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
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
Welcome Guests

EDWARDS LIFESCIENCES
ERICSSON
HEALTHIQ
ILLUMINA

INNOPHASE
LOCKHEED MARTIN
RUBBL
Dean’s Report

Albert P. Pisano
Dean, Jacobs School of Engineering

Accelerating the March to Cachet
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

Odemuno Ogelohwohor
Junior
Electrical Engineering

Maya Rowell
Doctoral Student
Bioengineering

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
UC San Diego

Jacobs School of Engineering / University Extension
Receive $1.6M

Spring 2020

Fall 2020

Engineers & Educators
Develop Problem Solving Curriculum

Summer 2021

Provide High-School Teachers with Training

Fall 2021

Implement Curriculum in San Diego High Schools

Ongoing

Enhance your Hiring Pool

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 Poulakakos
  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
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 UC San Diego 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.
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
Discover and Design Materials that Humanity Needs
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 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!)

Contact Rocio de Lis at mdelis@eng.ucsd.edu

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

**Recruiting Timeline**

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

**Contact Rocio de Lis** at delis@eng.ucsd.edu
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](mailto: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

For more information, contact Marie Christensen mej@eng.ucsd.edu
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 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**
Thank you!

Next CAP Executive Board Meeting: February 4, 2021