

**26** PROFESSORS JOIN THE  
JACOBS SCHOOL OF ENGINEERING  
**IN 2017**

**The Jacobs School of Engineering is the largest engineering school in California.**

**In the last four years alone, we've hired 75+ new professors to meet intense educational, research and technical workforce demands.**

The Jacobs School is growing with a purpose: we are reinventing undergraduate education, expanding our graduate programs, and doubling down on our work to build the Digital Future in San Diego.

The Digital Future is an optimistic future. It's a future in which we finally empower both humans and intelligent machines to seamlessly and securely leverage real-time analysis of data streams from all domains.

The Digital Future is about making the best decisions, and taking the smartest actions – across all sectors of society.

### **The Jacobs School is Building the Digital Future**

To create the Digital Future, and to accommodate our growth in faculty and students, we are building a new research and teaching facility at the Jacobs School.

The facility is being designed to support and facilitate the unprecedented academic-industry collaborations that are necessary for solving engineering grand challenges for the global good.



## LUDMIL ALEXANDROV

Assistant Professor  
Ph.D. University of Cambridge

Alexandrov aims to leverage the information hidden in large-scale omics data to better understand the mutations causing human cancer; to identify potential strategies to prevent cancer; and to develop innovative approaches for targeted cancer treatment.

[l2alexandrov@ucsd.edu](mailto:l2alexandrov@ucsd.edu)

Bio-engineering

Previously: Postdoctoral Fellow, Los Alamos National Laboratory



## ALEXEY AREFIEV

Assistant Professor  
Ph.D. University of Texas at Austin

Arefiev uses supercomputer simulations to study how light of extreme intensities, such as laser light, interacts with matter. His goal is to develop new sources of high-energy particles and photons for applications such as material testing, ultra-fast imaging, element detection, cancer treatment and energy production.

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Mechanical & Aerospace Engineering

Previously: Research Scientist, University of Texas at Austin



## SAHARNAZ BAGHDADCHI

Assistant Teaching Professor  
Ph.D. UC San Diego

Baghdadchi develops discovery-based curricula with active learning strategies for electrical engineering lecture and lab courses. She also develops hands-on educational programs for middle school and high school students to enhance their education in science and engineering. Her research focuses on designing new optical systems for tissue imaging.

[sabaghda@ucsd.edu](mailto:sabaghda@ucsd.edu)

Electrical & Computer Engineering

Previously: Lecturer and Ph.D. Candidate, UC San Diego



## JANET BECKER

Teaching Professor  
Ph.D. UC San Diego

Becker teaches courses in applied mathematics and mechanics as well as probability and statistics to help introduce students to the university's new initiative on data science. She is also taking a leadership role in the new Oceanic and Atmospheric Sciences undergraduate major at UC San Diego.

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Mechanical & Aerospace Engineering

Previously: Professor, University of Hawaii



## DINESH BHARADIA

Assistant Professor  
Ph.D. Stanford University

Bharadia innovates and translates fundamental ideas in communication theory to build communication systems that solve practical problems. His research develops systems for low power Internet of Things communication, high-throughput wireless communication, full duplex wireless networks, wireless imaging and wireless sensing systems.

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Electrical & Computer Engineering

Previously: Postdoctoral Associate, Massachusetts Institute of Technology



## NICHOLAS BOECHLER

Assistant Professor  
Ph.D. California Institute of Technology

Boechler uses fundamental principles to design materials with new mechanical properties. His work involves designing microstructures and nonlinear systems to create adaptive, resilient materials for applications including impact protection, signal processing, national defense, and civil infrastructure.

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Mechanical & Aerospace Engineering

Previously: Assistant Professor, University of Washington



## FRANCISCO CONTIJOCH

Assistant Professor  
Ph.D. University of Pennsylvania

Contijoch develops innovative imaging approaches for diagnostic and research evaluation of cardiovascular disease. Current projects seek to utilize advanced magnetic resonance imaging and computed tomography to assess the material properties and function of the right ventricle and pulmonary vasculature.

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Bio-engineering

Previously: Postdoctoral Fellow, UC San Diego School of Medicine



## HADI ESMAEILZADEH

Associate Professor  
Ph.D. University of Washington

Esmaeilzadeh is a computer architecture expert whose work focuses on designing next-generation systems to accelerate emerging applications. He aims to make immersive machine intelligence a reality by bridging the gap between algorithms and innovative hardware technologies through full-stack solutions. He is the founding director of the Alternative Computing Technologies Lab.

[hadi@ucsd.edu](mailto:hadi@ucsd.edu)

Computer Science & Engineering

Previously: Assistant Professor, Georgia Institute of Technology



## MICHAEL FRAZIER

Assistant Professor  
Ph.D. University of Colorado Boulder

Frazier combines structural engineering and materials science to create new materials for applications such as long-distance signal transmission and enhanced vibration suppression. By employing theoretical approaches and experimental collaborations, he designs small-scale features of materials in order to control their responses at larger scales.

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Mechanical & Aerospace Engineering

Previously: Postdoctoral Scholar, California Institute of Technology



## SICUN GAO

Assistant Professor  
Ph.D. Carnegie Mellon University

Gao develops design automation techniques for cyber-physical systems, such as autonomous cars and cardiac pacemakers. He leads the development of dReal, an automated reasoning tool capable of verifying and synthesizing complex cyber-physical system designs. The tool has been used by many groups, including the Toyota Research Institute, NASA, and the Royal Victoria Infirmary in the UK.

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Computer Science & Engineering

Previously: Postdoctoral Researcher  
Massachusetts Institute of Technology

*"We are building an ever more diverse faculty at the Jacobs School. One third of the 75+ faculty we have hired in the last four years are women and men who are traditionally underrepresented in engineering."*

Albert P. Pisano  
Dean, Jacobs School of Engineering



## KEVIN KING

Assistant Professor  
Ph.D. MIT/M.D. Harvard Medical School

The King Lab studies diseases in which the immune system becomes activated even though there is no infection, such as heart attacks, metabolic disease, autoimmunity, or cancer. He combines conventional biological methods with novel bioengineering techniques to develop therapies that limit organ dysfunction and promote healing, repair and regeneration.

[krking@ucsd.edu](mailto:krking@ucsd.edu)

Bio-engineering

Previously: Cardiology Fellow, Brigham and Women's Hospital



## ESTER KWON

Assistant Professor  
Ph.D. University of Washington

Kwon engineers nanoscale materials that interact with biological systems. Inspired by nature and guided by engineering principles, she is interested in using the unique properties that occur at nanometer length scales to build new tools to study, diagnose, and treat diseases of the central nervous system, particularly traumatic brain injury.

[ejkwon@ucsd.edu](mailto:ejkwon@ucsd.edu)

Bio-engineering

Previously: Postdoctoral Fellow  
Massachusetts Institute of Technology



## ANDREW (DREW) LUCAS

Assistant Professor  
Ph.D. UC San Diego

Lucas is a technologist and sea-going oceanographer who develops marine measurement systems. He uses these cutting-edge observations to study atmosphere-ocean interaction, ocean ecosystem structure and function, and environmental fluid mechanics. His research establishes a framework to assess the impact of projected changes in the ocean on its small-scale dynamics.

[ajlucas@ucsd.edu](mailto:ajlucas@ucsd.edu)

Mechanical & Aerospace Engineering

Previously: Assistant Research Oceanographer, Scripps Institution of Oceanography, UC San Diego



## SANDRINE MILLER MONTGOMERY

Professor of Practice  
Pharm.D., Ph.D. Bordeaux University, France

Miller-Montgomery is executive director of the UC San Diego Center for Microbiome Innovation. She leads a team focused on expanding industry and academic collaborations in microbiome research. She has worked in large biotech and multinational companies as well as start-ups. Most recently, she led a biotech focused on nucleic acid purification.

[sandrinemiller@ucsd.edu](mailto:sandrinemiller@ucsd.edu)

Bio-engineering

Previously: CEO, MO BIO Laboratories



## TOD A. PASCAL

Assistant Professor  
Ph.D. California Institute of Technology

Pascal develops and employs first principles electronic structure calculations and simulations to study the chemical physics of energy-related systems at the nanoscale. He is particularly interested in the molecular structure and dynamics of batteries, fuel cells and capacitors, disorder in condensed phase systems, and spectroscopy at interfaces.

[tpascal@ucsd.edu](mailto:tpascal@ucsd.edu)

Nano-Engineering

Previously: Project Scientist, Lawrence Berkeley National Laboratory



## NADIA POLIKARPOVA

Assistant Professor  
Ph.D. ETH Zurich

Polikarpova's goal is to build practical tools and techniques that make it easier for programmers to construct secure and reliable software. Her research focuses on software security, automatic debugging, and automatically generating programs that meet high-level specifications.

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Computer Science & Engineering

Previously: Postdoctoral Researcher  
Massachusetts Institute of Technology



## CURT SCHURGERS

Teaching Professor  
Ph.D. UCLA

Schurgers' research and teaching expertise is in embedded systems. He develops undergraduate courses focused on active learning and hands-on project classes for undergraduate as well as high school students. He also co-directs Engineers for Exploration, a program in which undergraduates work with other scientists to create real-world technologies.

[cschurgers@ucsd.edu](mailto:cschurgers@ucsd.edu)

Electrical & Computer Engineering

Previously: Course Instructor, UC San Diego



## NAMBI SESHADRI

Professor of Practice  
Ph.D. Rensselaer Polytechnic Institute

Seshadri's interests are in wireless communication systems, health and wellness technologies and massive online education. He worked at AT&T first as a member of the technical staff and then later as head of communications research. Later, he joined Broadcom to develop the company's wireless strategy and served as Mobile and Wireless CTO until 2016.

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Electrical & Computer Engineering

Previously: Senior Vice President and CTO, Broadcom Corporation



## NISARG SHAH

Assistant Professor  
Ph.D. Massachusetts Institute of Technology

Shah develops polymeric biomaterials that can regulate molecular interactions at the nanoscale. His research focuses on understanding how these interactions can be used to guide the behavior of blood and immune cells in the body, with the aim of developing new therapeutic approaches for tissue repair, cancer and autoimmune diseases.

[nshah@ucsd.edu](mailto:nshah@ucsd.edu)

Nano-Engineering

Previously: Postdoctoral Fellow, Harvard University



## HAO SU

Assistant Professor  
Ph.D. Stanford University

Su is interested in artificial intelligence disciplines, including machine learning, computer vision, computer graphics, robotics and smart manufacturing. He focuses on deep learning for 3D data understanding and interconnecting 3D data with images, texts, etc. Applications include robotics, autonomous driving, virtual/augmented reality, smart manufacturing and more.

[has168@ucsd.edu](mailto:has168@ucsd.edu)

Computer Science & Engineering

Previously: Ph.D. Candidate, Stanford University



## INGRID TOMAC

Assistant Professor  
Ph.D. Colorado School of Mines

Tomac's research focuses on exploring and building the civil engineering infrastructure to support renewable and sustainable energy resources. Her research interests revolve around soil and rock mechanics, hydraulic fracturing, geo-reservoirs and carbon dioxide sequestration. She is actively involved in geotechnical engineering practices in Europe and the United States.

[itomac@ucsd.edu](mailto:itomac@ucsd.edu)

Structural Engineering

Previously: Assistant Research Scientist, UC San Diego



## BEHROUZ TOURI

Assistant Professor  
Ph.D. University of Illinois at Urbana-Champaign

Touri's research focuses on the theoretical aspects of computation, optimization, and control over networks. His work can be used to analyze opinion formation in social networks; to study the formation of networks in robotic systems; and to design mechanisms for efficient power grids.

[btouri@ucsd.edu](mailto:btouri@ucsd.edu)

Electrical & Computer Engineering

Previously: Assistant Professor, University of Colorado Boulder



## DANIELA VALDEZ-JASSO

Assistant Professor  
Ph.D. North Carolina State University

Valdez-Jasso studies the biomechanics of soft tissues and constructs multi-scale mathematical models of organ and tissue function. Her research particularly focuses on modeling the heart and pulmonary arteries to better understand the changes during pulmonary arterial hypertension.

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Bio-  
engineering

Previously: Assistant Professor, University of Illinois at Chicago



## DAVID WHELAN

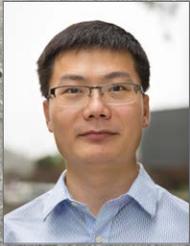
Professor of Practice  
Ph.D. UCLA

Whelan designs and engineers aircraft, RADAR systems, space-based communications and navigation systems, and diagnostic sensors for high energy density physics experiments. He holds more than 50 patents and is a member of the National Academy of Engineering. His work has been used in space mission systems, airborne navigation and surveillance systems.

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Electrical &  
Computer  
Engineering

Previously: Vice President CTO, Boeing Defense Space & Security



## XINYU ZHANG

Associate Professor  
Ph.D. University of Michigan

Zhang focuses on wireless systems and ubiquitous computing, which have applications for the Internet of Things. He designs wireless network protocols that can achieve wire-speed connectivity anytime, anywhere. He also develops systems that repurpose commodity wireless devices to sense human activity and location with near-vision precision.

[xyzhang@ucsd.edu](mailto:xyzhang@ucsd.edu)

Electrical &  
Computer  
Engineering

Previously: Assistant Professor, University of Wisconsin-Madison



## JISHEN ZHAO

Assistant Professor  
Ph.D. Penn State

Zhao's research connects computer architecture and system software, with an emphasis on memory and storage systems, acceleration mechanisms, and high-performance computing. Her research is driven by emerging technologies such as 3D integration and nonvolatile memories, and modern applications like big-data analytics, machine learning and scientific computing.

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Computer  
Science &  
Engineering

Previously: Assistant Professor, UC Santa Cruz

# IMPACT

The Jacobs School of Engineering works closely with UC San Diego's world-renowned Rady School of Management to prepare engineers – and their innovations – for success in the marketplace.

Institute for the Global Entrepreneur: where engineering meets business

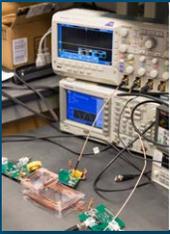
- MBA and engineering graduate students collaborate in project-based courses
- Entrepreneurship mentoring
- Business accelerators
- Technology accelerators
- Access to capital

[IGE.ucsd.edu](http://IGE.ucsd.edu)



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Through membership-driven research centers, our faculty and graduate students collaborate with industry partners.



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## CONTEXTUAL ROBOTICS INSTITUTE

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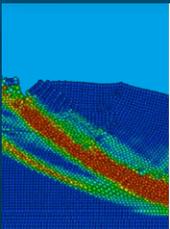
## CENTER FOR NETWORKED SYSTEMS

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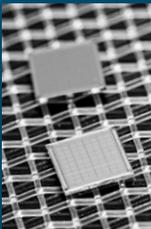
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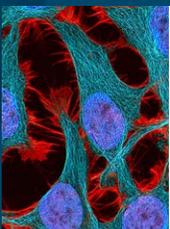
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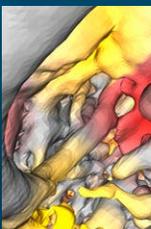
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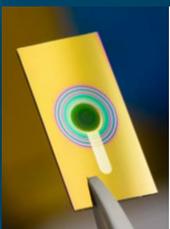
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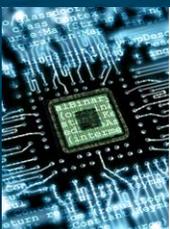
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## CALIBAJA CENTER FOR RESILIENT MATERIALS & SYSTEMS

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## CENTER FOR MACHINE-INTEGRATED COMPUTING AND SECURITY

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## CENTER FOR VISUAL COMPUTING

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## CENTER FOR WEARABLE SENSORS

[cws.ucsd.edu](http://cws.ucsd.edu)



## DEEP DECARBONIZATION INITIATIVE

[DeepDecarbon.ucsd.edu](http://DeepDecarbon.ucsd.edu)

UC San Diego

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