UC San Diego Jacobs School of Engineering

Welcome CAP Executive Board February 12th, 2015

CAP Executive Leadership 2014 - 2015



CAP Chairman: *Jeff Carter* _{CS Alumnus} '86 *Vice President and General Manager of Teradata Platforms*



CAP Vice Chairman: Mark Ambrose San Diego Site Executive, Raytheon



Welcome New CAP Members!

ACELIO





ACCESS, CONNECTION, VOICE

Welcome Distinguished Students

Triton Engineering Student Council (TESC)

Hush - a MOXIE Center Startup









James Natanauan TESC President Electrical and Computer Engineering '15



CORPORATE AFFILIATES PROGRAM



February 20th, 9:30-2:00pm

Objectives

- Reach Price Center Ballroom Capacity
 - o 100 Companies
- Increase Company Diversity
 <50% CS/EE only companies
- To better prepare students to engage with companies

New This Year

- T.O.P Student Program
- Limbis App

Contact us! Bijan Shiravi <u>bshiravi@ucsd.edu</u> James Natanauan <u>jnatanau@ucsd.edu</u> Website: http://tesc.ucsd.edu/decaf/2015



Growth

→ DECaF has an all time high attendance



- 7% overall growth
- 92 companies registered
 - 12 Corporate Sponsors
- 52% CS/EE only
 - most multidisciplinary sponsors since 2008



Uniting The Engineering Community

E-Week 2015

- E-Games: February 17th, 1-4pm
 - o <u>http://tesc.ucsd.edu/events/58</u>
- Enspire: February 18th, 10-4pm
 - o <u>http://tesc.ucsd.edu/events/64</u>







Welcome Distinguished Students



Daniel Lee, Daniel Synn and Daniel Chesong Lee









ENTREPRENEURISM CENTER











Hush | The World's First Smart Earplugs

by Hush



UC San Diego

Dean's Report



Dean Albert P. Pisano Jacobs School of Engineering



Jacobs School Strategic Vision

Focus Look, Think and Act as a Top 10 Professional Engineering School

Strategies Joint Initiatives

• Education/Research/Practice collaborations with campus partners

Agile Research Centers

• Systems-Level engineering research with industry partners

Experience Engineering

- Design-build-test project courses, beginning in freshman year
- Values Engineering for the Global Good

Exponential Impact through Entrepreneurism

Collaboration to Enrich Relevance



Collaboration to Enrich Relevance







Student by Department

Jacobs School Total Undergraduate Enrollment



Long-term Target 20:1 Undergraduate Student: Faculty Ratio

Undergraduate Student Applications

Applications:19,000Admits:800

Out of all high school seniors applying to any UC school in any major from any city/state/country, approximately 1 in 8 applied to the Jacobs School

- Increasing Competiveness
- Improved Student to Faculty Ratios
- Enhanced Quality of Educational Experience



Experience Engineering (E4)

Design-Make-Break-Courses, *beginning in Freshman Year*



I Am An Engineer - From Day One

(Retention and Diversity)

No Fear

CORPORATE AFFILIATES PROGRAM

When Will I Ever Use This Class? UC San Diego Jacobs School of Engineering (Failure is part of the process)

(The Answer: Today!)

Experience Bioengineering (E4)



BioHeat Transfer for Cooling the Body: *Ebola Treatment*



Electrophysiology for Brain-Machine-Body Interfaces (E*G)



3D Printing for Biological Regeneration & Restoration

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Electrophysiology for Brain-Machine-Body Interfaces

<u>Hypothesis</u>: Students will learn the basics of Electro-*-graphy (E*G) (EEG, ECG, EOG, EMG, EGG etc) physiological interfaces for humancomputer interaction and health monitoring.

Exercise: Students will experiment with electrode placement and write codes to interface with commercial E*G systems.

<u>Analysis</u>: Equipment: Students will extract and interpret biosignals of interest. Components required include E*G equipment with wireless instrumentation, electrodes, and software interface.



Source: Gert Cauwenberghs

Experience Bioengineering (E4) It will stick if there is a point

Students will learn:

- non-invasive human-computer interfacing and health monitoring
- to develop code, analyze and interpret data
- to quantify heat transfer and characterize body temperature
- to design, build and characterize 3D models of biological systems
- technical writing and communication of research
- dynamics of a team environment





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Expand on design-build-test (E4)

Brain Interfaces BioHeat Transfer Device 3D bone structure

Robotic training application Robotic System Parts Robotic System use-case

Sound amplifier and filters Physical Interface to the world Optical communications link

Open-ended Robotic Design Challenge Unmanned System Design, propulsion, and controls Spatial Design, freehand, 2D to 3D

> LED Color coding using quantum dots Biomimetic hydrophobic surface Printed battery design

Structures with other Teams as-built parts 3D joint design and test 3D Complex Design and Geometric Tolerance

We welcome your ideas

E4 Initiative updates

Design-Build-Test Courses, beginning in Freshman Year



Senior Sean Kuehn displays several of his team's wind turbine blade designs. Rapid prototyping has revolutionized SE 120, an undergraduate computer-aided design class in structural engineering. Students now design, build and test multiple iterations of their designs.

"Spring training for your future workforce"



Agile Center Concept Benefits to Industry



 Joining Agile Centers provides access to UC San Diego faculty, researchers, and graduate students who are transforming their field in ways highly relevant to industry.

Key benefits:

- Access to multidisciplinary innovation via bi-annual workshops & research reviews
- Student recruiting: Access to the most promising students for:
 - Full-time employment
 - Internships
- 1:1 collaborations with faculty, researchers and graduate students
- Visiting-scholar opportunities for research staff
- Directed research projects and non-directed research gifts
- Branding for your company
- Continuing education for your employees
- Influence: shape the direction of this research through input on research projects, faculty hiring priorities, etc.
- First access to starts ups coming out of center using our commercialization engine: von Liebig Center of Entrepreneurism
 UC San Diego

Center for Visual Computing

Faculty Presentation

The [Agile Research] Center for Visual Computing



Computer Science & Engineering

RAVI RAMAMOORTHI

Professor Ph.D. Stanford University

Ramamoorthi creates realistic images—or renderings—in computer graphics and studies scene appearance in computer vision. He has received many awards, including a White House Presidential Early Career Award. His results are widely adopted in movies such as Avatar and Monsters U., and in games including Halo. He taught the first open online course in computer graphics.

Previously: Associate Professor, UC Berkeley



Interested in Ravi's presentation? contact Anne O'Donnell

ACCESS, CONNECTION, VOICE

CAP Business



Cody Noghera Director Corporate Affiliates Program Jacobs School of Engineering



MAE Design Course Seeking Winter Projects

What the Course Provides

- Teams of 3-6 students
- 15 week project durations
- Deliver working prototype to sponsors
- CAD and simulation software
- Instructor guidance on a weekly basis





Projects can be interdisciplinary

- Mechanical
- Electromechanical
- Fluid mechanics
- Heat transfer
- Computer Control

For more information contact: Nathan Delson, Director, MAE Design Center ndelson@ucsd.edu



Team Internship Program

Call for Projects: Summer 2015

Stay ahead by submitting projects early

Fresh minds innovating your ideas

These partners already have project recruitment underway:





Team Internship Program

Skyworks Mexicali International TIP Project





- Hosting an international TIP team of 12 students to work on various projects
- Skyworks Solutions, Inc. is an innovator of high performance analog semiconductors
- The company's portfolio includes Amplifiers, Attenuators, Circulators, Diodes, Infrastructure RF Subsystems, PPLS/Synthesizers/VCOs, and more
- Worldwide with engineering, manufacturing, sales and service facilities throughout Asia, Europe, and North America.



Master of Advanced Study Updates

A master's degree for engineering professionals

Fall 2014 Enrollment

132 Total students enrolled in 4 MAS programs

- Architecture-based Enterprise Systems Engineering
- Medical Device Engineering
- Wireless Embedded Systems
- Data Science and Engineering





Representation from more than 56 local companies

Fall 2015 Recruitment

On-campus Information Session: April 14, 2015

Scheduling Corporate site-based Information Sessions now



UC San Diego Jacobs School of Engineering

RESEARCH EXPO

Thursday April 16, 2015 • 2PM to 6PM • UC San Diego



Innovation is anything but business as usual. Come be inspired by exciting research, talented graduate students, and the possibilities to connect.

Sponsors









200+ Graduate Student Posters

2:00 - 4:30 PM

Meet graduate students who match your company's technology roadmaps and workforce needs.

Lightning Tech Talks

2:30 - 4:30 PM

Twenty-minute faculty talks Access cutting-edge research from new Research Centers for:

- » extreme events research
- » sustainable power and energy
- » visual computing
- » wearable sensors

Networking Reception

4:30 - 6:00 PM

Best poster awards Network with faculty, students and industry professionals.

Register now: JacobsSchool.ucsd.edu/re (\$100)

Corporate Affiliates Program members: two-for-one admission

CAP Team - update





Matthew Lillestol Assistant Director Corporate Affiliates Program Jacobs School of Engineering Gina Wilgalis Executive Assistant Corporate Research Partnerships Jacobs School of Engineering



CAP Business:



Dates to Remember:

Friday, February 20, 2015 Thursday, April 16, 2015 **Thursday, June 11, 2015 Thursday, October 1, 2015** Disciplines of Engineering Career Fair (DECaF) Jacobs School Research Expo CAP Executive Board Meeting CAP Executive Board Meeting



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