

2012 Snapshot

Faculty	197
Members of the National Academies	23
Endowed Chair Professors	35
Graduate Students	1,548
Degrees Conferred FY12	515
Undergraduate Students	5,638
Degrees Conferred FY12	873
Total Expenditures FY 2012	\$236M
State-Funded Operations/Instruction	\$72.4M
Research Expenditures	\$163.6M
Government-Sponsored Research	\$97.4M
Industry-Sponsored Research/ Income from Gifts/Endowments	\$66.2M
Research/Full-Time Faculty Member*	\$899K
*182 full-time faculty in Fall 2011	

Strategic Focus



Research Expenditures from Industry / Private Funding

In FY12, 40% of research expenditures came from industry / private funding



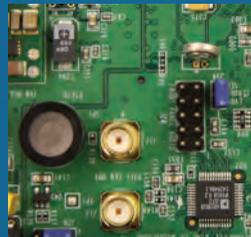
Academic Departments



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 systems
- nano-electronics/nano-photonics
- signal processing and intelligent systems



MECHANICAL & AEROSPACE ENGINEERING

41 Faculty • 1,072 Undergraduate Students • 336 Graduate Students
Research addresses:

- energy
- defense
- medicine
- environment

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



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



SHADI DAYEH

Assistant Professor, Electrical and Computer Engineering

Neuroprosthetic devices, growth and devices of compound semiconductors and silicon/germanium materials, monolithic and hybrid hetero-integration technologies, in-situ microscopy on advanced III-V device architectures.

Ph.D. 2008 UC San Diego



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. 2001 UC Davis



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



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



DARREN LIPOMI

Assistant Professor, NanoEngineering

Mechanically compliant organic electronic materials and devices, including stretchable polymer-based solar cells and skin-like sensors, and unconventional, green approaches to nanomanufacturing.

Ph.D. 2010 Harvard University



SHACHAR LOVETT

Assistant Professor, Computer Science and Engineering

Algorithms, computational complexity, coding theory, randomness in computation, additive combinatorics.

Ph.D. 2010 The Weizmann Institute, Rehovot, Israel



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



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



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



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



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



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



SHENG ZHONG

Associate Professor, Bioengineering

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