2012 Snapshot

Academic Departments

BIOENGINEERING
22 Faculty • 675 Undergraduate Students • 238 Graduate Students
A world leader, focused on understanding, diagnosis and treatment of human disease through:
• systems biology • regenerative medicine • multi-scale bioengineering

COMPUTER SCIENCE & ENGINEERING
50 Faculty • 1,656 Undergraduate Students • 332 Graduate Students
Strengths include:
• machine learning • databases • graphics and vision • systems and networking • security and cryptography
• software engineering • bioinformatics • computer architecture • embedded systems • theoretical computer science

ELECTRICAL & COMPUTER ENGINEERING
47 Faculty • 809 Undergraduate Students • 436 Graduate Students
A leader in:
• network infrastructure • embedded systems • electromagnetics • electronic circuits and systems • bionanotechnology
• magnetic and optical storage • medical devices • systems energy engineering • information technology and communications • photonic devices and nano-photronics • signal processing and intelligent systems

MECHANICAL & AEROSPACE ENGINEERING
41 Faculty • 1,072 Undergraduate Students • 336 Graduate Students
Faculty are leaders in:
• fluid mechanics • solid mechanics and materials • systems and controls • environmental engineering

NANOENGINEERING
14 Faculty • 783 Undergraduate Students • 59 Graduate Students
Materials science for the 21st century, with particular focus on:
• biomedical nanotechnology • nanotechnologies for energy storage and conversion • molecular and nanomaterials synthesis • computational materials science and nanotechnology • chemical engineering • materials engineering

STRUCTURAL ENGINEERING
23 Faculty • 643 Undergraduate Students • 147 Graduate Students
A leader in large-scale testing research. Programs cover:
• multi-hazard mitigation including earthquakes and blast • earthquake engineering and infrastructural renewal • structural health monitoring • risk engineering • composite and nano-materials and lightweight structural systems
New Faculty

CHIARA BISAGNI
Professor, Structural Engineering
Aerospace composite structures, in particular buckling and post-buckling, crashworthiness, fatigue, damage propagation, optimization.
Ph.D. 1997 Politecnico di Milano

JIAN LUO
Professor, NanoEngineering
Utilizing nanoscale interfacial phenomena to design and tailor materials for energy-related applications, including lithium-ion battery materials, high-temperature materials, ionic conductors, photocatalyst and photovoltaic materials, and materials for applications in nuclear power generation systems and clean coal technologies.
Ph.D. 2001 Massachusetts Institute of Technology

SHENGQIANG CAI
Assistant Professor, Mechanical and Aerospace Engineering
Mechanics of soft materials; energy harvesting and storage; micro/nano-fabrication techniques of polymeric structures and soft/stiff hybrid structures; and deformable acoustics and optical metamaterials.
Ph.D. 2011 Harvard University

JASON MARS
Assistant Professor, Computer Science and Engineering
Online adaptive systems in both software and hardware, datacenter and warehouse-scale computer architecture, and software / hardware co-design.
Ph.D. 2012 University of Virginia

SHADI DAYEH
Assistant Professor, Electrical and Computer Engineering
Ph.D. 2008 UC San Diego

PATRICK MERCIER
Assistant Professor, Electrical and Computer Engineering
Energy-efficient circuit and system design, with emphasis on miniaturized devices for biomedical electronics that employ novel RF, analog, digital, power management, and energy harvesting architectures.
Ph.D. 2012 Massachusetts Institute of Technology

OLIVIA A. GRAEVE
Associate Professor, Mechanical and Aerospace Engineering
Solution-based processing of nanopowders; spark plasma sintering of materials; powder particle size distribution control and characterization; behavior of colloidal systems; morphological control of non-oxide ceramic powders; composite manufacturing; special emphasis on electromagnetic materials for sensors and energy applications.
Ph.D. 2008 UC Davis

MARK MERCOLA
Professor, Bioengineering
Developing novel pharmacological therapies for heart regeneration, protection and maintenance of function after injury. Approaches include high throughput screening, animal and human stem cell models of disease, and systems biology.
Ph.D. 1985 University of California, Los Angeles

DREW HALL
Assistant Professor, Electrical and Computer Engineering
Analog and mixed-signal CMOS integrated circuits to address applications in bioelectronics, biosensors, lab-on-a-chip devices, point-of-care (POC) testing, and other biomedical devices and systems.
Ph.D. 2012 Stanford University

JUSTIN OPATKIEWICZ
Lecturer, NanoEngineering
Opatkiewicz joined the NanoEngineering Department to teach a variety of the core courses in the Chemical Engineering curriculum. He created and taught courses related to mathematical techniques for chemical engineers while a student at UC Berkeley and Stanford University.
Ph.D. 2012 Stanford University

PRADEEP K. KHOSLA
UC San Diego Chancellor
Internet-enabled collaborative design, collaborating autonomous systems, agent-based architectures for distributed design and embedded control, software composition and reconfigurable software for real-time embedded systems, reconfigurable and distributed robotic systems, integrated design-assembly planning systems and distributed information systems.
Ph.D. 1986 Carnegie Mellon University

PETER YINGXIAO WANG
Associate Professor, Bioengineering
Interdisciplinary approaches involving molecular engineering, fluorescence resonance energy transfer (FRET), live cell imaging, and bio-nanotechnology to visualize and elucidate the molecular mechanisms by which live cells perceive the environment and to engineer machinery molecules for the reprogramming of cellular functions.
Ph.D. 2002 UC San Diego

SHING HONG
Assistant Professor, Computer Science and Engineering
Computational genomics, epigenomics, stem cells and developmental biology, single-cell nano-technology. His lab discovered genetic differences between humans and other mammals in early embryonic development, and contributed to introducing the field of "comparative epigenomics".
Ph.D. 2005 Harvard University