Welcome CAP Executive Board

♥UCSD | School of Jacobs | Engineering

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October 3, 2013

CAP Leadership 2013 - 2014



CAP Chairman: *Rich Goldberg* VP Corporate Quality, Cisco



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



connecting you to talent and technology

Solar Turbines

A Caterpillar Company

Thank you David Hadacek and Carl Lippke Solar Turbines for 'Spirit of Solar' Cruise September 23, 2013









Welcome New CAP Members!



informatica

sales









sforce

Welcome Distinguished Students - Team Internship Program



2013 Record Breaking Summer



300 Students | 83 Teams (3 International) | 45 Companies

₹UCSD | Corporate -____ Jacobs | Affiliates Program

connecting you to talent and technology

Team Internship Program – Featured Presentation

Burst Duct Mitigation for Nacelle Structure a UTC Aerospace Systems project



Conor Jarvis Anthony Whitaker Mark Huang Joshua Leu

Business Administration Structural Engineering Structural Engineering Mechanical Engineering

Sreeni Narayanan Stu Byrne

Project Advisor Project Advisor

Problem Statement

Burst pneumatic ducts can cause unacceptable deflections and/or fire seal disengagement leading to catastrophic damage to nacelle components



Nacelle Components



Typical Burst Duct Timeline

Pressure and temperature increases from a burst duct can result in catastrophic failures in the nacelle



Inner Fixed Structure Deflection



Thrust Reverser Cross Section

Fire Seal Disengagement



Fire seal disengagement can redirect fan flow into the IFS, causing scooping

Project Objective

Develop and evaluate improved methods to mitigate the effects of burst duct conditions



Project Overview

Brainstorming

Conduct research & generate concepts

• Sensor \rightarrow Driver \rightarrow Mechanism

Analysis

Down-Selection

Develop criteria matrixEvaluate against existing solutions

 Preliminary analysis for feasibility

Project Timeline



Down Selection



Analysis

- CATIA
- NASTRAN
- VIPER (Pressure Relief Analysis Program)
- Hand Calculations

Conclusion

- Generated 27 ideas
- Down selected to and developed 3 design candidates
- Filed 2 invention disclosures

Team Internship Program – Featured Presentation

Situational Awareness with Cyber-Physical Security a ViaSat project

> Daniel Moeller Adam Miles

Kalvin Chau Philip Jia

Supervisors: Brice Dorman Alex Amirnovin Nick Saunders

What is Cyber-Physical Security Integration?

 Leveraging both physical sensor data and cybersecurity technology to form a comprehensive view of the system's security posture





Physical security mechanisms (i.e. sensors, video cameras, etc.)

intertwined with

Cyber security measures (i.e. cyber sensors, firewalls, etc.)

Why do we need Cyber-Physical Security Integration?

Trends in critical infrastructure are moving towards increased connectivity
Smart Grid: Remember the San Diego blackout?
These innovations open new vulnerabilities to cyber attacks

 Physical and cyber security are currently separate



ViaSat Common Cybersecurity Services (CCS)

Central Security GUI

- Real-time monitoring
- Security controls and overrides
- Automated response?



Quality of Trust (QoT)

Quantifies trustworthiness of peersDistributed (peer-to-peer)



Incorporates physical and cyber events
Reputation-based decisions
Enables automated awareness and response

CCS Central Security GUI

Security Operations Center 1

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Introducing New Dean of the Jacobs School of Engineering

Dean Albert 'Al' P. Pisano Jacobs School of Engineering

DEAN

UCSD Convorato
 Jacobs Affiliates Program

Leadership Assimilation Exercise

Core Questions for CAP Executives

- What do CAP members already know about the Dean?
- What do CAP Executives want to know about the Dean?
- What do you need from the Dean to serve as champion for the Jacobs School in your company?
- What does the Dean need to know about CAP, corporate members, and you the CAP Executive?
- What issues do you have that require the attention of the Dean now?

Leadership Assimilation Exercise

Core Questions for Dean Al Pisano

- What do you already know about CAP and our CAP Executives?
- What would you like to know about CAP and CAP partners?
- What are your expectations of CAP partners?
- What significant issues need to be addressed immediately?
- What did you want the job as Dean of the Jacobs School of Engineering?

CAP Business

Anne O'Donnell Director Corporate Affiliates Program (CAP)

connecting you to talent and technology

Master of Advanced Studies - Update

Students enrolled from more than 45 different local companies

FIRST Graduating Classes: June 2013

- Medical Device Engineering: 5 students (multiple provisional patents)
- Wireless Embedded Systems: 16 students

Fall 2013 enrollment Exceeded All goals for registered students

- Architecture-based Enterprise Systems Engineering: 36
- Medical Device Engineering: 19
- Wireless Embedded Systems: 26

New Program: MAS Big Data Science

- Initial proposal submitted: May 2013
- 2nd proposal submittal: October 2013
- Expected launch: Fall 2014

MAS Capstone Presentations and Graduation

connecting you to talent and technology

you're invited

Celebrate the 25th Anniversary of the Computer Science & Engineering Department at UC San Diego

COME experience CSE...

Friday October, 11, 2013 9:30A to 5:00P UC San Diego Campus

Summer Program for Incoming Students (SPIS)

Mohan Paturi Professor, Computer Science & Engineering Department

connecting you to talent and technology

SPIS - Summer Program for Incoming Students

Department of Computer Science and Engineering Jacobs School of Engineering, UCSD

What motivated SPIS?

- How can we best educate our students?
- How can we help them realize their potential?

SPIS Students in Action

Reading, Writing, and Robots

Goals of SPIS

- 1. Competency: critical thinking, algorithmic problem solving, and engineering skills, analytical thinking and writing skills.
- 2. Inspiration: passion for CSE, intellectual engagement, societal impact
- 3. Personal traits for success: initiative, perseverance ——→ success
- 4. Smooth transition to UCSD

Courses

- Foundations of Computer Science
- Reading, Writing, and Robots
- Facets of Computer Science and UCSD
- http://cseacademy.eng.ucsd.edu/spis

Python

Picobot

... helps you see the big picture!

2013 SPIS

- 30 of the incoming CSE students are invited based on the rank of the high school. Features of SPIS
- Team of four faculty and 6 tutors.
- 4-week residential program

Charles Elkan

SPIS Tutors

SPIS Faculty

Geoff Voelke

SPIS 2013 Results

- SPIS had a transformative effect on a number of students.
- Students are thriving in their Fall classes.

Jahaziel Aguilera

SPIS taught me what it actually means to be a programmer. Now I'm looking forward to starting my college journey this Fall.

Kristopher Baes

SPIS will be one of the reasons that I am successful at UCSD.

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Jesse Gallaway

This program has not only taught me the fundamental skills for my classes, it has helped form connections with faculty and students that might not have been made otherwise.

Tina Ke

I'm really glad I got to experience the SPIS program because it gave me a head start for intro to programming and making new friends at UCSD.

SPIS has given me a passion to further develop my Computer Science skills during the school year, and has successfully prepared me for the transition into UCSD.

Cesar Muñoz

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Lucas Phillips

Overall the SPIS program's greatest gifts to me were the resources to learn new programming techniques and also getting to meet my future colleagues and professors ahead of time. Those alone put us above all incoming freshmen students in the field.

Jennifer Tran

Summary

- Tremendous improvement in CSE pipeline at marginally small cost
- An overall excellent program that focuses on individual outcomes will attract talent from all groups including under represented groups.

2014 Plans

- Scale up the program to more than 100 students.
- Promote UCSD CSE to high school students from under represented groups with SPIS as an added bonus
- Extend the features of SPIS to provide an exceptional first-year experience for students.

The von Liebig Entrepreneurism Center NSF I-Corps Site

Rosibel Ochoa, PhD Executive Director gochoa@ucsd.edu

October 3, 2013

Commercialization Pathway

Graduate level Entrepreneurism Education

Business Mentoring by experienced entrepreneurs

Proof-of-Concept Grants

Entrepreneurism Center Services and Programs

Idea Sourcing & Selection

Catalyze Translation of Research Discoveries

Entrepreneurism Education

ENTREPRENEURISM CENTER

UC San Diego Member of the NSF I-Corps Fabric

Integration of von Liebig Center's Services

VON LIEBIG

Engagement Opportunities

• Mentorship and network

• Project ideas for I-corps teams

 Team Internships integrating lean startup and customer development methodology

Tour MOXIE Center for Undergraduate Entrepreneurism

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