



# WE MAKE BOLD POSSIBLE.

We solve the tough challenges no lab, discipline, or company can take on alone

## How we do it

When we collaborate, we listen – and then we innovate.

The result: deep interactions and bold collaborations that build on UC San Diego's **\$1.64 billion** research enterprise. We extend our innovation-driven work well beyond campus. We collaborate to solve the most pressing challenges throughout the San Diego region, and across California, the nation and the world.

Our newest building, Franklin Antonio Hall, has emerged as a national model for how academic buildings can strengthen innovation ecosystems. From design to programming, it maximizes the circulation of people and ideas.

## We are transforming engineering education, at scale

## How we do it

We empower our students to excel in the innovation workforce. To prepare our students for future success, we provide them with opportunities to solve relevant challenges through the application of engineering and computer science fundamentals.

The IDEA Engineering Student Center is a focal point for inclusive community building and academic excellence for every student at the Jacobs School.

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

# #1 IN CALIFORNIA FOR RESEARCH EXPENDITURES

\*2024 U.S. News Rankings of Best Engineering Schools

#2	#2 Public engineering school in California* #8 Public engineering school in the USA* #12 Engineering School in the USA*
\$245M	Total research expenditures for 2021-2022 at the Jacobs School of Engineering
40%	Approximately 40% of our research expenditures come from university-industry research partnerships and philanthropy
20	Industry-sponsored centers and institutes launched in the last 10 years
#1	The Jacobs School of Engineering at UC San Diego is the largest engineering school in California, and #2 on the West Coast, according to the latest enrollment data from ASEE
9,617	Engineering Students (Fall 2022) 5,986 BS / 2,224 MS / 1,407 PhD
2,598	Engineering Degrees (2021-2022) 1,608 BS / 773 MS / 217 PhD
279	279 Faculty at the Jacobs School 11 New faculty hired 2022 160+ faculty hired in the last 10 years

## ACADEMIC DEPARTMENTS

### BIOENGINEERING

SHU CHIEN-GENE LAY  
DEPARTMENT OF BIOENGINEERING

32 Faculty  
537 Undergraduates  
446 Graduate students



- autodigestion
- bioinformatics
- biomaterials / biomechanics
- cell / tissue mechanics
- biophotonics / biosensors
- cardiac mechanics
- cardiovascular engineering and imaging
- cartilage / tissue engineering
- genomic engineering
- metabolic bioengineering
- microcirculation / transfusion medicine
- molecular / cellular bioengineering
- nanotechnology
- neuroengineering
- regenerative medicine / stem cells
- systems bioengineering
- translational bioengineering

### MECHANICAL & AEROSPACE ENGINEERING

57 Faculty  
1,236 Undergraduates  
570 Graduate students



- aerospace technologies
- biomaterials, bio-inspired tech
- cell / membrane mechanics
- control and optimization
- combustion
- high-energy materials processing
- materials for extremes
- medical device technologies
- MEMS for extremes
- networked control systems
- renewable and carbon-neutral energy technologies
- robotics and design
- solid and soft matter mechanics of metamaterials
- thermo-physics, heat and mass transfer
- tribology for memory storage
- turbulence, geophysical flows, macro/microfluidic flows

### COMPUTER SCIENCE & ENGINEERING

74 Faculty  
1,749 Undergraduates  
1181 Graduate students



- artificial intelligence / machine learning
- bioinformatics
- computer architecture
- computer science pedagogy
- databases and info mgmt.
- embedded systems, VLSI/CAD
- graphics and vision
- human-computer interaction
- programming languages
- robotics
- security and cryptography
- software engineering
- systems and networking
- theoretical computer science

### NANOENGINEERING

28 Faculty  
576 Undergraduates  
170 Graduate students



- advanced nanomaterials
- computational materials science
- nanobiotechnology
- nanomanufacturing
- nanomedicine
- nanophotonics
- nanorobotics
- nanosensors
- nanotechnologies for energy storage and conversion
- stretchable, flexible electronics
- sustainable nanoengineering
- wearable devices

### ELECTRICAL & COMPUTER ENGINEERING

63 Faculty  
1,328 Undergraduates  
1,095 Graduate students



- applied electromagnetics
- bioinformatics / bionanotech
- brain imaging / mapping
- communications systems
- cyber-physical systems security
- electronic circuits / systems
- embedded systems
- intelligent systems / robotics
- machine learning and data science
- magnetic and optical storage
- medical devices and systems
- nanoelectronics
- network infrastructure
- neural interfaces
- photonics / nanophotonics
- power engineering
- signal/image/video processing
- systems energy engineering
- wearable sensors

### STRUCTURAL ENGINEERING

25 Faculty  
560 Undergraduates  
169 Graduate students



- aerospace structures / aviation safety
- biomechanics
- composites / nanomaterials
- computational fluid-structure interaction analysis
- computational mechanics for extreme events damage prediction
- earthquake engineering and infrastructure renewal
- geotechnical engineering / geomechanics
- large-scale experimental research
- multi-hazard mitigation for earthquakes, blasts and more
- risk analysis / visualization / optimization
- structural health monitoring / nondestructive evaluation