NEW FACULTY WELCOME
The Jacobs School of Engineering hired 27 new faculty in the last two years. These professors are among the nearly 140 faculty who have joined the school in the last eight years.
Our faculty are **bold**.

On their quest for positive impact, they are remaking our school — and the world.
Brian Aguado
Assistant Professor
Bioengineering

Research Interests:

● To develop precision biomaterials that enable the evaluation of a patient's unique biology to diagnose and treat a variety of health disorders as a function of sex, age, and/or ancestry.

● Aguado aims to develop sex-specific biomaterial technologies to treat cardiovascular diseases, including aortic valve disease and heart failure.
Andrew Bartko
Executive Director
Center for Microbiome Innovation

Research interests:

- To inspire, nurture, and sustain vibrant collaborations between UC San Diego’s microbiome experts and industry partners in the life science, nutrition, energy, information technology, clinical and healthcare industries.

- Bartko aims to focus on creating and commercializing innovative technologies to accelerate microbiome discoveries and healthcare breakthroughs across academic and industry collaborations.
Bogdan Bintu
Assistant Professor
Bioengineering

Research Interests:

● Bintu develops new microscopy tools that can simultaneously “see” thousands of DNA sequences, RNA molecules and proteins in individual cells.

● He uses these tools to understand how neurons specialize within the olfactory nervous system.
Benjamin Smarr
Assistant Professor
Bioengineering

Research Interests:

- Time series analysis in biological systems, with an emphasis on practical information extraction for translational applications.

- Smarr’s main project is TemPredict, which brings together wearable device data from 50K people with over 2 million daily symptom reports and is used to identify signs of COVID-19 onset, progression, and recovery.
Computer Science
& Engineering
Mai ElSherief
Assistant Teaching Professor
Computer Science and Engineering

Research Interests:

● Computational and data science problems that model online social interactions to infer and understand online misuse behaviors and psychological well-being.

● ElSherief’s other research interests include social computing, natural language processing, machine learning, and communication.
Research Interests:

- Jensen’s research lies at the intersection between usability and software engineering, with an emphasis on studying how Open Source communities operate and organize, and the tools and processes needed to make them more efficient.

- His recent work uses automated testing techniques to help developers improve the reliability of large and complex open source software.
Tzu-Mao Li
Assistant Professor
Computer Science and Engineering

Research Interests:

- Connecting classical computer graphics and image processing algorithms with modern data-driven methods to facilitate exploration.

- His work added 3D understanding to computer vision models; used data to improve camera imaging pipeline quality; and made light transport simulation faster by using information explicitly defined by rendering programs.
Imani Munyaka
Assistant Professor
Computer Science and Engineering

Research Interests:

● Munyaka is a human-centered computing researcher. Her research interests include public policy, information security, computer science education, educational technologies, voting technologies, cybersecurity and minorities in STEM.

● Her goal is to improve and alleviate the security and privacy concerns of those most vulnerable.
Kristen Vaccaro  
Assistant Professor  
Computer Science and Engineering

Research Interests:

- How to design machine learning systems to give users a sense of agency and control.

- Vaccaro found that some existing ways of providing control for social media can function as placebos, increasing user satisfaction even when they do not work.
Rose Yu
Assistant Professor
Computer Science and Engineering

Research Interests:

- To advance machine learning and enable interpretable, efficient, and robust large-scale spatiotemporal reasoning.

- Yu’s work has been successfully applied to solve challenging domain problems in sustainability, health, and physical sciences.
Nick Antipa  
Assistant Professor  
Electrical and Computer Engineering

Research Interests:

● Developing design frameworks that merge optical models with algorithms, allowing optimization of both components and enabling the development of cutting-edge imaging and display systems.

● By considering both the hardware and digital domains, new computational optical systems emerge that extend capability beyond what is available.
Mingu Kang
Assistant Professor
Electrical and Computer Engineering

Research Interests:

● Vertically-integrated VLSI information processing for machine learning and signal processing algorithms.

● Kang’s research focuses on energy- and latency-efficient integrated circuits, architectures, and systems by leveraging novel computing paradigms including in-memory, in-sensor, and neuromorphic computing with both CMOS and emerging devices.
Florian Meyer
Assistant Professor
Electrical and Computer Engineering

Research Interests:

- Statistical signal processing for navigation, mapping, and multi-object tracking in applications including maritime situational awareness, autonomous driving, and indoor localization.

- Meyer investigates efficient and scalable high-dimensional nonlinear estimation using graphical models where the number of states to be estimated may also be unknown.
Karcher Morris
Assistant Teaching Professor
Electrical and Computer Engineering

Research Interests:

● Embedding project-based learning throughout the undergraduate electrical and computer engineering curriculum, complementing theoretical foundations.

● By connecting students with application-oriented coursework and industry-relevant challenges, Morris promotes an early engagement between students and their research/industry goals.
Yuanyuan Shi
Assistant Professor
Electrical and Computer Engineering

Research Interests:

- Energy systems and cyber-physical systems, spanning from machine learning, to optimization and control.

- Shi works on data-driven control for complex networked systems and market mechanism design under multi-agent learning dynamics.
Yatish Turakhia
Assistant Professor
Electrical and Computer Engineering

Research Interests:

● Developing algorithms and hardware accelerators to enable faster and cheaper progress in biology and medicine.

● Turakhia also develops computational methods that enable biological discoveries, such as new genotype-phenotype relationships.
Yang Zheng
Assistant Professor
Electrical and Computer Engineering

Research Interests:
● Developing methods and frameworks for the optimization and control of network systems and their applications to cyber-physical systems, especially autonomous vehicles and traffic systems.

● Zheng’s goal is to develop computationally efficient and distributed solutions for large-scale network systems by exploring and exploiting real-world system structures.
Mechanical & Aerospace Engineering
Sylvia Herbert
Assistant Professor
Mechanical and Aerospace Engineering

Research Interests:

- Developing new techniques for safety and efficiency in autonomous systems.

- Herbert has developed methods for scalable safety and real-time decision making that draw from control theory, cognitive science, and reinforcement learning, and which are backed by both rigorous theory and physical testing on robotic platforms.
Patricia Hidalgo-Gonzalez
Assistant Professor
Mechanical and Aerospace Engineering

Research Interests:

● High penetration of renewable energy using optimization, control theory and ML. She is interested in power dynamics, energy policy, electricity market redesign, and learning for dynamical systems with safety guarantees.

● Hidalgo-Gonzalez co-developed a power system expansion model for Western North America’s grid under climate change uncertainty.
Stephanie Lindsey
Assistant Professor
Mechanical and Aerospace Engineering

Research Interests:

- Lindsey’s work lies at the interface of fluid mechanics, numerical analysis and cardiovascular developmental biology.

- She seeks to determine causal-effect relationships for the creation of cardiac malformations and address important challenges in clinical treatment of congenital heart defects through a combined computational-experimental approach.
Marko Lubarda
Assistant Teaching Professor
Mechanical and Aerospace Engineering

Research Interests:

- Lubarda is dedicated to engineering pedagogy and enriching students' learning experiences through curriculum design, teaching innovations, and support of undergraduate student research.

- He works in the areas of computational analysis, engineering mathematics, materials science, solid mechanics, device physics, and magnetic nanotechnologies.
Lonnie Petersen
Assistant Professor
Mechanical and Aerospace Engineering

Research Interests:

- Dr. Petersen is a physician scientist specializing in space and aviation physiology and development of countermeasure devices for use in space.

- During the COVID-19 pandemic, she co-lead a team that developed a low-cost, easy to use ventilator and other ways to support critically ill COVID-19 patients and mitigate the spread of disease.
Lisa Poulakakos  
Assistant Professor  
Mechanical and Aerospace Engineering

Research Interests:

- Poulakakos harnesses nanophotonics, the study and manipulation of light on the nanoscale, to bridge engineering and biomedicine.

- The resulting in-vivo and ex-vivo nanophotonic probes aim to elucidate the origin and propagation of a range of diseases, leading to low-cost medical diagnostics; rapid, on-chip biochemical drug testing; or in-situ biomedical imaging.
Aaron Rosengren
Assistant Professor
Mechanical and Aerospace Engineering

Research Interests:

● Fundamental and applied research in astrodynamics, space situational awareness, and space traffic management to define perennial, ad-hoc practices and policies to make space a sustainable resource.

● Celestial mechanics and nonlinear dynamics, with a strong focus on space debris and small Solar System bodies.
Jon Wade  
Professor of Practice  
Mechanical and Aerospace Engineering

Research Interests:

- Ensure that the research conducted and the curriculum developed in systems engineering has the greatest impact on addressing the critical challenges that face our global society and nation.

- Wade leads research in the area of complex, evolving systems engineering methods, processes, tools, and education.
NanoEngineering
Zeinab Jahed
Assistant Professor
NanoEngineering

Research Interests:

● Jahed designs electronics that integrate intelligently with biological systems at the nanoscale.

● She designs non-invasive and high-throughput bio-electronic tools to record and manipulate biological activities, and uses AI and ML techniques to interpret the large data sets from these nano-bio-electronic tools to answer important biological questions.
Structural Engineering
Georgios Tsampras
Assistant Professor
Structural Engineering

Research Interests:

- Improving the seismic response and simplifying the life management of structures and civil infrastructures.

- Tsampras conducts integrated experimental and analytical research on components, connections, and systems that enhance the safety and reliability of structures and civil infrastructures against earthquakes.
Anthropology, Performance, and Technology Program
Hortense Gerardo  
Director  
Anthropology, Performance, and Technology (APT) Program

Research Interests:

- The APT program at the Jacobs School of Engineering aims to empower a new generation of socially-engaged, culturally relevant, and artistically as well as scientifically and technically creative engineers.

- The program is directed by Gerardo, a playwright with a PhD in anthropology and performance studies.