The Big IDEA at the Jacobs School of Engineering:

_Inclusion, Diversity, Excellence, Advancement_

Albert P. Pisano, Dean
September 22, 2016
UC San Diego: World Class University

• One of the top 15 research universities worldwide.

• #10 in the nation among public engineering schools.
  • U.S. News ranking of graduate schools, 2016

• #7 in the nation among public engineering schools.
  • U.S. News ranking of best global universities, 2015

• Largest engineering school in California.
20,418 Freshman Applications for Fall 2016

1 in 8 Freshman Applicants in All Majors to the Entire UC System Applied to the Jacobs School
## Fall 2016 Enrollment*: Growth and Quality

<table>
<thead>
<tr>
<th>Fall 2016 New Students</th>
<th>Quality</th>
<th>Diversity</th>
<th>Total Enrollment Fall 2016</th>
<th>Total Enrollment Fall 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>763 Freshmen</td>
<td>1971 SAT</td>
<td>19% URM</td>
<td>6,169</td>
<td>6,677</td>
</tr>
<tr>
<td></td>
<td>4.17 GPA</td>
<td>32% Female</td>
<td>Undergraduates</td>
<td>Undergraduates</td>
</tr>
<tr>
<td>278 Transfers</td>
<td>1869 SAT</td>
<td>12% URM</td>
<td>3,105</td>
<td>2,244</td>
</tr>
<tr>
<td></td>
<td>3.67 GPA</td>
<td>18% Female</td>
<td>Graduate Students</td>
<td>Graduate Students</td>
</tr>
<tr>
<td>907 Masters</td>
<td>166 Q GRE</td>
<td>23% Female</td>
<td>3,105</td>
<td>2,244</td>
</tr>
<tr>
<td>213 Ph.D.s</td>
<td>165 Q GRE</td>
<td>25% Female</td>
<td>2,244</td>
<td>2,244</td>
</tr>
</tbody>
</table>

50% of Transfer Students come from Southern California (including 19% from San Diego County)

28% of Transfer Students come from Northern California

* Stats as of 9/1/16
## Where Women Study STEM

<table>
<thead>
<tr>
<th>RANK</th>
<th>SCHOOL</th>
<th>% FEMALE STEM MAJORS</th>
<th>RANK</th>
<th>SCHOOL</th>
<th>% FEMALE STEM MAJORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>University of California - San Diego</td>
<td>32.70%</td>
<td>11</td>
<td>University of Illinois at Urbana-Champaign</td>
<td>18.80%</td>
</tr>
<tr>
<td>2</td>
<td>North Carolina State University at Raleigh</td>
<td>31.50%</td>
<td>12</td>
<td>Texas A&amp;M University - College Station</td>
<td>18.70%</td>
</tr>
<tr>
<td>3</td>
<td>University of California - Davis</td>
<td>23.70%</td>
<td>13</td>
<td>Purdue University</td>
<td>18.60%</td>
</tr>
<tr>
<td>4</td>
<td>University of California - Berkeley</td>
<td>23.50%</td>
<td>14</td>
<td>Pennsylvania State University</td>
<td>18.60%</td>
</tr>
<tr>
<td>5</td>
<td>Virginia Polytechnic Institute</td>
<td>22.20%</td>
<td>15</td>
<td>University of Maryland - College Park</td>
<td>18.50%</td>
</tr>
<tr>
<td>6</td>
<td>University of California - Los Angeles</td>
<td>21.70%</td>
<td>16</td>
<td>SUNY Buffalo</td>
<td>17.60%</td>
</tr>
<tr>
<td>7</td>
<td>University of Washington - Seattle</td>
<td>21.60%</td>
<td>17</td>
<td>Rutgers University - New Brunswick</td>
<td>17.40%</td>
</tr>
<tr>
<td>8</td>
<td>University of California - Irvine</td>
<td>21.50%</td>
<td>18</td>
<td>The University of Texas at Austin</td>
<td>17.30%</td>
</tr>
<tr>
<td>9</td>
<td>University of Michigan - Ann Arbor</td>
<td>20.90%</td>
<td>19</td>
<td>University of Florida</td>
<td>16.80%</td>
</tr>
<tr>
<td>10</td>
<td>University of Wisconsin - Madison</td>
<td>19.40%</td>
<td>20</td>
<td>Michigan State University</td>
<td>16.40%</td>
</tr>
</tbody>
</table>

**UC San Diego:** One in three women graduating with a STEM degree. Three times the national average.

1,800 Engineers Enter the Workforce Each Year

$162M in Annual Research Funding Fuel Discoveries

30-50 Inventions Licensed by Spin-Outs or Corporate Partners per Year
Jacobs School Scholars Alumni Highlights

Ed Wu
Class of 2004
Senior Product Manager

Mallika Dhawan
Class of 2006
Clinical Research Fellow
In Oncology
UC San Francisco

David Turnbull
Class of 2007
Experimental Scientist

Stefanie Mah
Class of 2008
Medical Device Engineer

Wendy Shieu
Class of 2009
Design Engineer

Stephan Kemper
Class of 2010
Lead Cloud Engineer

Maria Cardona
Class of 2011
Process Engineer

Michelle Zhou
Class of 2012
Medical Student

Philip Loury
Class of 2013
iOS Engineer

Andrew Lee
Class of 2014
Ph.D. Student
Biotechnology

Pooja Makhijani
Class of 2014
Medical Student

Alexander Lin
Class of 2015
Software Engineer
Jacobs School of Engineering Alumni

Sarah Meiklejohn

- Ph.D., Computer Science, June 2014
- Lead author of “A Fistful of Bitcoins, Characterizing Payments Among Men with No Names.”
- Joined University College London in Sept 2014 as Lecturer/Assistant Professor in the Department of Security and Crime Science and the Department of Computer Science.
- Supervises seven Ph.D. students.
Jacobs School of Engineering Alumni

Brina Lee

- BS, Communications, 2008
- MS, Computer Science, 2013
- Facebook, 2013. Instagram, 2013
- First full-time female engineer hired at Instagram.
- “The great thing about the Jacobs School is that we graduate as a team, and we still work as a team. We try to understand tech problems together.”
Jacobs School of Engineering Alumni

Shraddha Chaplot

- BS, Electrical Engineering, 2008
- Cisco, Corporate Social Responsibility Team
- Motivational speaker

As an undergraduate, Chaplot and her teammates were hired by Cisco through the Jacobs School’s Team Internship Program. When Chaplot graduated, Cisco hired her full time; and she joined a team that tested products to ensure they were usable by people with disabilities.
Jacobs School of Engineering Alumni

Mary Bui-Pham

- Ph.D., Chemical Engineering, 1992

- Chief of Staff for Publishers Products, a division of Yahoo! Inc. that includes Yahoo.com, Yahoo Finance, Yahoo Sports, Tumblr, Flurry and Polyvore.

- Manages all the day-to-day operations for Publisher Products.

- "The Jacobs School is all about innovation and investment, and that story is more compelling now than it’s ever been.”
Jacobs School of Engineering Alumni

Gioia Messinger

- BS, Electrical Engineering
- MS, Computer Engineering

- Currently: Founder & CEO of LinkedObjects, a technology and strategy firm specializing in the Internet of Things.

- Advisor, von Liebig Entrepreneur Center.

- Lecturer at UC San Diego Rady School of Management.

- Previously: Founder & CEO of Avaak, Inc., created VueZone (Sold to Netgear); Founder & CEO MedSmart (sold to Kaiser).
IDEA Student Center

Inclusion, Diversity, Excellence, Advancement

IDEA Student Center Goals

- **Increase** K-14 student knowledge and awareness of engineering through holistic outreach programs that incorporate schools, families, and communities.

- **Increase** the application and yield/acceptance rate of undergraduate/graduate historically underrepresented groups, including economically and socially disadvantaged students.

- **Improve** the success, retention and graduation rate of diverse undergraduate and graduate students.

- **Leverage** our undergraduate/graduate student preparedness for academia/industry through the engagement of research, leadership, and experiential learning opportunities.
IDEA Student Center Programs

- IDEA Scholars
- Orientation to Engineering
- Transfer Summer PrEP
- J.U.M.P.
- T.E.A.M.
- IDEA Learning Center

- Freshman Summer Engineering Institute
- Engineering Grad & Scholarly Talks
- Ring Ceremony 2016
- Professional Evening With Industry 2016
- Welcome Week
Freshman Summer Engineering Institute

• Provide newly admitted freshmen academic preparation and support in introductory engineering courses.
• Build a diverse engineering student community.
• Introduce engineering students to culture of scientific inquiry.
• Integrate students into UC San Diego and Jacobs School learning environments.
• Support UC San Diego efforts in reducing time to degree.
Student Success Initiative

The Jacobs School of Engineering Master Plan for Student Excellence, Diversity & Success

Increase retention and diversity in engineering through academic support, community building and leadership opportunities.

NEW ACTIVITIES
- Clustering
- E-CLASS Center
- Engineering Early Intervention Warning System
- Introductory Mathematics for Engineering Applications

CONTINUING ACTIVITIES
- SPIS
- JUMP
- T.E.A.M.
- IDEA Scholars
- TLDC REU Site
- SWEET Workshops
- Student Organizations
- MAE Math Open House
- ENG 1-2-3 Course Series
- Freshmen & Transfer Summer PrEP
- Undergraduate Research Experiences
- Howard Partnership for Graduate Success

Student Success Initiative group study session
Phoebe Contreras-Jones receives scholarship honoring Jack Keil Wolf

- Contreras-Jones was named the inaugural recipient of the Jack Keil Wolf Endowed Scholarship.
- Awarded to outstanding undergraduates in electrical and computer engineering at the Jacobs School of Engineering.

“The scholarship will drastically reduce the amount in loans I will have to take out. It means I can focus on school,” said Contreras-Jones. “And the donors want to mentor me. I can’t describe how much that means to me.”
**Gordon Engineering Leadership Center**

**Gordon Scholars** 2015 cohort: 38.71% women  
**Gordon Scholars** 2016 cohort: 32.14% women  
**Gordon Fellows** 2016 cohort: 75% women

- Scholars are students at the undergraduate, graduate and professional level that are being developed as technical leaders
- Fellows have demonstrated excellence as engineering leaders at their level (professionals; undergraduate and graduate students)
Global TIES is an internationally recognized humanitarian engineering and social innovation program in which faculty-advised, interdisciplinary teams of UC San Diego undergraduate students design solutions for local and global nonprofit organizations. It is one of three programs that has earned UC San Diego a place on President Barack Obama’s Honor Roll of Higher Education Community Service for each of the past six years. It has also been honored by the Clinton Global Initiative University.

http://globalties.ucsd.edu
• 30% of the engineering students in Global TIES have been women.
• Exceeds the percentage of women undergraduates in the Jacobs School, which is above the national average.
• National average remains below 20%.
• Women, more so than men, may be attracted to work with a clear social purpose.
• The Jacobs School strives to be the engineering school with a social consciousness.

http://globalties.ucsd.edu
SISTERS

Sustaining Interest in Science, Technology, Engineering, and Research in Society

- Innovative after-school science and engineering program for ~100 5th and 6th grade girls
- “Hands on” curriculum designed and facilitated by UCSD science and engineering undergraduates
- One-third of the participants are Hispanic
- Supported by a three-year, $800K NSF grant to the Global TIES program
Initiatives with Campus Partners

- Arts & Humanities
- GPS
- Rady School
- Global Entrepreneur
- Production & Innovation
- EnVision Maker Studio
- Social Sciences
- Health Sciences
- Engineering & Clinical Medicine
- Contextual Robotics
- Oceans & Environment
- Materials & Energy
- Data Science & Security
- Jacobs School
- Physical Sciences
- Scripps
- Physical Sciences & SDSC
EnVision Maker Studio

Launched January 2016

Joint Initiative between the Jacobs School of Engineering and the Division of Arts & Humanities

Photo by Erik Jepsen/UC San Diego Publications
Contextual Robotics Institute

Launched October 30, 2015

Mission: Advance leading edge research in contextual robotic systems and build a talent and innovation pipeline to fuel the emerging robotics industry sector.
Institute for the Global Entrepreneur

Launched June 2, 2016

Empowering Engineers to Drive Innovation

A collaboration between the UC San Diego Jacobs School of Engineering and Rady School of Management, dedicated to training global engineering leaders and translating university discoveries to the marketplace.

Sujit Dey
IGE Director
Professor of Electrical and Computer Engineering
Jacobs School of Engineering

Vish Krishnan
IGE Associate Director
Professor of Innovation Technology & Operations
Rady School of Management
Agile Centers

9 New Centers

- Center for Wearable Sensors (CWS)
- Center for Extreme Events Research (CEER)
- Center for Visual Computing (CVC)
- Sustainable Power and Energy Center (SPEC)
- CHO Systems Biology Center
- Cali-Baja Center for Resilient Materials and Systems (CRMS)
- Center for Microbiome Innovation (CMI)
- Center for Engineered Natural Intelligence (CENI)
- Deep Decarbonization Initiative (DDI)
The Sustainable Power and Energy Center is solving key technical challenges in distributed energy generation, storage and power management.

Target industries are electric vehicles, microgrids, photovoltaic panels, wind turbines, wearable devices and more.
CaliBaja Center for Resilient Materials & Systems

Olivia Graeve, Director
Mechanical and Aerospace Engineering

Rubén D. Ortiz-Torres, Associate Director
Visual Arts

Rafael Vázquez-Duhaly, Associate Director
Universidad Nacional Autónoma de Mexico

Revolutionizing the way we design, test and manufacture materials and systems for extreme environments.

• **Design** materials and systems for extreme environments such as ultra-high temperatures, extreme pressures and deformations, radiation, and acidic conditions, etc.

• **Manufacture** materials and systems using innovative techniques.

• **Innovate** advanced technologies for:
  • Aerospace
  • Defense
  • Energy
  • Nuclear
  • Biomedical
  • Environmental

Research Expo 2016 Best Poster Winners

Left to right, front to back: Christine Wittich (SE); Timothy Francis O’Connor (NE and Rudee Award); Ashok Kodigala (ECE); Benjamin Levi Martins (MAE); Gaurav Agrawal (BE); Ashish Kashinath, Justin Tee, and Debjit Roy (CSE)
Invitation to UC San Diego: April 2017

RESEARCH EXPO

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Ted-Style Talks by World-Renown Faculty

Connect with Engineers
500+ Students, Alumni, Industry, Faculty

JACOBSCHOOL.UCSD.EDU/RE
Thank you!

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