytics and the power of teamwork.

Advice to current students

Embrace every opportunity to learn and apply your knowledge. IEOR is where theory often meets real-world challenges, so engage deeply with your coursework, seek out internships, participate in research projects, and network with peers and industry professionals. Remember, your time at Cal is not just about gaining skills but also about building relationships and understanding the broader impact of your work.

WORDS OF WISDOM
Yan Xiao MEng '20

"You are the most consistent witness and insightful judge of your journey—of what you learn, what you commit to, the quality of work you deliver, and the values and people you trust. Ultimately, your path is shaped by what you believe in and the person you strive to become."

—YAN XIAO MENG '20

// I recently began a new role as a software engineer at Apple. The four years following my graduation from Berkeley have been a journey of exploration and adjustment in my career path. Not everyone has the privilege of discovering their passions and strengths early in life, but I encourage everyone to start exploring as soon as they can. Think of it as a breadth-first search in your early career—try different things, especially if you're unsure while still a student. Treat every challenge as an opportunity to learn, and when in doubt, ask yourself, 'What's in it for me?'

One lesson I've learned is that what you deliver defines who you are. Make your work both visible and impactful. Early in my career, I dismissed visual presentation as superficial, believing that solving important issues through technology didn't require polished visuals. But I've come to realize that no matter how hard we work or how meaningful our contributions are, without visibility, they might go unnoticed.

That said, the most important audience for your work is yourself. You are the most consistent witness and insightful judge of your journey—of what you learn, what you commit to, the quality of work you deliver, and the values and people you trust. Ultimately, your path is shaped by what you believe in and the person you strive to become.

Powering Change in Tech and Energy

A Conversation with Marc Oman

Marc Oman, BS '03 IEOR, has followed a winding path to impactful leadership in tech and energy, culminating in his current role as Principal, Energy & Infrastructure, at Google. Yet, as he shares, there was no master plan guiding him—just a commitment to curiosity, hard work, and a willingness to pivot. In this Q&A, Marc reflects on how his Berkeley IEOR background has shaped his leadership amid the rapid changes in tech and the sweeping transformation of the energy industry.

BY ASHLEE LIU

What inspired your decision to pursue an MBA at Harvard after earning your IEOR degree from UC Berkeley?

I decided to pursue an MBA after 4 years in management consulting. I wanted to pivot away from consulting and become an expert in the industry of my choice, which ended up being in cleantech.

My undergraduate IEOR degree gave me a solid foundation for some of the more quantitative aspects of business school, even if I had to work harder to fill certain gaps in other courses such as accounting and finance. The "systems thinking" approach taught in engineering school helped me with the case method used at Harvard Business School. Course work aside, the internships and projects I pursued at Berkeley as an undergraduate played an equally important role. For example, in 2001 I joined a team of undergraduate classmates on a project to advise PG&E on a new program to keep track of residential solar PV projects. This planted the seeds of my interest in cleantech, which "germinated" during my MBA at Harvard and helped me secure MBA internships in cleantech investment banking and finally land a job post-MBA in this field.

Looking back at my career from where I am today, my trajectory might look linear. But in reality I didn't have a grand plan. I mainly followed my instinct and worked hard. I also had good fortune and several great mentors along the way.

How did your background in business and engineering help you succeed in such dynamic and evolving industries as tech and energy?

Tech and energy are significant economic sectors and both are undergoing massive transformations. In my ten years at Google, I have seen the company's focus evolve from desktop to mobile-first, then to offering Cloud-based solutions, and finally to now embedding AI in everything we do. Understanding and adapting to this constantly evolving business environment is both difficult and exciting.

On the energy side, the challenge ahead is no less daunting or important. Collectively, we are working to transform a centralized, fossil fuel-driven power generation system into a decarbonized, decentralized, digital energy economy. My team and I at Google are working, along with many others, to change a centuries-old power system in just a few decades. All of that with the damage of climate change disruption becoming more visible every year.

On a personal level, I always think carefully about breadth vs depth of knowledge. Both are often required to have an impact on organizations. Knowing how to balance the two, being solid on the details while knowing when it's time to "zoom out" and think big picture, is something I am always striving to improve.

Can you share a standout project at Google?

In 2022, Google partnered with ENGIE, a French utility, to develop AI-based tools to improve the value of their renewable energy portfolio by improving the accuracy of wind production and the price at which wind electricity should be sold (or bid, to be more specific). I spent almost a year developing the basis for this partnership, explaining how short-term energy market trading works and assisting ENGIE and my Google Cloud colleagues in thinking about ways to ingest weather data and historical wind farm production. Successfully closing this partnership required not just technical knowledge but also demonstrating how it would create value to the management teams in both organizations.

What specific skills, experiences, or mindsets do you believe are essential for leadership roles in tech and energy?

Thinking back to my undergraduate days, I had no idea I wanted to work in tech or energy. All I knew was that I enjoyed learning and working in small teams. I would encourage IEOR students to focus their energy on developing the right mindset first, before thinking about skills or experience. Having the right mindset means developing resilience, humility, and knowing how to let go. Another important piece of advice: find good mentors, ideally 2-3 people who can provide advice among family, friends and professional circles. Skills and experiences will flow from there.

As the leader of Google's initiative to achieve 24/7 carbon-free energy sourcing by 2030, what are the biggest challenges you've encountered in scaling renewable energy solutions across different countries, each with unique regulations?

Scaling renewable energy requires getting many things right. I'll mention three. First, we need to accelerate commercializing novel carbon-free energy technologies, such as advanced geothermal or small modular nuclear reactors (SMR). Second, we need to change the way energy markets are designed, creating more incentives for demand-side flexibility and reducing capacity-related subsidies for fossil-fuel generation. Third, national governments need to set more ambitious targets for decarbonization and be held accountable if they don't live up to them. More generally, collectively we need to ensure a "just energy transition" in which countries that are responsible for historical climate emissions help finance climate change mitigation efforts in poorer countries.

A Lasting Legacy of Resilience and Learning: The Joe and Flora Arai Endowment

// I will always be profoundly grateful to Candi for her belief in my abilities, generosity, and dedication to ensuring I could reach my full potential as a student," said Alexandra Newman, PhD IEOR '98, professor at the Colorado School of Mines and 2024 INFORMS Fellow.

Driven by this gratitude, Alexandra Newman has spearheaded the creation of the Joe and Flora Arai Endowment. This endowment celebrates Professor Candace "Candi" Yano's profound influence on her students and honors the legacy of her parents, Joe and Flora Arai. Although they never attended college, Joe and Flora devoted their lives to ensuring their daughter could pursue her academic ambitions.

Professor Yano is celebrated for her mentorship and dedication to her students, and now her generosity is beautifully intertwined with her parents' legacy. The Joe and Flora Arai Endowment will provide essential financial support to students facing economic barriers, just as Professor Yano once relied on while pursuing her academic dreams. An anonymous donor has pledged to match all donations up to $100,000 to the Joe and Flora Arai Endowment.

When asked about her parents, Professor Yano is quick to recall her father's encouragement and support. "My dad was very good with numbers," she shared. Although he hadn't attended college himself, he "taught me how to read and do arithmetic well before I was in kindergarten." Joe, who worked in water sanitation for the City of Los Angeles, was a natural teacher who sparked her love of learning. "He went out of his way to make it easy for me to be a student," she noted, recalling how he would travel to distant libraries to gather books for her school projects. These early experiences laid the foundation for Professor Yano's lifelong commitment to education.

Her father's support extended beyond academics. Professor Yano remembers how Joe installed a basketball hoop at an eight-foot height to match her reach. "He did things to help me do things as well as I could," she recalled. Joe's support was unconditional; he never pushed Yano in any particular direction, instead choosing to nurture her interests and abilities. This approach has influenced Candi's own teaching and mentorship style: "If I just give [students] the answer, that's not really going to be very effective. They have to do the thinking themselves," she said, reflecting her father's thoughtful efforts to foster her growth.

Born in Los Angeles as the third of seven siblings, Candi's father, Joe Arai, faced significant adversity during World War II when his family was sent to the Gila River internment camp in Arizona. Amid hardship, young Joe brought lightness to those around him, famously sneaking into the camp kitchen with friends to cook chickens they had plucked themselves.

After the war, Joe returned to Gardena, where he finished high school and then began a career at the Hyperion Treatment Plant, where he worked for decades. His role was more than just a job—it was a commitment to public health and community well-being. His dedication endured even after a serious workplace injury in 1975, which ultimately brought his career to an early end. At home, Joe applied his skills to house repairs and renovations, and he passed this self-sufficiency on to his daughters, Candi and Joyce, with quiet pride and steady encouragement.

Professor Yano's mother, Flora, also embodied quiet strength shaped by profound experiences. During World War II, Flora's family decided to move from a U.S. internment camp to Japan, where she spent part of her youth. Tragically, she lost her father in the Hiroshima bombing. When she spoke about this chapter in her life, she did not express pain or emotion, sometimes saying only, "It's war," reflecting the Japanese phrase Shikata ga nai—"it cannot be helped." Flora eventually returned to the United States, where she married Joe and raised their two daughters in Gardena, California. Flora balanced a career that culminated as an office manager at Fujitsu Ten Corporation with her family responsibilities. She sewed clothes for her daughters when they were in elementary school and packed lunches for Candi each school day, even through high school—quiet, enduring expressions of her love and care.

Though neither Joe nor Flora attended college, they instilled in Professor Yano the belief that education was a path to opportunity. With her parents' encouragement, Candi pursued her academic and professional journey, eventually becoming the first woman faculty member in the Industrial and Operations Engineering Department at the University of Michigan before joining Berkeley IEOR, where she soon became the first female department chair.

The Joe and Flora Arai Endowment allows Professor Yano to pass on her parents' legacy of support. "I went to college with their help — as much as they could give me — plus scholarships," she said, noting how essential these resources were for her success, especially after her father's injury. "I hope that the funds go to a student who, like me, would not have been able to pursue additional higher education without those funds."

The Joe and Flora Arai Endowment stands as a tribute to two remarkable individuals whose meaningful acts of resilience, learning, and support have created a legacy that will uplift Berkeley students for generations to come.

—Goldie Negelev

Learn more and give online at bit.ly/JoeandFloraEndowment
All donations will be matched up to $100,000, thanks to a generous anonymous donor!

Alumni Notes

1966

Daniel P. Heyman (PhD '66), has had a distinguished career at Bell Laboratories and its successors, Bellcore and AT&T Labs. His dissertation on queueing theory led him to the field of telephony, where the application of queueing theory was rapidly advancing. "I was able and apply the concepts I learned at Cal to tackle challenging problems. I also had the opportunity to teach queueing theory at Yale and engage with the Operations Research community through ORSA (now INFORMS). I served on the editorial boards of three journals, chaired two technical sections and three prize committees, and was elected to the ORSA council. I was also elected an INFORMS Fellow."

Since retiring, Heyman has pursued his passions, including building model railroads, solving The New York Times crossword puzzle most days, and playing bridge, particularly since online play became popular in the 1980s. His physical activities have evolved from tennis and handball in his 60s to swimming and weight training in his 80s. Heyman and his wife have enjoyed 56 years of marriage and have a daughter, a granddaughter, and a Welsh Corgi.

Bob Cliff (BS '66, PhD '71), completed his bachelor's degree in IEOR in 1966, and then entered the Berkeley IEOR PhD program under Dr. Crossman, focusing on applying industrial engineering to work analysis. Near the end of his PhD, he gave a talk at MIT and was offered a faculty position but chose to use his expertise to help organizations instead.

Bob's first consulting assignment involved workflow analysis at the Bank of California, leading to improvements in worker satisfaction and efficiency. He later worked with the newly established Mastercard facility in San Francisco, further solidifying the need for IE expertise. This success prompted him to formally start Cliff Consulting, Inc., a small firm specializing in project strategy and planning, operations improvement, project implementation leadership, and executive partnerships. After 33 clients and numerous successful projects, Bob retired in 2012. He now encourages IEs to contribute to solving global warming challenges—one of today's most critical issues.

1969

Alex Stolarski (BS '69), retired three years ago after successfully establishing, operating, growing, and eventually selling a multifamily real estate portfolio in Dallas, Texas. He is married to Miriam Stolarski, and they currently reside in La Jolla, California.

Alex and Miriam have three children: their daughter Gabriela, who lives in New York with her husband, Craig; their daughter Monica, who lives in La Jolla with her husband, Ashley, and their two children; and their son Daniel, who holds a PhD from UC Berkeley, teaches particle physics at Carleton University in Seattle, and is married to Leah. Daniel and Leah have one daughter.

1978

Djafar Frankle Widjaja (BS '78), serves as the Executive Chairman and CEO of Bund Center Investment Ltd (BCI), where he leads the company's strategic direction and oversees the management of its key assets, including the group's hotel, office tower, and Golden Center properties. Appointed to the board in 2009, he has been at the helm of BCI's operations, driving investments and enhancements across the company's real estate portfolio in Shanghai and Ningbo since 1992.

Johan K. Norvik (PhD '78), is now embarking on his fourth distinct career journey. After earning his PhD in Financial Economics, he began as a consultant in transportation planning and financial project evaluation. He briefly served as an Adjunct Professor at INCAE in Costa Rica before transitioning into the technology industry, spending 30 years in marketing, sales, and business development at Unisys, Compaq, HP, and Microsoft. In 2017, Johan returned to academia to earn an MS in Statistics and Data Science at the University of Houston. Johan credits his Berkeley IEOR background for honing his problem-solving skills, which have been invaluable across his varied careers. Beyond his professional achievements, Johan has been married to his wife, Amalia, for 45 years. They have two daughters, Kristine and Elisabeth. His family has lived in various places, including El Salvador, Costa Rica, England, and now Houston.

1981

Geoffrey Hing Jue (BS '81), recently became a grandfather and celebrated his youngest son's wedding. Professionally, Geoffrey has enjoyed a distinguished career spanning over 40 years, including 25 years in management consulting. He has led regional and global teams in sales, solutions, marketing, and delivery for leading IT service companies such as IBM, Accenture, HCL Tech, Wipro LLC, CAI Inc, and currently, Birlasoft. Before consulting, he worked as CIO at PG&E and Xcel Energy for 18 years. In addition to his BS IEOR degree, Geoffrey holds an MBA from Golden Gate University and a Certificate in Total Quality Management from UC Berkeley under W. Edwards Deming. Geoffrey is also actively involved in the arts, serving on the boards of SF Playhouse and the Children's Theatre Company of Minneapolis.

1984

Jason Ma (BS '84), Founder and CEO of ThreeEQ, is an award-winning Chief Mentor of Next-Gen Leaders, acclaimed author of *Young Leaders 3.0*, and a former top Forbes contributor. With 40 years of experience spanning education, technology, finance, and other sectors, along with over 2 million miles of global travel, Jason has mentored everyone from Gen Z students to Gen X CEOs, helping them achieve success in elite college admissions, high-end careers, business growth, and family legacies. He serves as a well-connected strategic advisor to UHNW families, CEOs, and Family Offices, and holds roles as CBO and investor at AdXero. Jason is also a sought-after speaker and a decade-long B20 member, contributing to policy recommendations for G20 leaders on the future of work, human capital, and education. A devoted father of two happy Gen Z young adults, Jason and his family—fondly known as the "MAfia"—embrace love, humor, and high standards in all that matters.

1990

Daniel J. Johnson (BS '94), is celebrating the 15-year anniversary of founding Cargo Velocity, Inc., a consulting engineering firm specializing in design and technology solutions for seaports worldwide. Married for 25 years, Daniel and his wife have two children, aged 16 and 19. He remains a dedicated fan of Cal games.

CargoVelocity
Designs for Advanced Cargo Facilities

Alumni Notes

1994

Ashot Mkrtchiyan (MS ‘94) since arriving at Berkeley over 30 years ago, Ashot Mkrtchiyan has remained closely connected to the campus, living within 55 miles and visiting frequently. Both of his children completed their undergraduate degrees at UC Davis and have pursued graduate programs outside of California. For Ashot, Operations Research (OR), especially when combined with a traditional engineering degree, offers a powerful perspective and toolset that fuels natural curiosity.

Throughout his career, Ashot has consistently applied his quantitative problem-solving skills in various managerial roles at some of the Bay Area’s most renowned companies. His work has involved stochastic modeling and optimization of materials flow, dynamic systems modeling for process optimization, customer segmentation, network reliability, and more. Today, he runs a consulting service that focuses on solving analytic and data visualization challenges for companies, emphasizing the integration of results into decision-making processes to ensure practical, actionable outcomes.

Ashot regularly attends Berkeley IEOR events. Living in the area has allowed him to engage with many IEOR faculty members over the years, including Shmuel Oren, Ilan Adler, Robert Leachman, and Dorit Hochbaum.

1998

Peter Wei (BS ‘98) after spending 17 years at VMware, where he witnessed the company’s journey from IPO to its acquisition by Broadcom, Peter Wei is now taking a sabbatical to focus on his family. Balancing the care of aging parents and a newborn, Peter describes this period as the most challenging yet rewarding work of his life. Recently, he took time for self-reflection by attending a silent meditation retreat at Spirit Rock, an experience he highly recommends for anyone seeking mental clarity. On a personal note, Peter achieved a major milestone by qualifying for the Boston Marathon after a year of intense training and racing. Beyond his running accomplishments, he has also checked off all seven continents and all 50 states from his travel bucket list. As he approaches the midpoint of his life, Peter looks forward to making meaningful societal contributions and creating positive impacts in the years ahead.

2005

Sandra Shen Tang (BS ‘01) and Gabe Tang (BS IEOR ‘01), married in 2003 after meeting in IEOR classes. They now have three children and are both thriving in their careers as technical program managers. Sandra has been with Google for more than 18 years, while Gabe has been with Apple for over a decade. The couple’s shared background in IEOR continues to shape their professional journeys and life together.

2006

Ananth Narayan Krishna (BS’06) and his wife, Deepa, celebrated the arrival of their first child, Samsara Krishna.

2008

Max Ghenis’ (BS ‘08) company, PolicyEngine, is leading the way in developing open-source microsimulation models that evaluate the effects of tax and benefit policies. What sets these models apart is their ability to deliver real-time local insights on potential policy reforms—not only at a national level but also down to individual parliamentary constituencies. This groundbreaking approach provides an unprecedented level of detail, marking the first time any country has had access to such precise, localized data.

2009

Jennifer (Jippy) Pang (BS ‘09), leveraged the problem-solving skills she obtained as an IEOR major to dive straight into a consulting career. After spending a decade with Accenture, she has been with Salesforce for the last 5 years helping companies transform the way people work by leveraging the power of Slack. Jippy currently lives in Moraga with her husband and 3 rambunctious cats.

2010

Guorui Su (BS ‘10) is the co-founder and Chief Product Officer at Klarity Health, a Series A telehealth startup based in Redwood City. Since graduating, Guorui has worked across multiple continents, gaining experience in consulting, big tech, unicorn companies, and now the startup world.

“The IEOR experience at Cal truly prepared me for every step of my career and shaped how I viewed the world. I have moved back to the Bay Area right before the Pandemic and would love to catch-up with IEOR alums.”

2014

Manisha Jha Gupta (MEng ‘14) has recently taken on a new role at Google Cloud, helping organizations achieve their cloud goals. This position has allowed her to expand her client leadership opportunities while leveraging Google’s exceptional technical capabilities.

2024 was a significant year for Manisha, as she and her family welcomed their second daughter, Arya, becoming a family of four. Manisha looks forward to continuing her support for the ongoing endeavors of Berkeley IEOR and MEng programs.

Jiaxi Zhu (BS ‘14) is an expert in data processing and advanced analytics, with nearly a decade of experience designing data infrastructure and models to drive business optimization and decision-making. Since 2020, he has led business analytics and operations for SME advertising at Google, where he develops innovative solutions to help businesses maximize their digital advertising investments. Prior to Google, Jiaxi worked at McKinsey & Company and PwC, delivering data-driven solutions for Fortune 500 clients, including personalized product recommendations and advanced customer segmentation models. His work has been widely adopted, significantly impacting customer engagement and business growth.

2016

Michele Gleit (BA ‘16) recently marked four years as a data scientist at Adobe and was promoted to data science manager at Adobe Express. Outside of work, Michele enjoys pottery and has sold pieces at local studio shows. An avid hiker, Michele recently completed the four-day Inca Trail and summited Mount Whitney.

2018

Rijul Mediratta (MEng ‘18) celebrated a major personal milestone during the peak of the COVID-19 pandemic—getting married amidst the unique challenges of the time.

2021

Gabrielle Prindle (BS ‘21) has been working at the patent law firm Haley Guiliano LLP since she was a summer intern in 2020. She passed the United States Patent Office Registration Exam to become a Registered Patent Agent in June of 2022, and started part time law school at Santa Clara University in August of 2022. She plans to graduate and take the bar in 2026.

Your classmates want to hear from you!

Contact Us
ieornewsletter@berkeley.edu

Farewells

Ronald W. Wolff, a distinguished professor emeritus and former chair of the IEOR Department, passed away on October 24, 2024, at the age of 90. He leaves behind a remarkable legacy of academic excellence and philanthropy.

Ron earned his PhD in Operations Research at Case Institute of Technology (now Case Western Reserve University) in 1962 under the mentorship of John D. C. Little (1928–2024), renowned for "Little's Law." Among Ron's significant contributions to queueing theory is his influential 1982 paper, "Poisson Arrivals See Time Averages (PASTA)."

Dr. Wolff was celebrated for his pioneering work in stochastic processes and queueing theory, shaping the field of operations research for decades. His groundbreaking contributions have left an indelible mark on academia and industry worldwide.

In addition to his scholarly achievements, Ron was deeply committed to supporting the next generation of engineers and scholars. He established a faculty chair and a graduate student fellowship in Berkeley IEOR to nurture future leaders in the field.

Ron's career at Berkeley was defined by his passion for discovery and dedication to his students. Admired by colleagues and students alike for both his intellect and his approachable mentorship, he shaped the careers of countless young minds. An avid wine enthusiast, he enjoyed sharing his extensive knowledge with friends and colleagues. A devoted dog lover, Ron had a special fondness for Labrador Retrievers, even naming one "Queue." His gentle humor, wise counsel, and compassionate spirit will be deeply missed.

—Alper Atamturk

This typewritten memo, authored by John D. C. Little, highlights Ron Wolff's brilliance and the admiration he garnered from peers and faculty during his time as a student at MIT.

The note is transcribed below.

MEMO TO: Ron Wolff, Al Drake
FROM: John Little
SUBJECT: Ron Wolff- The New Johnny Carson?

One of the best ideas proposed at our LAP meeting was that we might preserve some of Ron's queuing expertise on tape. The students displayed considerable enthusiasm for the idea.

The objectives would be first, to produce a short series of tapes which would be accessible to individual students here who wished to obtain an introduction to queueing and, second, to develop tapes or film that Ron might take with him for use elsewhere.

If there is anyway I can be of assistance, please let me know.

Pictured in Fall 2022, when the Cal community gathered to honor Professor Wolff's remarkable generosity.

Ernst S. Valfer PhD '65 passed away in October 2023 at age 97. Ernst was an enduring presence whose remarkable journey began at Berkeley in 1948. He joined the College of Engineering when Industrial Engineering was still a fledgling specialty, housed in the basement of McLaughlin Hall and closely integrated with mechanical engineering. There, he learned from just a handful of faculty members, including Professor Ernest Paul DeGarmo, who inspired him to pursue a career focused on the "human factor" in engineering. Ernst became the first person to earn a PhD in Industrial Engineering at Berkeley in 1965, and his pioneering spirit carried him through an impressive career in tech, energy, and psychology. In our 2022 magazine edition, *Journey Through IEOR History*, Ernst shared vivid memories of a campus where IBM punch cards were cutting-edge technology and faculty often lacked advanced degrees. His story was one of resilience and innovation, from his wartime experiences as a Holocaust survivor and U.S. Army veteran to his leadership in both government and the nonprofit sector. Ernst's kindness, wisdom, and the generosity with which he shared his life story—along with his eagerness to connect with students and people from all walks of life—have left a lasting legacy.

Andrew Rudd PhD '78, a pioneering entrepreneur and devoted member of the UC Berkeley community, passed away on April 2, 2024, at the age of 74. Andrew's journey at Berkeley began in 1972, where he earned an MS in operations research, followed by an MBA in 1976 and a PhD in industrial engineering and operations research in 1978. He co-founded Barra Inc. in 1975, a Berkeley-based financial software firm that revolutionized risk management with the Barra Models. Under his guidance, Barra grew to global prominence before being acquired by Morgan Stanley.

Driven by a passion to innovate, Andrew later founded Advisor Software, enhancing wealth management for investors. He and his wife, Virginia, also established the Rudd Family Foundation, which has enriched Berkeley with endowments and support for initiatives like the Big Ideas Program, fostering social entrepreneurship on campus. In 2017, Andrew and his wife, Virginia, donated to establish the V&A Café in Etcheverry Hall, named after the first initials of their names—Virginia (V) and Andrew (A). Since its opening, the V&A Café has become a beloved space for meetings and collaboration, serving Berkeley IEOR students and the broader campus community.

Ian I. Mitroff PhD '67 distinguished author and theorist widely regarded as the founder of crisis management, passed away on June 17, 2024. Ian's journey at UC Berkeley began with a BS in Engineering Physics, followed by an MS in Engineering Science, culminating in a PhD in Industrial Engineering and Operations Research in 1967—just as the IEOR department was being established.

Ian's profound impact spanned across organizational behavior, strategic planning, and crisis management. He authored 43 books, over 350 papers, and numerous op-eds on topics ranging from the societal impact of technology to spirituality in the workplace. His work shaped the discourse on crisis management and inspired generations of students and professionals alike.

Campus Snapshots

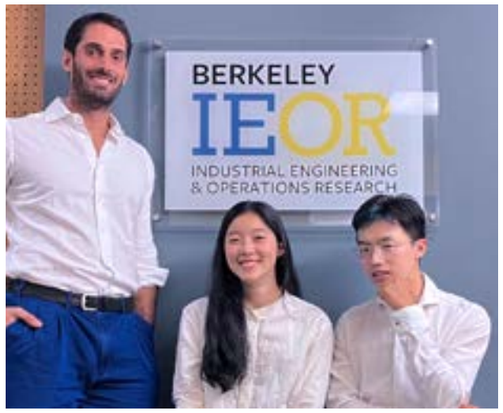
Berkeley IEOR staff, along with Alper Atamturk, celebrate Rebecca Pauling at her retirement party

Cal Day 2024

IISE Student Faculty Panel event

Save the Date for BIG GIVE!
Thursday, March 13, 2025

Join our amazing Cal community—alumni, parents, students, faculty, staff, and friends worldwide—for Big Give, UC Berkeley's 24-hour fundraising event. Your support helps our community flourish!



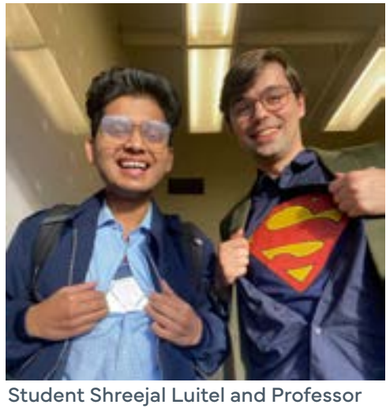
2024-25 PhD Admission Ambassadors Alberto Gennaro, Grace He, and Ricky Huang

Professor Max Shen captures a selfie with fellow Berkeley IEOR faculty

Professor Shmuel Oren reunites with multiple generations of his former students at INFORMS

Professor Rhonda Righter leads a hike with Berkeley IEOR Faculty

Alexandra Newman PhD '98, Professors Alper Atamturk and Candi Yano, and Eugene Yano announce The Joe and Flora Arai Endowment at an IEOR faculty meeting



Student Shreejal Luitel and Professor Phillip Kerger as Superman for Halloween

The inaugural Master of Analytics Lab Showcase

Brain Teasers

BY TYLER MAXEY BS IEOR ‘18

Tyler Maxey earned his BS in IEOR from UC Berkeley in 2018 and his PhD in Economics from Princeton in 2023. In addition to being a Research Director at the startup Capital Preferences, Tyler combines his expertise in decision science with a creative passion for designing games and puzzles. This spring, he returns to UC Berkeley as a lecturer for IEOR 166, sharing his knowledge and enthusiasm with the next generation of problem-solvers. Go Bears!

PATHOLOGY

Instructions: Use the rules to figure out when each professor joined the Berkeley IEOR faculty. However, one rule is false. Figure out which then arrange the professors’ names accordingly.

Either Cui joined in 1998, Atamturk joined in 2023, or both

Atamturk joined in 1998 and Righter joined in 2003

Aswani and Atamturk joined before Cui

Write in your answer below.

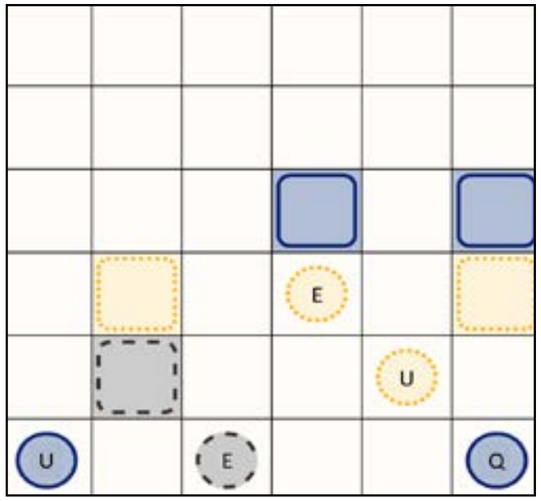
1998	
2003	
2013	
2023	

SUMMATION

Instructions: Cover six tiles so that each row and each column sums to the Summable.

Summable: Current student-to-faculty ratio

2	2	7	4
4	5	4	3
8	3	9	8
5	6	8	1



DECODER

Instructions: Figure out the code word by connecting each circled letter to a square with the same color/pattern. Paths cannot branch, intersect, or overlap.

Code Word: Name of Dr. Wolff’s labrador retriever

CAN’T GET ENOUGH? YOUR NEXT PUZZLE AWAITS:

ANSWERS

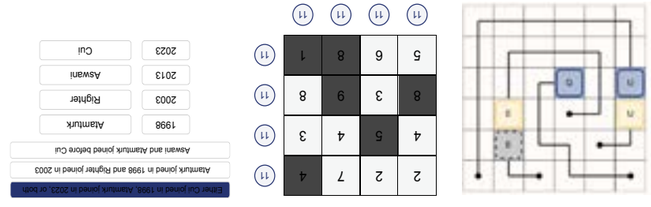


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Photo by Adam Lau