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!

[Image of Acelio logo]

[Image of General Atomics Aeronautical Systems logo]
Welcome Distinguished Students

Triton Engineering Student Council (TESC)

Hush - a MOXIE Center Startup
James Natanauan
TESC President
Electrical and Computer Engineering ‘15
Objectives
● Reach Price Center Ballroom Capacity
  ○ 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
bshiravi@ucsd.edu
James Natanauan
jnatanau@ucsd.edu
Website:
http://tesc.ucsd.edu/decaf/2015

February 20th, 9:30-2:00pm
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
  - [http://tesc.ucsd.edu/events/58](http://tesc.ucsd.edu/events/58)
- Enspire: February 18th, 10-4pm
  - [http://tesc.ucsd.edu/events/64](http://tesc.ucsd.edu/events/64)
Welcome Distinguished Students

Daniel Lee, Daniel Synn and Daniel Chesong Lee
Hush | The World's First Smart Earplugs

Wireless noise masking earplugs that block out the world while still letting you hear the things that matter most.

4,415 backers

$593,255 pledged of $100,000 goal

0 seconds to go

Funded!
This project was successfully funded on December 22.

Hush
First created | 0 backed
hush.technology

San Diego, CA
Wearables
Share this project

See full bio
Contact me

UC San Diego
Jacobs School of Engineering
CORPORATE AFFILIATES PROGRAM
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

- Arts & Humanities
- Maker Space Design
- Global Entrepreneur
- Production & Innovation
- Engineering & Clinical Medicine
- Contextual Robotics
- Oceans & Environment
- Materials & Energy
- Physical Sciences
- Social Sciences
- IRPS
- Rady School
- Health Sciences
- Scripps
- Jacobs School
Aspirations

Projected 18+ Cluster Hires

Bioengineering

Computer Science & Engineering

Electrical & Computer Engineering

Mechanical & Aerospace Engineering

Nanoengineering

Structural Engineering

Engineering in Medicine

Materials

Energy

Clinical Medicine

Global Production & Innovation

Contextual Robotics

Big Data Science
Student by Department

Jacobs School Total Undergraduate Enrollment

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

UC San Diego
Jacobs School of Engineering
CORPORATE AFFILIATES PROGRAM

ACCESS, CONNECTION, VOICE
Undergraduate Student Applications

Applications: 19,000
Admits: 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 Competitiveness
- 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

(Failure is part of the process)

When Will I Ever Use This Class?

(The Answer: Today!)

UC San Diego
Jacobs School of Engineering
CORPORATE AFFILIATES PROGRAM
Experience Bioengineering (E4)

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

BioHeat Transfer for Cooling the Body: Ebola Treatment

3D Printing for Biological Regeneration & Restoration
Electrophysiology for Brain-Machine-Body Interfaces

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

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

Analysis: Students will extract and interpret biosignals of interest.

Equipment: Components required include E*G equipment with wireless instrumentation, electrodes, and software interface.

ECG:

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
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*

“Spring training for your future workforce”

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.
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 startups coming out of center using our commercialization engine: von Liebig Center of Entrepreneurism
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
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:

[Logos of various companies]
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
RESEARCH EXPO

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

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.

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

Sponsors

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

Corporate Affiliates Program members: two-for-one admission
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: Disciplines of Engineering Career Fair (DECaF)
- Thursday, April 16, 2015: Jacobs School Research Expo
- Thursday, June 11, 2015: CAP Executive Board Meeting
- Thursday, October 1, 2015: CAP Executive Board Meeting
Welcome CAP Executive Board