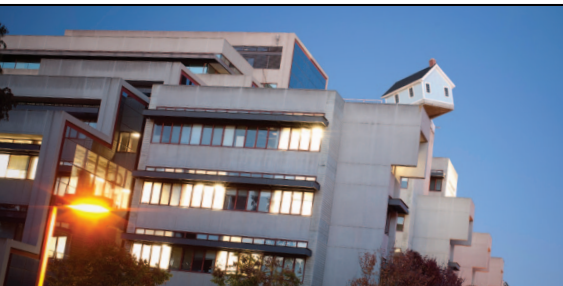


# 2013 Snapshot



<b>Jacobs School Faculty</b>	<b>201</b>
Members of the National Academies	23
Endowed Chairs	44
<b>Graduate Students</b>	<b>1,715</b>
Degrees Conferred FY13	563
<b>Undergraduate Students</b>	<b>6,503</b>
Degrees Conferred FY13	1,057
<b>Total Expenditures FY 2013</b>	<b>\$241M</b>
State-Funded Operations/Instruction	\$82.9M
Research Expenditures	\$157.9M
Government-Sponsored Research	\$97.3M
Industry-Sponsored Research/ Income from Gifts/Endowments	\$60.7M
Research/Full-Time Faculty Member*	\$854K

\*185 full-time faculty in Fall 2012

**Strategic Focus**

**UC San Diego**

Faculty	1,502
Undergraduates Fall 2013:	23,805
Graduate Students Fall 2013:	5,712
Campus-wide Research Funding:	\$985M
NSF R&D Expenditures:	6th in nation

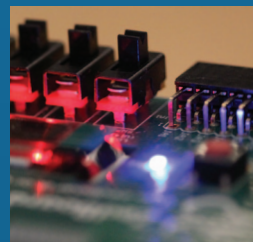
## Academic Departments



### BIOENGINEERING

22 Faculty • 650 Undergraduates • 225 Graduate Students  
A world leader, focused on understanding, diagnosis and treatment of human disease through:

- bioengineering analysis • systems biology • regenerative medicine



### COMPUTER SCIENCE & ENGINEERING

48 Faculty • 1,800 Undergraduates • 450 Graduate Students  
Strengths include:

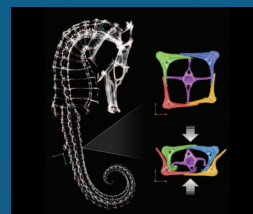
- machine learning
- databases
- graphics and vision
- systems and networking
- security and cryptography
- software engineering
- bioinformatics
- computer architecture
- embedded systems
- theoretical computer science



### ELECTRICAL & COMPUTER ENGINEERING

49 Faculty • 1,150 Undergraduates • 495 Graduate Students  
A leader in:

- network infrastructure
- embedded systems
- electromagnetics
- electronic circuits and systems
- bionanotechnology
- magnetic and optical storage
- medical devices and systems
- systems energy engineering
- information technology and communications
- photonic devices and systems
- nano-electronics/nano-photonics
- signal processing, intelligent systems/robotics



### MECHANICAL & AEROSPACE ENGINEERING

42 Faculty • 1,050 Undergraduates • 380 Graduate Students  
Research addresses:

- energy
- defense
- medicine
- environment

Faculty are leaders in:

- fluid mechanics
- solid mechanics and materials
- systems and controls
- environmental engineering
- MEMS design and fabrication



### NANOENGINEERING

18 Faculty • 1,000 Undergraduates • 100 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
- chemical engineering • materials engineering
- materials development for extreme environments



### STRUCTURAL ENGINEERING

22 Faculty • 700 Undergraduates • 150 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



## VIKASH GILJA

Assistant Professor, Electrical and Computer Engineering

Gilja's research focuses on brain-machine interfaces (BMIs) with a specific interest in translating basic research into clinical applications. Using statistical signal processing, machine learning and real-time embedded systems, he develops BMIs that effectively use neural signals to control prosthetic devices for individuals with paralysis and neurodegenerative disease. More generally, he is interested in the development of diagnostic and therapeutic methods that leverage novel

techniques and insights from neuroscience to better understand and address neurological and psychological disorders. His approach uses large scale datasets and closed loop control experiments with a variety of neural measurement techniques, including functional imaging and electrophysiology.

Ph.D. 2010 Stanford University

**Most recently:** Research Associate, Stanford University



## SHYUE PING ONG

Assistant Professor, NanoEngineering

Intersecting the disciplines of materials science and information science, our research combines materials informatics approaches with first principles calculations to probe nature's laws and design novel materials for energy. We develop robust architectures for creating and storing large materials datasets, apply rigorous data mining techniques to discover patterns, and use the insights gained to design technologically relevant materials with superior properties. We also conduct virtual first principles experiments to investigate

relationships between materials chemistry, structure and property. Current technological areas of focus include new energy storage chemistries and all solid-state batteries.

Ph.D. 2011 Massachusetts Institute of Technology

**Most recently:** Sr. Research Associate and Program Manager, Samsung MIT Alliance in Materials Design for Energy Applications



## KESONG YANG

Assistant Professor, NanoEngineering

Yang uses computer-based modeling and simulation techniques to study structure-property relationships of nanoscale materials with various applications from energy production and storage to electronic information technology. As a postdoctoral fellow at Duke University, Yang developed a tool that visualizes the electronic structure properties of more than 17,000 compounds. His recent work on topological insulators (TIs), which could be essential materials for the next generation of electrical components, was

reported in *Nature Materials*. Yang's research describes a novel high-throughput methodology for the search of TIs, opening a new research direction in computational materials science.

Ph.D. 2010 Shandong University

**Most recently:** Postdoctoral Fellow, Duke University



## BOUBACAR KANTE

Assistant Professor, Electrical and Computer Engineering

Kanté's multidisciplinary research interests are in the areas of wave-matter interaction, from microwaves to optics and related fields such as nanophotonics, nanoscale photon management, and biophysics. Grounded on the fundamental physical principles and the on-demand dimensionality of nanomaterials, his research addresses tantalizing experimental and theoretical physical questions in the field of nano-optics and intelligent nano-

materials to address global energy, defense, and health questions. He is particularly interested in the theoretical modeling, fabrication and characterization of metamaterials for application in information science. Kanté made his mark in the academic community when he demonstrated the first non-magnetic metamaterial invisibility cloak.

Ph.D. 2010 Université Paris-Sud

**Most recently:** Postdoctoral Researcher, UC Berkeley



## JIUN-SHYAN "JS" CHEN

William Prager Endowed Chair Professor in Structural Mechanics, Structural Engineering

Chen's research focuses on computational solid mechanics, multiscale materials modeling and prediction of extreme events. More specifically, he investigates various finite element and mesh-free methods for nonlinear, large deformation and high strain rate mechanics. His research team also applies multiscale computational methods to homeland security applications, manufacturing processes, geomechanics problems, DNA modeling applications, skeletal muscle behavior modeling, and

simulation-based disaster prediction and mitigation.

Ph.D. 1989 Theoretical and Applied Mechanics, Northwestern University

**Most recently:** Chancellor's Professor in the Civil and Environmental Engineering Department, UCLA



## DAVID SAINTILLAN

Associate Professor, Mechanical and Aerospace Engineering

Saintillan's research centers on the study of fundamental fluid mechanics problems involving complex fluids and complex flows on small scales. His research team uses a combination of modeling, theory and numerical simulations to study the dynamics and properties of flows involving a microstructure suspended in and interacting with a viscous fluid, as arise in many biophysical, environmental and technological processes. Recent problems of interest have included the modeling of

electrokinetic phenomena in particle suspensions, the emergence of collective motion in biologically active fluids, and the dynamics and transport of polymers and elastic filaments in microscale flows.

Ph.D. 2006 Stanford University

**Most recently:** Assistant Professor, University of Illinois Urbana-Champaign

