

UC San Diego

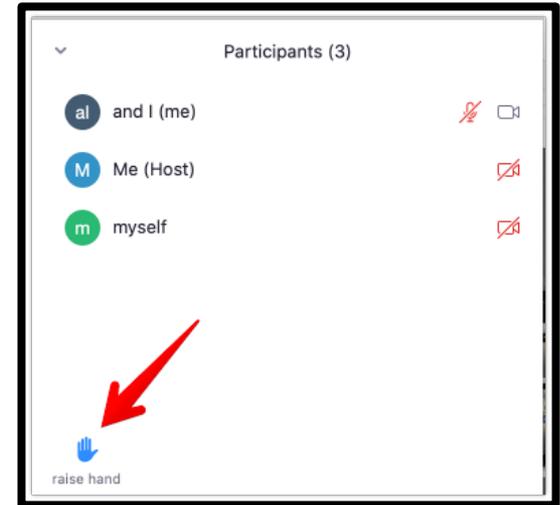
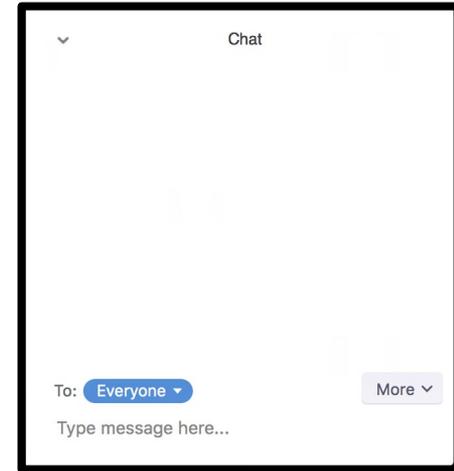
JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program



Welcome
CAP Executive Board
October 8, 2020

Meeting Protocol

- We will be recording this meeting
- Turn on video
- Mute all, use chat for comments
- Use “raise hand” for discussion



CAP Chairman and Vice Chairman



GB Singh

Director, Package & Systems Engineering
Solar Turbines



John Black

Senior Vice President, New Product Development
Brain Corporation

Welcome

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Corporate Affiliates Program

Agenda

4:00-4:05pm - Welcome and protocol

4:05-4:15pm - CAP Executive Board Chairman Welcome

4:15-4:35pm - Dean's Report

4:35-4:50pm - Institute for Materials Discovery & Design

*Dr. Shirley Meng, Director of IMDD, Professor
Nanoengineering*

4:50-5:20pm - CAP Executive Input

5:20-5:30pm - CAP Business

5:30pm - Adjournment

Welcome New CAP Partners



gosite



Welcome Guests

EDWARDS LIFESCIENCES

INNOPHASE

ERICSSON

LOCKHEED MARTIN

HEALTHIQ

RUBBL

ILLUMINA

Dean's Report

Albert P. Pisano

Dean, Jacobs School of Engineering



Accelerating the March to Cachet

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THE JACOBS SCHOOL
BROKE INTO THE
TOP NINE

Inaugural Jacobs School Initiatives in Equity & Ethics

Racial Equity Fellows

Students demonstrating commitment to racial equity and academic excellence



Laura Gutierrez
Senior
Environmental Engineering



Maya Rowell
Doctoral Student
Bioengineering



Odemuno Ogelohwohor
Junior
Electrical Engineering



Sergio Suarez
Doctoral Student
Structural Engineering

Research Ethics

NSF-funded program entitled "Empowering Faculty to Cultivate a Culture of Ethics in Engineering."



Jose Restrepo
Professor, Structural Engineering
Director, Jacobs School Research Ethics Initiative

We Are Building Better Problem Solvers



New Faculty Hires - 23 new; 127 in 6 years

Most Successful Year for Diversity Hiring



Brian Aguado
Bioengineering



Silvia Herbert
Mechanical and Aerospace
Engineering



Patricia Hidalgo-Gonzalez
Mechanical and Aerospace
Engineering



Zeinab Jahed
NanoEngineering



Mingu Kang
Electrical and Computer
Engineering



Stephanie Lindsey
Mechanical and Aerospace
Engineering



Florian Meyer
Electrical and Computer
Engineering



Lonnie Grove Petersen
Mechanical and Aerospace
Engineering



Lisa Poulidakos
Mechanical and Aerospace
Engineering



Aaron Rosengren
Mechanical and Aerospace
Engineering



Yuanyuan Shi
Electrical and Computer
Engineering



Benjamin Smarr
Bioengineering and
Data Science



Jon Wade
Mechanical and Aerospace
Engineering



Rose Yu
Computer Science and
Engineering



Yang Zheng
Electrical and Computer
Engineering



What Keeps Me Up at Night

The headwinds have not abated.

How can we maintain upward momentum, and deliver on our education and research mission, while in midst of multiple crises?

- Academics
- Research
- Partnerships
- Operations

Growing Past the Crises

Franklin Antonio Hall

[Live webcam: fah.ucsd.edu](http://fah.ucsd.edu)



Early Screening for Cancers



Commercialization via Singlera Genomics is a San Diego startup co-founded by Bioengineering Department Chairman and Professor Chair Kun Zhang.

Project ripe for a US-government + industry partnership to replicate this work which was only possible thanks to access to data from a longitudinal study in China.

Recent media coverage in Scientific American and NBC News.

And there is more news ahead... Stay Tuned!

Earthquake Shake Table Upgrades

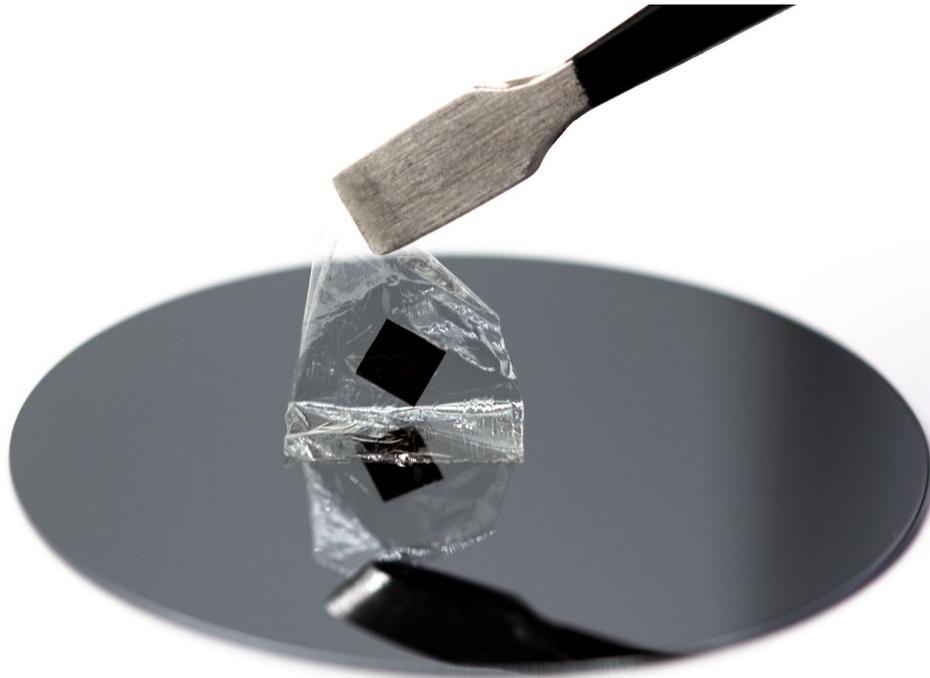


Upgrade completion in 2021

Upgrade to shaking in full range of motion to make the research more relevant.

Shake table serves as a location where seismic safety breakthroughs are made and where those breakthroughs have the opportunity to build into innovations for the various industries.

Manufacturing Perovskites with Standard Semiconductor Fabrication Processes



Publishing in *Nature*, nanoengineers at developed a method to fabricate perovskites using standard semiconductor fabrication processes.

The result: flexible single-crystal perovskite films with controlled area, thickness, and composition.

Innovation opportunity: low-defect, high-efficiency, high-stability perovskites for solar cells, LEDs, and photodetectors.

National Network of Innovation Centers for Platform Technologies

Platform Technology Innovation Centers: **Context**

- Pressing national need to improve value capture from research
- New insights as chair of NAE Engineering Deans' Roundtable
- Value Creation system is strong
- Value Capture system has a missing link
- Goal: strengthen (not supplant) existing value-capture efforts

Platform Technology Innovation Centers: **Outline**

- The U.S. economy must compete its way to strength **now** by improving the return on investment from our research enterprise.
- We must focus on the development of the “innovation workforce”.
- We have done this before: **MOSIS**
- Our solution is: A National Network of Technology Platform Innovation Centers
- We address difficult challenges outlined in 2017 NAE report: "New Vision for Center-Based Engineering Research" (2017)"
- How will the innovation centers be organized? (next slide)

Platform Technology Innovation Centers: **Attributes**

- Public-private partnerships for pre-competitive collaboration
- Federal funding to protect the US research enterprise
- Hardware virtualization to capture more value from innovation
- Nationwide virtual access from strategic physical locations
- "Platform Technologies" in the US national interest (examples next slide)

Platform Technology

Innovation Centers: Roles & Responsibilities (1)

1. Industry (or the client for new knowledge) has a lead role in defining the problem/research focus and makes a material investment in the research program.
2. Governments invest in relatively long-lived R&D infrastructure to enable pre-competitive research by collaborating companies and related fundamental research.
3. Governments support related fundamental research, often for open publication and relying on university researchers, that contributes to knowledge and society

Platform Technology

Innovation Centers: Roles & Responsibilities (2)

4. Universities bear responsibility for solution-enabling fundamental research and for development of human capital needed to capture societal value from S&E advance.
5. Independence, governance and management of consortia/institutes are critical to performance, should reflect approach at successful public-private R&D collaborations.
6. Securing participation of companies, universities and governments requires clear policies and practices with regard to IP ownership, licensing, and publication.

Platform Technology Innovation Centers: **Case Statement**

- Pre-competitive R&D need and opportunity
- Geopolitical (including national security) need and opportunity
- Desirable founding companies and governments
- Distinguishing features of location, governance and management
- Estimated annual budget requirements and duration of collaboration
- Value proposition for investing countries and companies

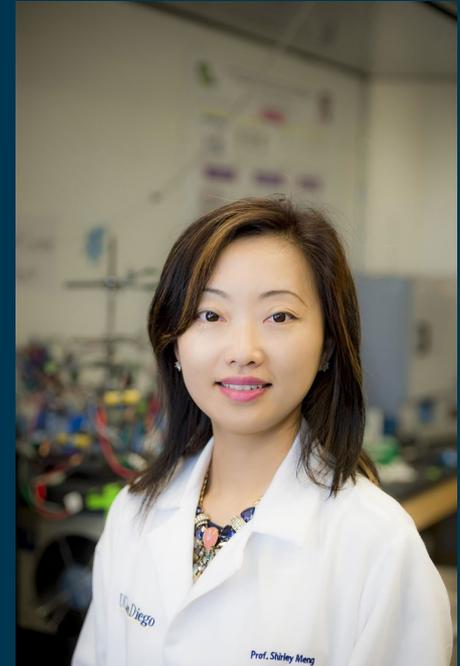
Platform Technology Innovation Centers: **Candidates**

- 6G wireless communications
- Artificial Intelligence
- Autonomy
- The Biofoundry (molecular farming for therapies to fight infectious disease and cancer)
- **Materials Discovery & Design - next briefing**

Faculty Presentation

Y. Shirley Meng

Director, Institute for Materials Discovery & Design
Professor, Nanoengineering



Discover and Design Materials that Humanity Needs

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Discussion with CAP Executive Board

- Interest/Impact in the Institute for Materials Discovery & Design?
- Viability of Innovation Centers for platform technology?
- Specific comments on the Innovation Center attributes listed in the view graph?
- Additional topic candidates for an Innovation Center?

CAP Business

Wil Dyer

Director, Corporate Affiliates Program



CAP Updates

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Jacobs School Corporate Affiliates Program



CAP Talent Programs

We help you define and execute your talent acquisition strategy with the Jacobs School

- Tech Talks
- Information Sessions
- Professional Student Organizations
- Internships & Full-time jobs
- Team Internship Program (TIP)
- Cooperative Education (Co-op)
- Ph.D Mentor Program (New!)
- Virtual Networking & Event Platform (New!)

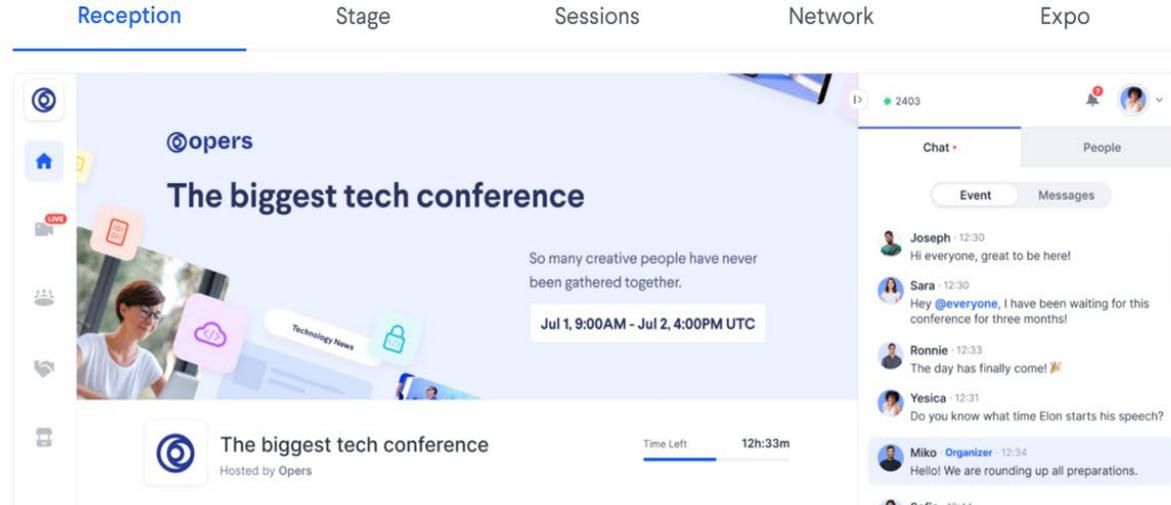


*Top CSE students network with CAP Partners
at CSE Tutor Networking Night*

Contact Rocio de Lis rdelis@eng.ucsd.edu



Your Virtual “Room” at the Jacobs School: Hopin

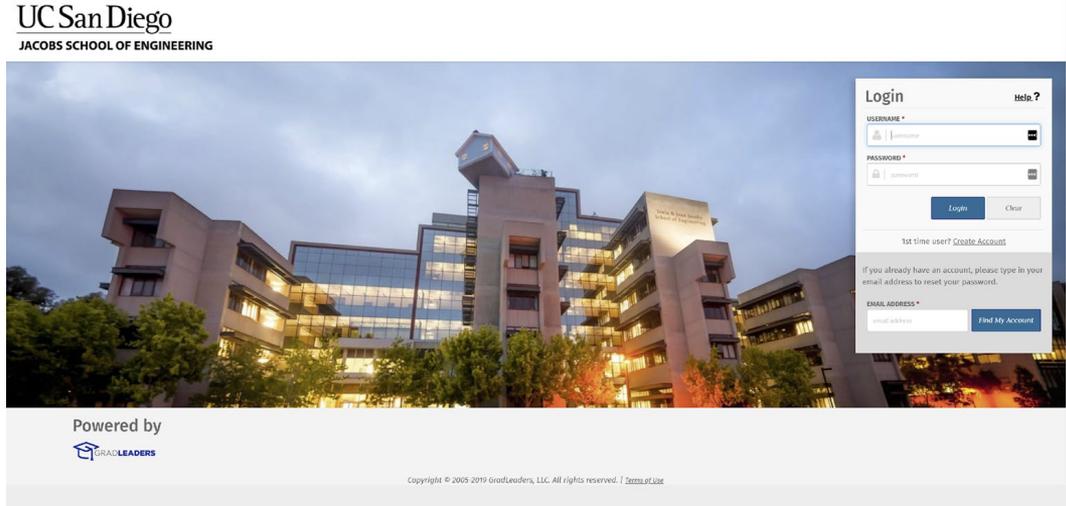


- ★ Exclusively for CAP Partners
- ★ Same level of access to students as in-person
- ★ Safe, secure, vetted
- ★ All your info-sessions, tech-talks, panels, etc.
- ★ We organize the event, train you, and be there the entire time

Market opportunities on the Jacobs School Talent Recruitment Portal

- Post full/part-time opportunities, internships, TIP & Co-op
- Proactively identify qualified students through tailored resume book
- Request/sign up for targeted recruiting events and promote to students
- Qualified referrals and pre-screened applicant pool

Contact Rocio de Lis
mdelis@eng.ucsd.edu



Easy sign up, CAP Resume Database Access
<http://jacobsschool.ucsd.edu/talent>

Team Internship Program (TIP)

- 2-5 members; Undergraduate, Masters, and Ph.D.
- All engineering majors - multi-disciplinary teams encouraged; can include non-engineering majors
- Paid Internships, 10-12 weeks over the summer
- Full-time, i.e., 40 hour/week commitment

Cooperative Education (Co-op)

- First in the UC System
- Cohort #3: June-December 2021
- Full-time (30-40 hours per week) for up to 6 months - Summer and Fall quarters
- Undergraduate & Master's engineering students

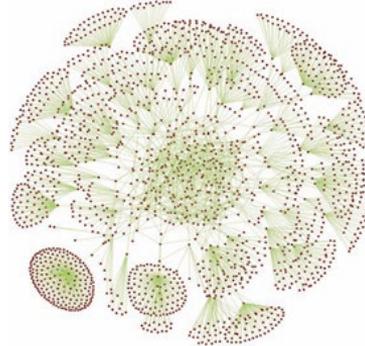
Contact Rocio de Lis rdelis@eng.ucsd.edu

Recruiting Timeline	
October - December	Companies include TIP/Co-op in budget planning. Companies define and submit projects and recruitment starts
January - March	Companies continue to submit their projects and recruitment continues; offers extended
April	Finalize recruitment & offers
May	Selections completed Intern pre-deployment training
June-December	TIP period during 10-12 consecutive weeks (Jun-Sept) Co-op period up to 6 months (Jun-Dec)

Industry-Driven Research Center Invitations for CAP Executives



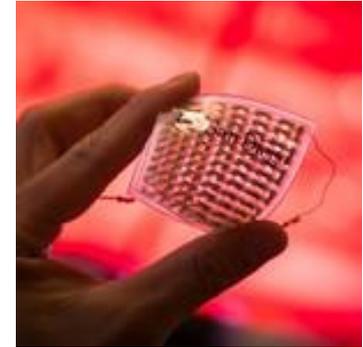
Sustainable
Power & Energy
(SPEC.ucsd.edu)
October 14



Networked Systems
(CNS.ucsd.edu)
October 15



Wireless
Communications
(CWC.ucsd.edu)
November 12 & 13

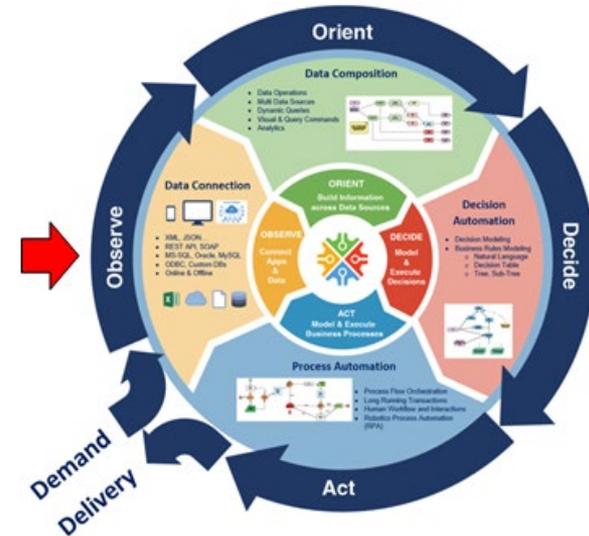


Wearable Sensors
(CWS.ucsd.edu)
November 19

Contact Wil Dyer at wdyer@eng.ucsd.edu

CAP Executive Input on Convergent Systems Engineering Curriculum

- Masters Degree & Certificate programs (short courses)
- B.S./M.S. Option for Promising Jacobs School undergrads
- BS Senior Multidisciplinary Capstone Projects
- BS/MS Coop
- Doctoral Program
- Institute for Convergent Systems Engineering



Contact Wil Dyer at wdyer@eng.ucsd.edu

BECOME AN IGE MENTOR

The Institute for the Global Entrepreneur invites experienced entrepreneurs and industry leaders to join us in our mission to educate, train and mentor high-potential leaders in engineering and technology.

Benefits:

- Work on exciting new technologies
- Mentor future CEOs
- Access to UC San Diego innovation network
- Opportunity to lead new startups

SHARE **EXPERTISE**, MAKE AN **IMPACT**

Focus Areas:

➤ Healthcare and BioTech



➤ Energy and BlueTech



➤ Smart Transportation



➤ Leadership



All Upcoming Events

October 12&19, 2020	Computer Science & Engineering (CSE) Tutor Networking Night - Top 5% CSE students
October 14, 2020	Sustainable Power & Energy Center (SPEC.ucsd.edu) Research Summit
October 15, 2020	Center for Network Systems (CNS.ucsd.edu) Fall Research Review
October 20, 2020	Electrical & Computer Engineering (ECE) Honor Societies Career Fair
October 21, 2020	Professional Evening with Industry (PEI) - Underrepresented Student Networking Night
October 22, 2020	Triton Engineering Student Council (TESC.ucsd.edu) “Matcha” Career Fair
October 22, 2020	Dean’s New Faculty Welcome
November 4, 2020	Defense Night - Government & Defense Networking Night
November 12-13, 2020	Center for Wireless Communications (CWC.ucsd.edu) 5G & Beyond Forum
November 19, 2020	Center for Wearable Sensors (CWS.ucsd.edu) Research Review
December 4, 2020	Institute for the Global Entrepreneur (IGE.ucsd.edu) Medtech Accelerator
February 4, 2021	Winter CAP Executive Board Meeting

All events virtual until further notice

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Thank you!
Next CAP Executive Board Meeting:
February 4, 2021