

FACULTY AWARDS AND RECOGNITIONS

(June 2022 – May 2023)

Every year, UC Santa Barbara College of Engineering junior, mid-career, and senior faculty receive many of the most prestigious honors awarded by academic and professional societies in recognition of their leading-edge research and contributions to discovering new scientific knowledge. Here are snapshots of the faculty who have been commended by their peers within the past year, including those who were elected to the National Academy of Engineering or received Early CAREER awards from the National Science Foundation (NSF).



Jonathan Balkind

Assistant Professor, Computer Science

Early CAREER Award, (NSF); Trailblazer Fellowship, Open Source Hardware Association (OSHW)

Jonathan Balkind's five-year, \$630,000 Early CAREER award will allow him to develop a new application for cloud computing. He will use a technique called *microarchitectural checkpointing* to redesign computer processors for cloud-based serverless computing. Balkind also received a one-year fellowship from OSHWA to document his experience of making open-source hardware in academia to create a library of resources for others to follow.



Irene Beyerlein

Mehrabian Interdisciplinary Professor, Mechanical Engineering and Materials

Elected Fellow, The Minerals, Metals, and Materials Society (TMS)

Peers honored Irene Beyerlein for her outstanding contributions to the practice of metallurgy, materials science, and technology. The Mehrabian Interdisciplinary Professor was cited for "seminal contributions to multi-scale modeling of deformation of polycrystalline metals, severe plastic deformation, and interface-driven plasticity."



Elizabeth Belding

Professor, Computer Science

Best (Long) Paper Award, Association of Computing Machinery's Internet Measurement Conference

Elizabeth Belding, an associate dean and faculty equity advisor for the college, and her co-authors were honored for their paper, which established that using crowdsourced speed-test measurements was problematic and led to misleading conclusions about service provided. The paper included recommendations for speed-test vendors and the FCC to contextualize speed-test data and correctly interpret measured performance. (Read more on page 28.)



Kerem Çamsari

Assistant Professor, Electrical and Computer Engineering

Early CAREER Award, National Science Foundation (NSF)

Kerem Çamsari received a five-year, \$546,000 NSF Early CAREER Award to pursue pioneering research in probabilistic computing. The work, which could provide an important step toward quantum computing, requires reimagining computers to use normally unwanted environmental "noise" to substantially improve the energy efficiency of machine-learning and artificial-intelligence algorithms.



Michael Beyeler

Assistant Professor, Computer Science

Director's New Innovator Award, National Institutes of Health (NIH)

Michael Beyeler received a five-year, \$1.5 million NIH grant to push the boundaries of biomedical science and pursue high-impact research. He aims to bring to the mainstream an AI-powered bionic eye in an effort to increase the quality of life for patients who are blind or visually impaired.



Steven DenBaars

Mitsubishi Distinguished Professor, Electrical and Computer Engineering, Materials

Elected Fellow, Optica

A member of the National Academy of Engineering and co-director of the UCSB Solid State Lighting and Energy Electronics Center, Steven DenBaars was honored by Optica for his "leadership and pioneering contributions to gallium nitride-based materials and devices for solid-state lighting and displays."



Arpit Gupta

Assistant Professor, Computer Science

Best (Long) Paper Award, Association of Computing Machinery's Internet Measurement Conference

In their paper, Arpit Gupta and his co-authors established that using crowdsourced speed-test measurements was problematic and led to misleading conclusions in terms of service provided. They included a set of recommendations that speed-test vendors and the FCC could use to contextualize speed-test data and correctly interpret measured performance. (Read more on page 28.)



Upanmanyu Madhow

Professor, Electrical and Computer Engineering

Elected Fellow, National Academy of Inventors (NAI)

Upanmanyu Madhow, who holds more than thirty patents, was elected an NAI Fellow as a result of his innovative contributions to wireless communication and sensing, reliable data transport, wireless networking, and localization. Among the most widely used of his inventions are those related to novel software-only methods for improving GPS accuracy in urban settings. His technology has been deployed by Uber, T-Mobile, Sprint, and more than 120 wireless carriers in sixty countries.



Jonathan Klamkin

Professor, Electrical and Computer Engineering

Elected Fellow, Optica

Jonathan Klamkin, who is director of UCSB's Nanofabrication Facility (see page 30), was elected an Optica Fellow for his "major contributions to integrated microwave photonics and photonics integrated circuits, particularly integrated optical-beam-forming networks."



B. S. Manjunath

Distinguished Professor and Chair, Electrical and Computer Engineering

Elected Fellow, National Academy of Inventors (NAI) and the American Institute for Medical and Biological Engineers (AIMBE)

B. S. Manjunath was named an NAI Fellow, considered the highest professional distinction awarded to academic inventors. A pioneer in the field of big-image data management, Manjunath holds 26 patents related to image-content representation, software licensing to commercial products, and integration of cybersecurity/forensics tools within government labs. AIMBE also named him a fellow "for outstanding contributions to the design, development, and deployment of a producible scientific-image analytics platform."



Carlos Levi

Mehrabian Distinguished Professor, Materials and Mechanical Engineering

Elected Member, National Academy of Engineering (NAE)

Carlos Levi was cited by NAE for "contributions to the understanding and development of high-temperature engineered surfaces and multilayers used in advanced gas turbine engines." His research interests include high-temperature engineered coatings and composites that improve fuel efficiency and reduce emissions in energy and transportation systems. Recently, Levi has helped guide the development of thermal and environmental-barrier coatings that are able to resist failures induced by deposits of molten silicates (CMAS) from volcanic ash, as well as from sandy and dusty environments. Such particles can accelerate degradation of aircraft-engine components.



Umesh Mishra

Donald W. Whittier Distinguished Professor, Electrical and Computer Engineering

Elected Foreign Fellow, Indian National Academy of Engineering

Umesh Mishra, who will become the eighth dean in the history of UCSB's College of Engineering on July 1, 2023, was elected as a Foreign Fellow to the Indian National Academy of Engineering, an honor bestowed on foreign nationals who have made outstanding contributions in engineering and technology and emerged as global leaders. An elected member of the U.S. National Academy of Engineering, Mishra previously received the Jun-ichi Nishizawa Medal, one of IEEE's most prestigious honors, in recognition of his contributions to the development of gallium-nitride-based electronics.



Chris Palmstrøm

Distinguished Professor, Materials and Electrical and Computer Engineering

Elected Fellow, American Association for the Advancement of Science (AAAS)

Chris Palmstrøm's peers named him an AAAS Fellow, which recognizes distinguished efforts to advance science or its applications. Researches in his lab use molecular beam epitaxy to "grow" novel materials atom by atom for making next-generation devices.



Tresa Pollock

Alcoa Distinguished Professor of Materials, Interim Dean of College of Engineering

2023 Acta Materialia Gold Medal, Acta Materialia, Inc.

Tresa Pollock received the 2023 Acta Materialia Gold Medal, a prestigious annual award given to just one person worldwide in recognition of outstanding leadership in the field. Pollock is the first woman to receive the medal in the fifty-year history of the award, which is considered the most highly regarded international accolade given to metallurgists.



Beth Pruitt

Professor and Chair, Biological Engineering

BRITE Fellow, National Science Foundation (NSF)

Beth Pruitt received one of five prestigious NSF Boosting Research Ideas for Transformative and Equitable Advances in Engineering (BRITE) Fellow awards in 2023. Pruitt plans to use the award to advance the understanding of the different ways that male and female heart-muscle cells handle stress. She hopes her work will reveal the extent to which observed differences, such as in disease progression and stress responses in the heart, are intrinsic to the cell.



Mark Rodwell

Distinguished Professor, Electrical and Computer Engineering

University Research Award, Semiconductor Industry Association (SIA)

Mark Rodwell, the Doluca Family Endowed Chair, was honored for "excellence in semiconductor technology research." His research group works to extend the operation of electronics to the highest feasible frequencies, focusing on semiconductor devices, semiconductor fabrication processes, integrated circuit (IC) design with very large-scale integration (VLSI), and interconnects.



Rachel Segalman

Professor and Chair, Chemical Engineering

Ernest Orlando Lawrence Award, Department of Energy (DOE); Andreas Acrivos Award for Professional Progress in Chemical Engineering, American Institute of Chemical Engineers (AIChE); Elected Fellow, AIChE and the Royal Society of Chemistry

Rachel Segalman received the Ernest Orlando Lawrence Award, the U.S. Department of Energy's highest scientific honor. Segalman was cited for "significant fundamental materials science and engineering contributions to self-assembly and structure-property relationships in functional polymer systems, with special applications to photovoltaic, thermoelectric, and membrane technologies." The second was the American Institute of Chemical Engineers' Andreas Acrivos Award for Professional Progress in Chemical Engineering. She was commended for "pioneering studies of functional soft materials, including semiconducting block polymers, polymeric ionic liquids, and hybrid thermoelectric materials." Segalman was also elected a fellow of the AIChE and the Royal Society of Chemistry, the latter being the oldest chemical society in the world.



Tim Sherwood

Professor, Computer Science

Elected Fellow, Association of Computing Machinery (ACM)

Tim Sherwood, who is currently serving as interim dean in the College of Creative Studies, was named an ACM Fellow for his "contributions to computer-system security and performance analysis." The prestigious honor is given to only the top one percent of ACM members.



Misha Sra

John and Eileen Gerngross Assistant Professor, Computer Science

Early CAREER Award, National Science Foundation (NSF)

Misha Sra's five-year, \$606,290 NSF Early CAREER award will allow her to design an artificial intelligence (AI) and extended reality (XR) system for motor-skill learning and rehabilitation. (See page 21.) The project will advance a new human-AI interface paradigm in which the AI is represented as a 3D-humanoid agent in XR that can mimic the real-time verbal and non-verbal behaviors of a human trainer.



Sho Takatori

Assistant Professor, Chemical Engineering

Packard Fellowship, David and Lucile Packard Foundation

Sho Takatori was awarded a prestigious \$875,000 Packard Fellowship for Science and Engineering to develop novel multifunctional surfaces through a deeper understanding of active matter, which is matter that converts chemical energy into mechanical work to drive emergent properties.



Mary Tripsas

Professor, Technology Management

Distinguished Scholar Award, Academy of Management (AOM)

Mary Tripsas was honored by the Academy of Management's Division of Technology and Innovation Management in recognition of her research on the transformation of industries by new technology. AOM said that her work illustrates "how the interplay of organizational capabilities, organizational identity, and managerial mental models shape strategic responses to technological shifts."



Chris Van de Walle

Professor, Materials

Vannevar Bush Faculty Fellowship, Department of Defense; Highly Cited Researcher, Clarivate Analytics

Chris Van de Walle received the five-year Vannevar Bush Fellowship, which is worth more than \$2.5 million in research funding and considered the Department of Defense's most prestigious single-investigator award. The fellowship supports his work to develop new computational approaches to improve the efficiency of electronic and optoelectronic devices based on wide-bandgap semiconductors. Van de Walle was also recognized among the top one percent of his field by citations, landing on Clarivate Analytics' Highly Cited Researchers List for the sixth straight year.



William Wang

Associate Professor, Computer Science

Undergraduate Research Faculty Mentoring Award, Computing Research Association (CRA); Karen Spärck Jones Award, British Computer Society

William Wang, the Duncan and Suzanne Mellichamp Chair in Artificial Intelligence Design, received the prestigious Karen Spärck Jones Award, named after the pioneer of information retrieval, who was also an outspoken advocate for women in computing. Wang also received the CRA's Undergraduate Research Mentoring Award for his dedication to exceptional mentorship, guidance on applying to graduate school, and matriculation of students to research-focused graduate programs in computing. During his time at UCSB, three of Wang's students have won Chancellor's Awards (CRAs) for Excellence in Undergraduate Research, and seven have received CRA Outstanding Undergraduate Researcher Awards.



Enoch Yeung

Assistant Professor, Mechanical Engineering

Enoch Yeung received a five-year, \$644,000 NSF Early CAREER Award to develop new biotechnology to reveal how the dynamics of persistent twisting in DNA alters cellular activity and cell fate. The overarching goal is to understand the functional relationship between different spatial arrangements of genetic programs and the fluid landscape of DNA twisting.



Yangying Zhu

Assistant Professor, Mechanical Engineering

Early Career Faculty Award, National Aeronautics and Space Administration (NASA); Faculty Fellowship, Hellman Family Foundation

Yangying Zhu will receive up to \$600,000 over three years to develop innovative technology to support exploration in the extreme conditions of space. (See page 26.) Zhu will examine the microscopic processes that occur within a lithium-ion battery during extreme temperature transitions, with timescales relevant to the lunar environment. Zhu received a Hellman Family Foundation Fellowship for a project titled "Blood-vessel-inspired cooling of batteries using internal convective flow."