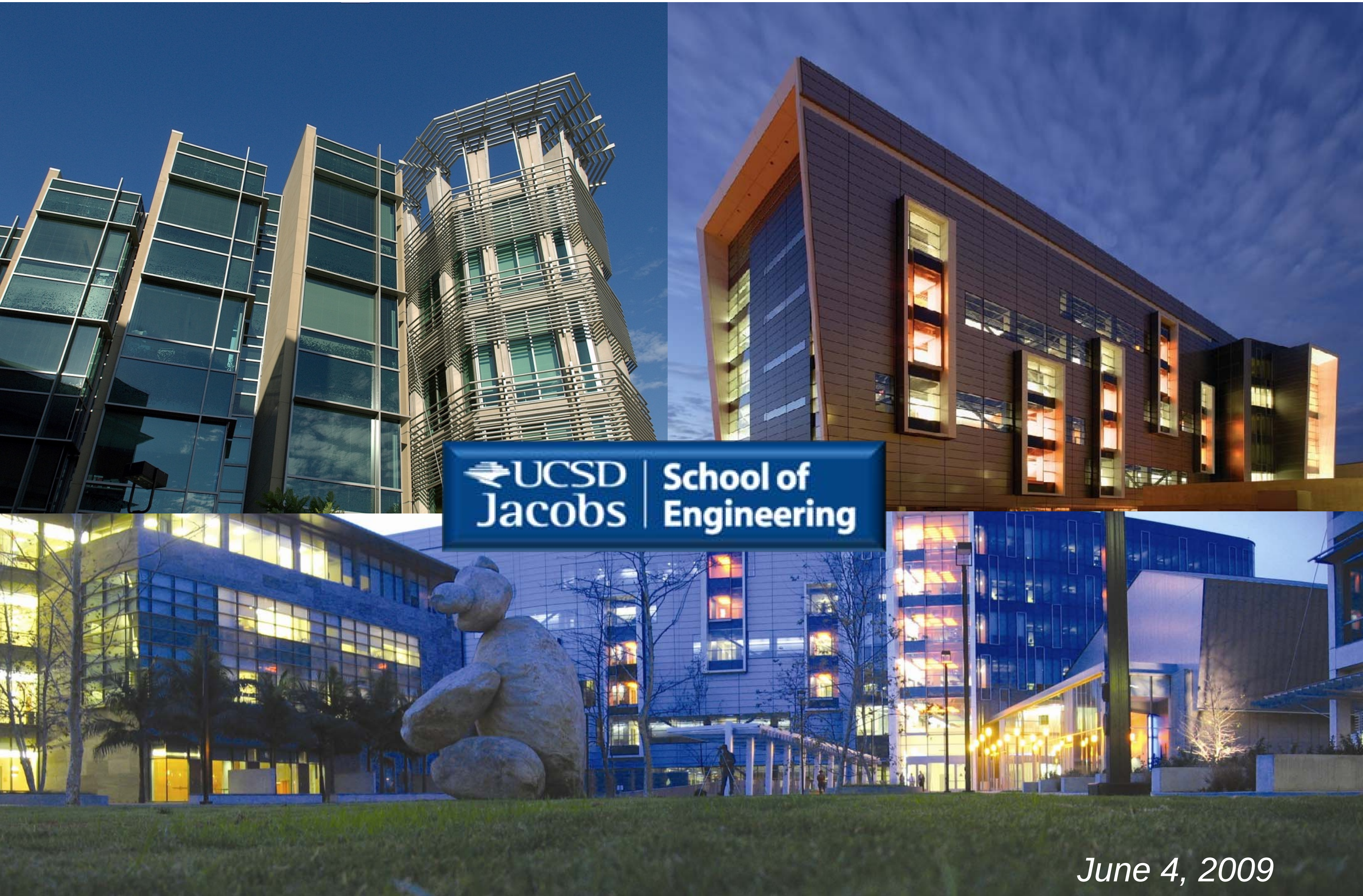
Welcome CAP Executive Board



June 4, 2009

CAP 2008 - 2009 Leadership

CAP Chairman:

Rich Goldberg

VP, Corporate Quality, Cisco

CAP Vice Chairman:

Danny Brown

VP, Technology Development, Cymer

Mahalo Nui Loa

Welcome Student Leaders

Jacobs School Scholars & Fellows

Triton Engineering Student Council (TESC) President 2009-10:

Stephan Kemper, CSE ‘10

Society of Civil & Structural Engineers
Colin Haynes, SE ’09

Society of Automotive Engineers
Jerry Curiel, ME ‘09
Kanchana Gunasekera, ME ‘10

Corporate Affiliates Program Board Meeting Spring 2009

Colin Haynes
SCSE President

http://scse.ucsd.edu
scse@ucsd.edu

Greetings from Hawaii!!!

Pacific Southwest Regional Conference 2009

UC San Diego: 3rd Place Overall

Reaching out to the community

UCSD Seismic Outreach Project:

10 events

700 sixth graders

60 volunteers

Membership

2008-2009 Outstanding Student Organization of the Year

182 members
15+ social events
6 tours
SE Day Career Fair

UCSD SAE

Jerry Curiel
SAE President

Kanchana Gunasekera
SAE Vice President

formula
HYBRID

UCSD SAE

Formula Hybrid

May 4-6, 2009
New Hampshire Motor Speedway
Loudon, NH

9th Overall
3rd For Electric Cars

22 Universities

FSAE California

June 17-20, 2009,
Auto Club Speedway

Static Components

- **Cost Report**
- **Design Presentation**
- **Business Plan Presentation**
- **Technical Inspection**

Dynamic Components

- **Autocross**
- **SkidPad**
- **Endurance**
- **Acceleration**

UCSD SAE

Hybridization

Donor Chassis

TR-9E

formula HYBRID

Hybrid Testing

Welcome New CAP Member!

Henry Derovanessian

Vice President, Engineering

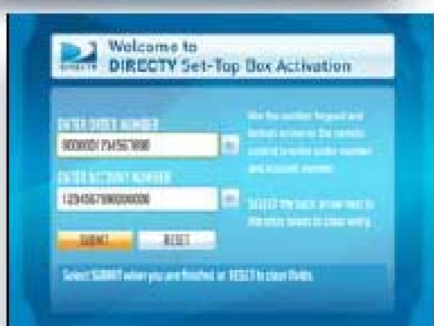
DIRECTV Highlights (NASDAQ: "DTV")

- **#1 Direct Broadcast Satellite (DBS) service**
  - ~$20B annual revenue in 2008
  - 18M customers in USA
  - 4M DIRECTV customers in Latin America

- **Digital Technology Leader**
  - ~130 HDTV channels in MPEG-4
  - Video On Demand including 1080p Full-HD
    - Hybrid satellite and broadband Internet delivery
  - Digital Video Recorders
  - Interactive services

- **Engineering Excellence**
  - More than 350 issued patents
  - 8 technical EMMY® awards
  - Technical standards contributions

Engineering's Role



- **Consumer equipment**
  - Outdoor antennas
  - RF distribution
  - Set-top box requirements
  - Embedded software
- **Broadcast centers**
  - Signal backhaul
  - Compression systems
  - Program guide generation
  - Signal security
  - Scheduling systems
- **Satellite fleet management**
  - Communication systems
  - RF uplinks

DIRECTV & UCSD Jacobs

- **DIRECTV Engineering in El Segundo**
  - More than 350 engineers
    - Electrical & Systems Engineering
    - Computer Science
  - One third have advanced degrees
- **Goal: forge a relationship with students and faculty at UCSD Jacobs**
  - Internship opportunities
  - Research & Senior Design projects
    - e.g. tools that improve home installations
  - Employment

Dean's Report:

Jacobs School of Engineering

Dean Frieder Seible

UC San Diego Living Laboratory for Clean Technologies

Sun Modular Data Center

Weather Sensing Station

Solar Trees

UC San Diego: A Living Laboratory for Real-World Solutions

Students Focus on the Future

San Diego Clean Tech Initiative

pipeline of technologies and human capital to fuel growth of Clean Tech Sector

THE CITY OF SAN DIEGO

UCSD Jacobs VON LIEBIG CENTER

- Von Liebig Center Seed Round Focused on commercialization of Clean Technologies.

- Open to faculty from UC San Diego, San Diego State University, University of San Diego

- Sponsored by City of San Diego

- **Sponsorship Opportunity for Strategic Corporate Partners**

Wireless Healthcare Innovation Challenge

- **Objectives**:
  - Accelerate translation of novel, disruptive technologies from research institutions to treat the patient.
  - Support the establishment of San Diego as the wireless healthcare center in the world.

- **Anticipated impact:**
  - Global market opportunity; address areas of need; job creation; workforce training; 20+ project proposals advised with 3-6 projects awarded seed grants and business mentoring.

Credit: David Kilper, WUSTL Photo

Jacobs School/UC Davis Co-lead New California Energy Commission Solar Collaborative

- Develop roadmap for introducing solar technologies
- Determine which solar technologies are most efficient and economical
- Build collaboration between utilities, research institutions, manufacturers, investors, regulatory agencies

Concentrix solar

Installation of the FlatCon CPV System expected late June 2009

The FLATCON® technology offers the following advantages over other solar technologies:

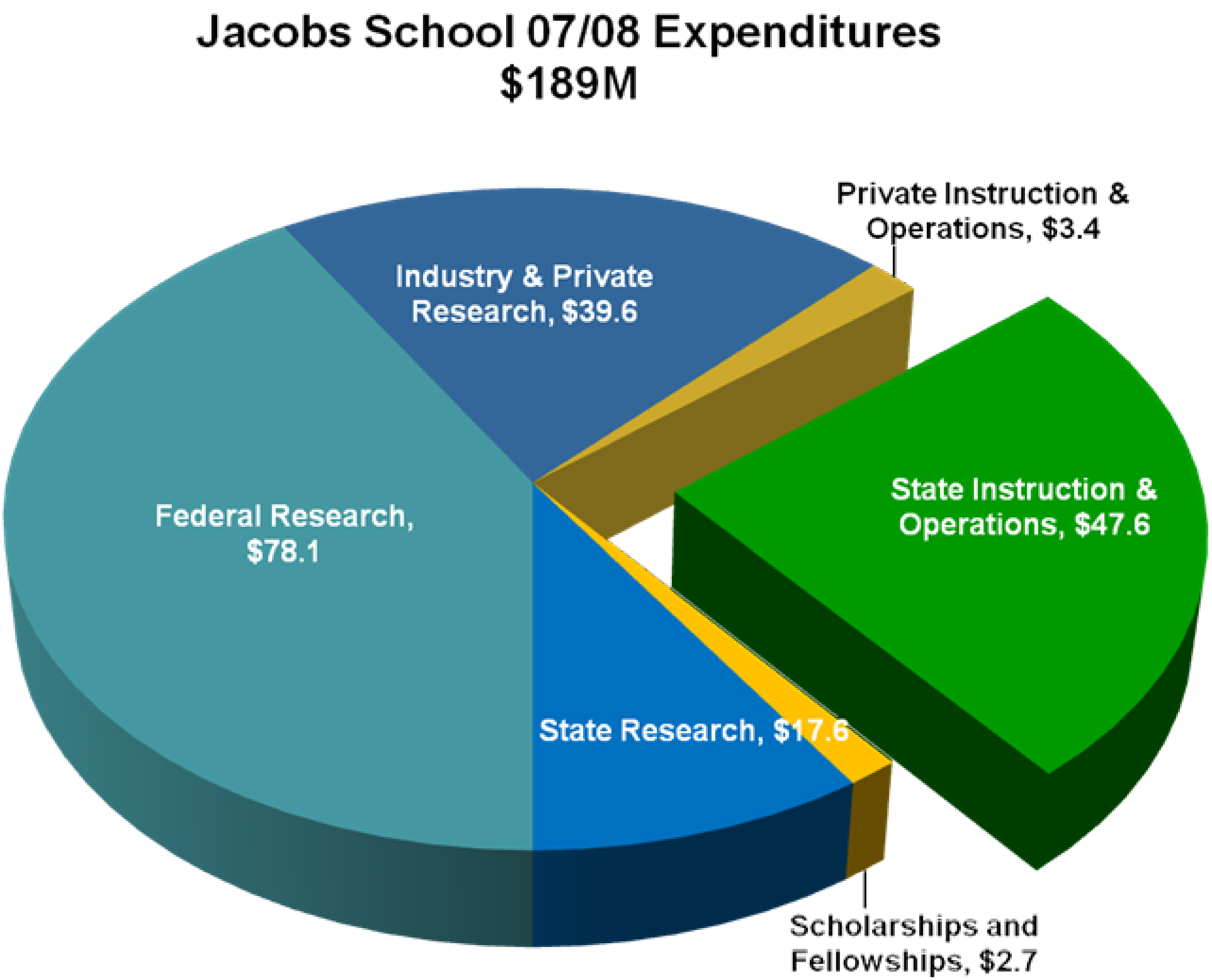
- High module and system efficiencies and therefore less area is used
- Lower costs for generating electricity (cost advantage 10-20% depending on location)
- Leads to quicker amortization time and better return on investment
- Due to concentration, the active solar cell area is reduced which results in a lower consumption of expensive semiconductor material
- Better modularity in comparison to solar thermal systems

Gordon Engineering Leadership Center

- Cymer CEO, Bob Akins, presented keynote at Gordon Leadership Center Inaugural Forum, May 28th
- 8 Undergraduate Student Scholars Selected
- 12 Graduate Student Scholars Selected
- 1 Professional Scholar Selected

State funding 25% of Jacobs School budget

Covers salaries, instruction, and operations



2009 Faculty recruitments going strong with 16 active searches

Bioengineering: 2

Computer Science & Engineering: 2

Electrical & Computer Engineering: 2

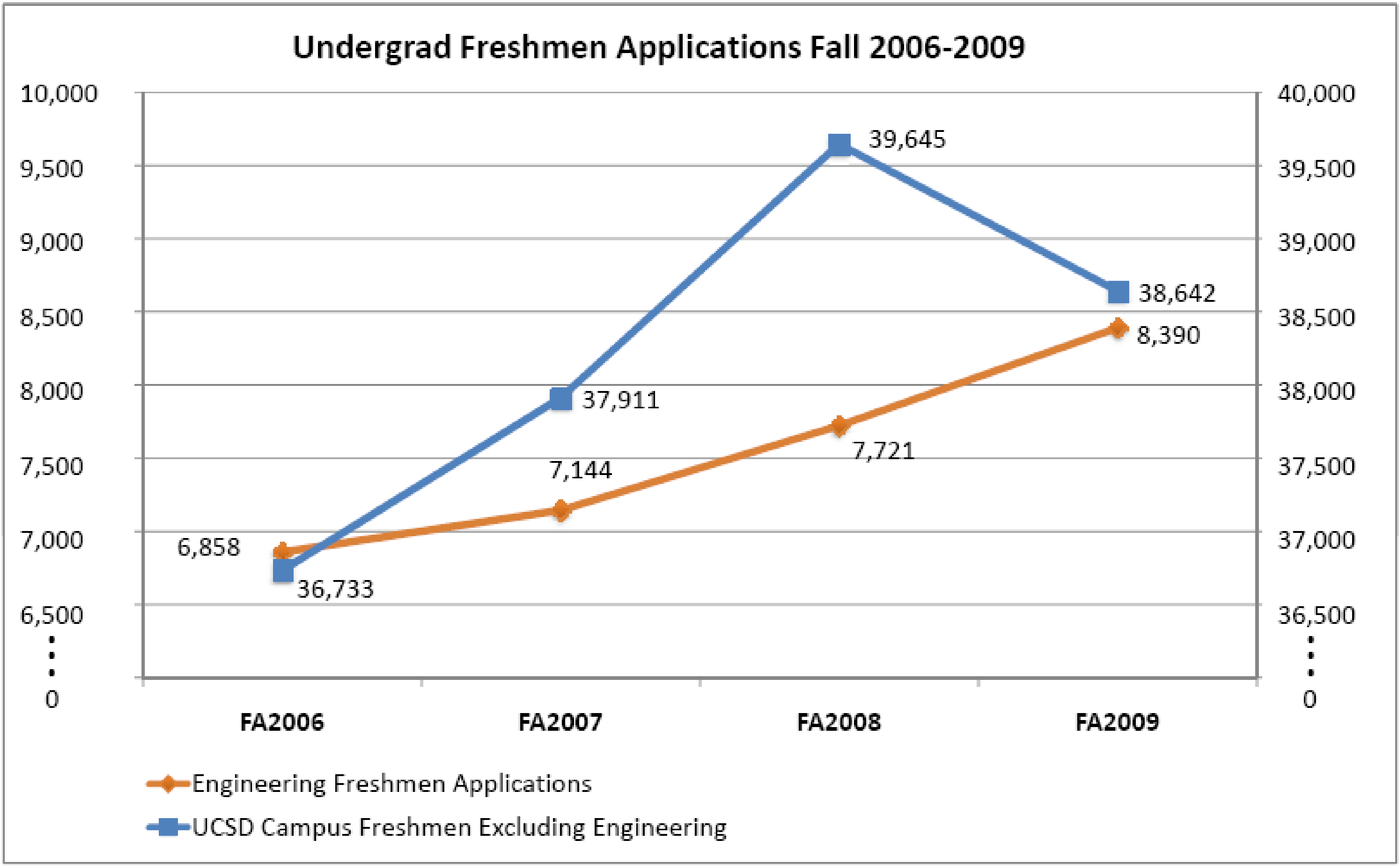
Mechanical & Aerospace Engineering: 4

NanoEngineering: 4

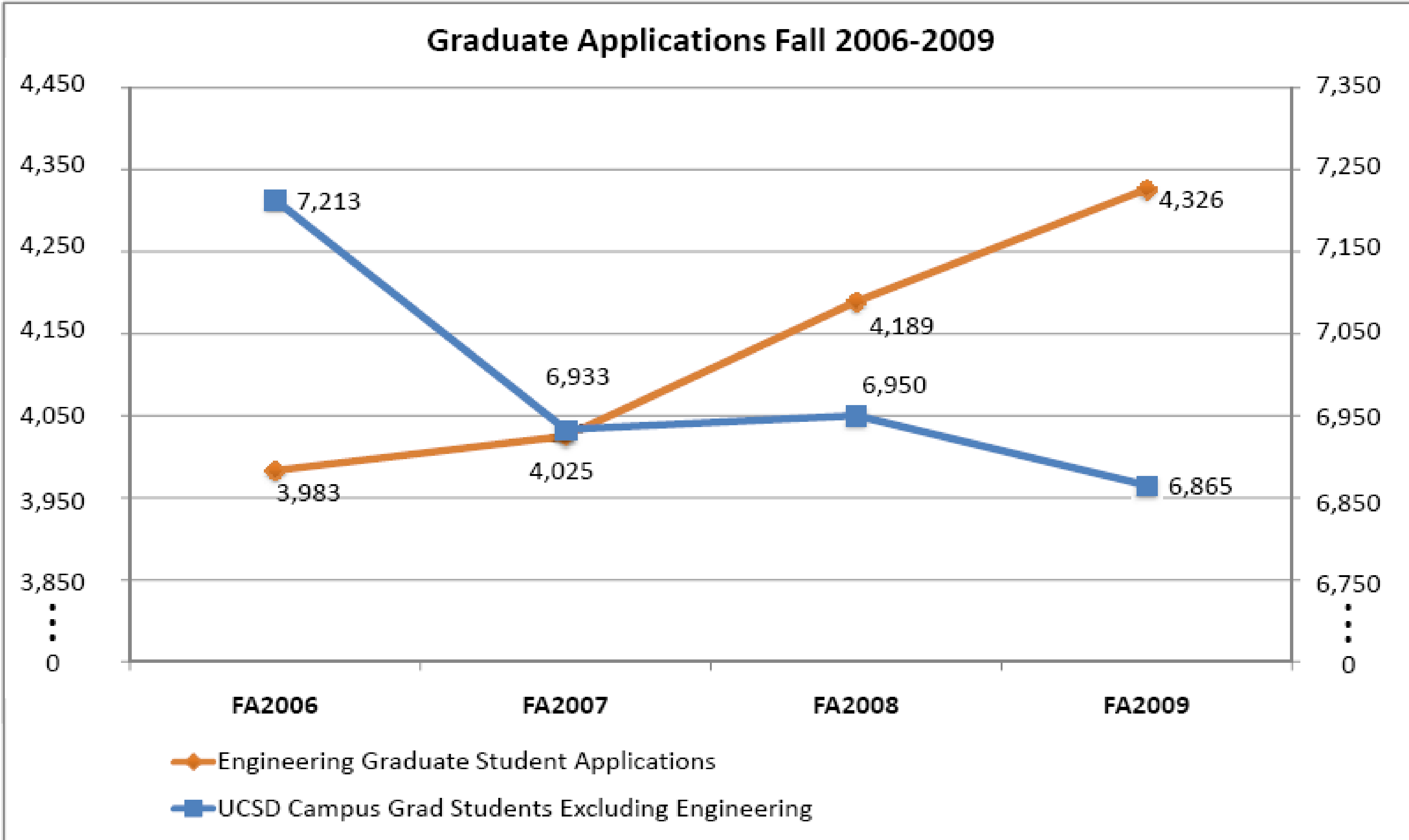
Structural Engineering: 2

Structural and Materials Engineering (SME) Building ON HOLD

- $83.4 million project (design, equipment, construction)
- $68 million construction, shovel ready
  Economic impact of construction:
  1510 directly employed
- Home to:
  NanoEngineering
  Structural Engineering
  Studios for Visual Arts
- Serving:
  1180 students
  50 faculty
- Expected annual economic impact:
  $42 million in federal research expenditures, generating total impact of $85 million



	FA2006	FA2007	FA2008	FA2009
Engineering Freshmen Applications	6,858	7,144	7,721	8,390
UCSD Campus Freshmen Excluding Engineering	36,733	37,911	39,645	38,642

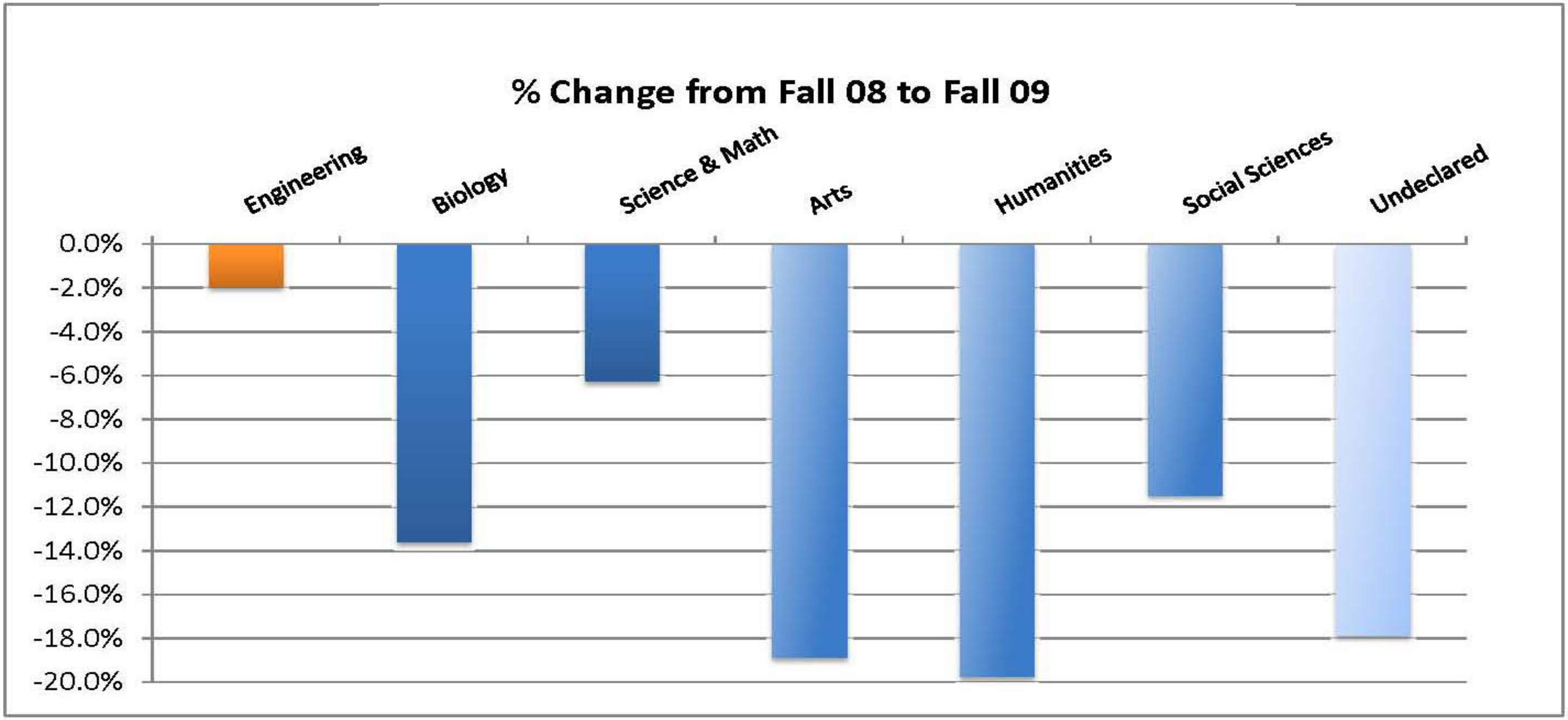


	FA2006	FA2007	FA2008	FA2009
Engineering Graduate Student Applications	3,983	4,025	4,189	4,326
UCSD Campus Grad Students Excluding Engineering	7,213	6,933	6,950	6,865

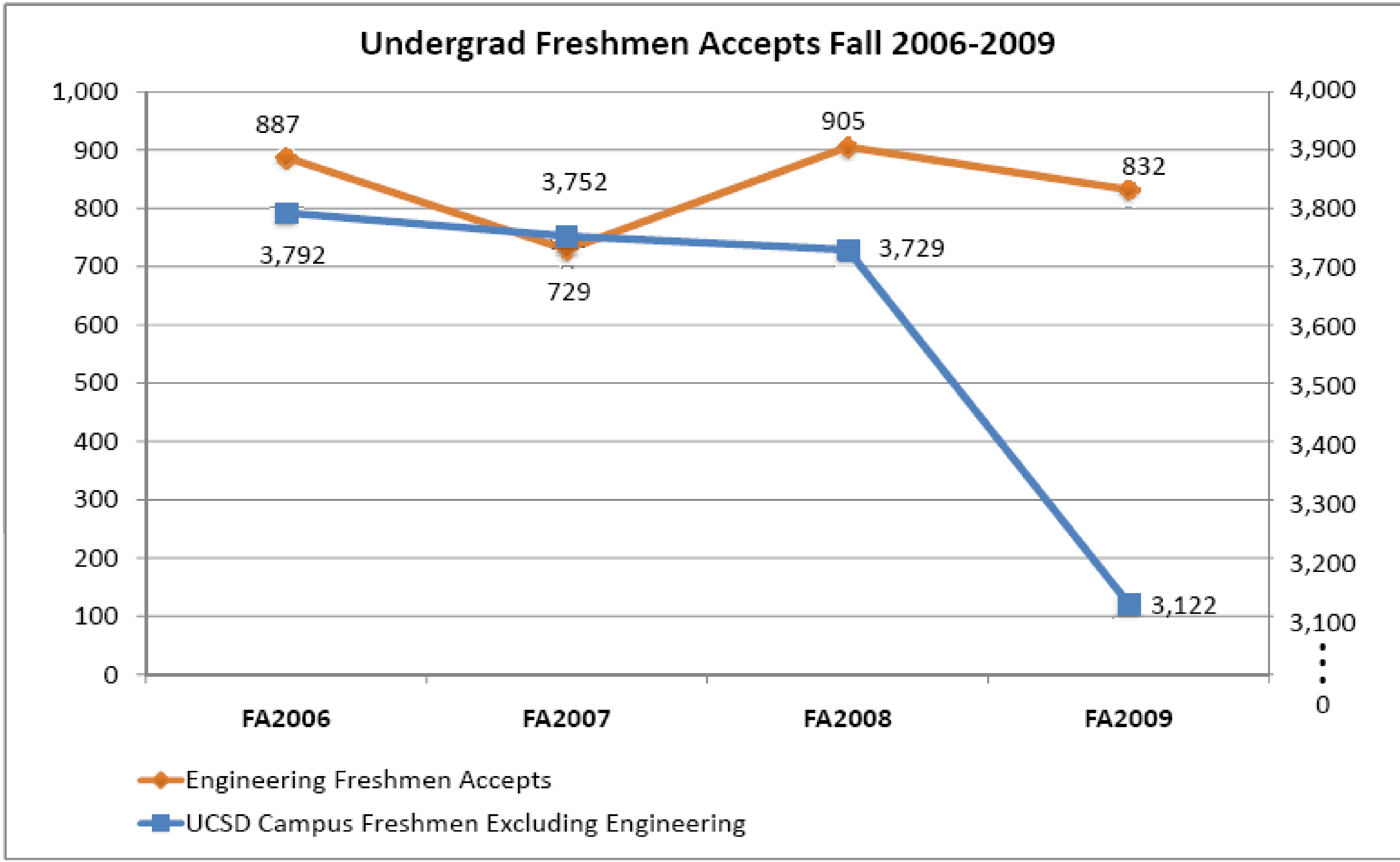
UCSD admits fewer freshmen due to budget cuts

(targeted reduction for campus is 12%, 2183 fewer offers of admission)

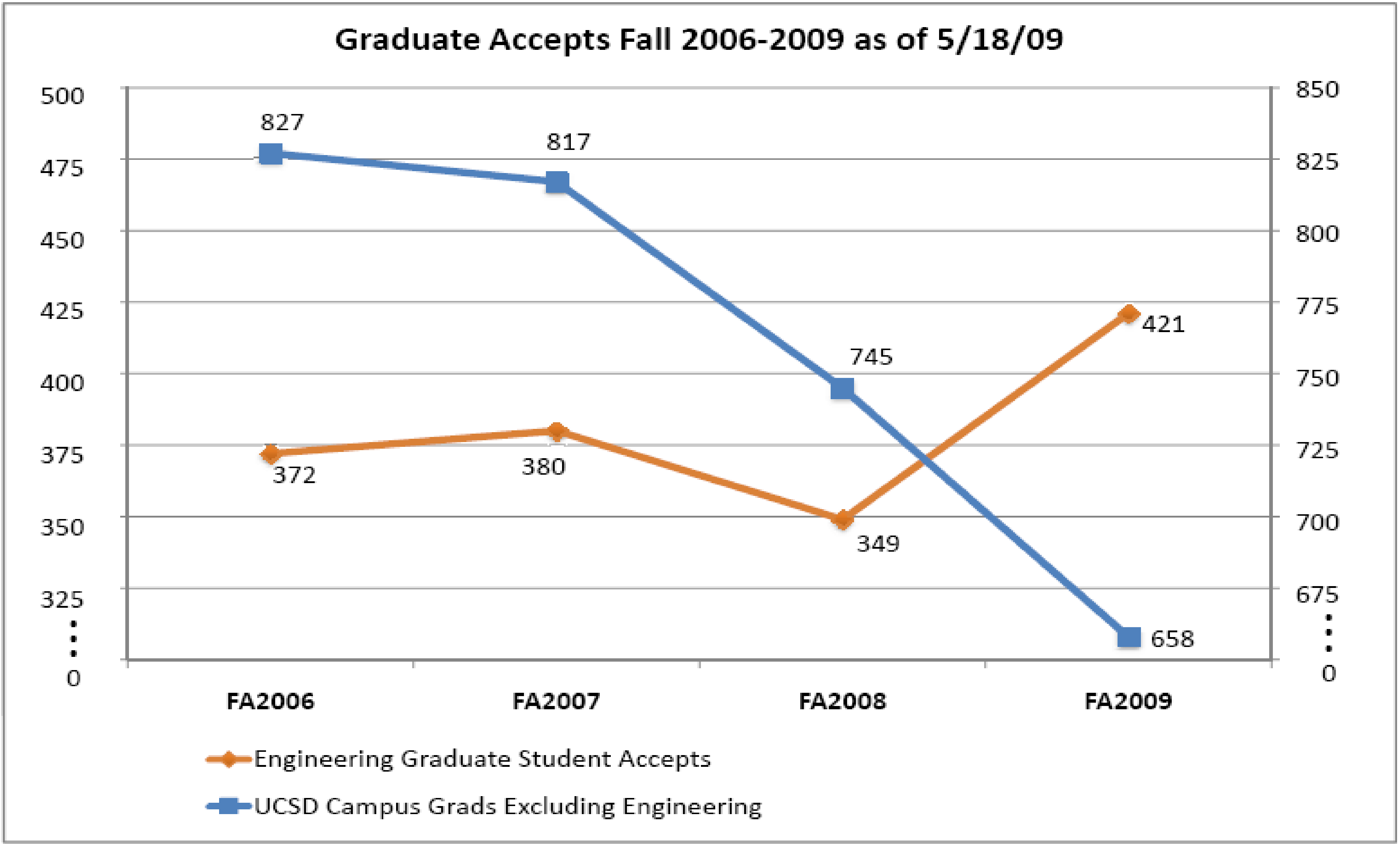
% Change in Freshman Admissions between Fall 2008 and Fall 2009



	FA2008	FA2009	FA2009 GPA	FA2009 SAT
Engineering Freshmen Admits	3,618	3,533	4.27	2006
UCSD Campus Freshmen Admits	16,099	14,037	4.08	1964



	FA2006	FA2007	FA2008	FA2009
Engineering Freshmen Accepts	887	729	905	832
UCSD Campus Freshmen Excluding Engineering	3,792	3,752	3,729	3,122



	FA2006	FA2007	FA2008	FA2009
Engineering Graduate Student Accepts	372	380	349	421
UCSD Campus Grads Excluding Engineering	827	817	745	658

Team Internship Program (TIP)

Bringing innovative student teams to corporate partners

Team Internship Program	2003	2004	2005	2006	2007	2008	2009*
Students	3	18	35	50	61	85	80**
Teams	1	5	9	18	20	29	31
Companies	1	5	8	14	15	14	22
New sponsors	1	4	5	8	4	3	10
Returning sponsors	3	1	3	6	11	11	12
Multiple teams			1	3	3	8	5
International teams				1	2	8	1

** In Progress*

*** 2009 trend: smaller teams, Jacobs students placed with students from other Universities*

Dean's Report:

Jacobs School Culture Graduation Ceremonies

Jacobs GRADuation Celebration
June 3, 2009 – 4:30pm

SE Order of the Engineer Ceremony
June 12, 2009 – 4:00pm

Graduation Ring Ceremony
June 13, 2009 – 8:00pm

Faculty Presentation

Rajesh Gupta

Professor, Computer Science and Engineering

Cyber-Physical Systems: **Computer Science Engineering Programs in Embedded Systems**

CSE Program in

Embedded Systems

Training Talent for the Emerging
Cyber-Physical Systems

Changing Society, Transforming Lives

Rajesh Gupta, Ryan Kastner, Tajana Rosing

Let us talk about

- Transformations in Engineering Education
  – Role of computing
- Emerging Cyber-Physical Systems
  – Role of society
- “Local Scene”
  – The research ecosystem on CPS
- Engineering Embedded Systems Curriculum

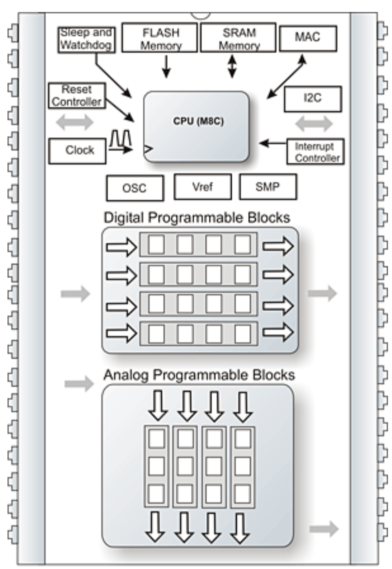
Engineering and Engineering Education Trends

- Technological maturity (materials, computing, communications) driving emergent systems of systems
- Proliferation of computing in curricula
- Society and infrastructure applications
  - Fundamental reexamination of work, energy in over two hundred years
  - Fundamental understanding of biological systems as an engineer would.

Microelectronic Materials, Devices & Systems

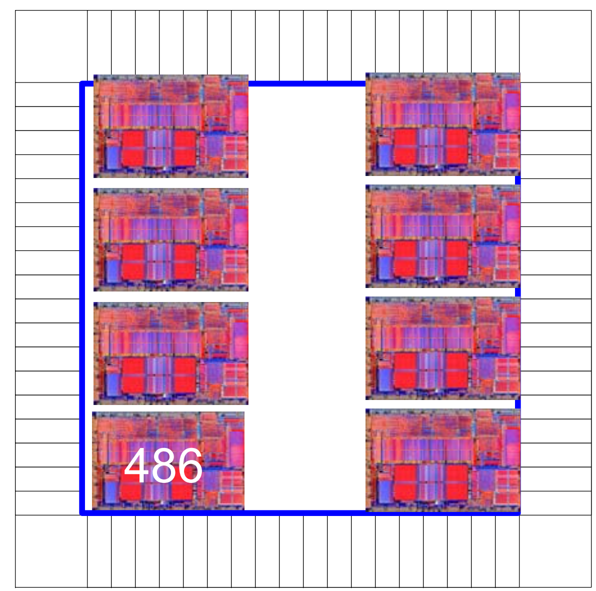
- Pretty much anything we need to build a complete system can be done on a chip
  - Digital, analog, baseband, RF, memory, non-volatile memory,…
  - And in sufficient quantity to make reasonable SOCs

From cost efficient mixed-signal μcontrollers …

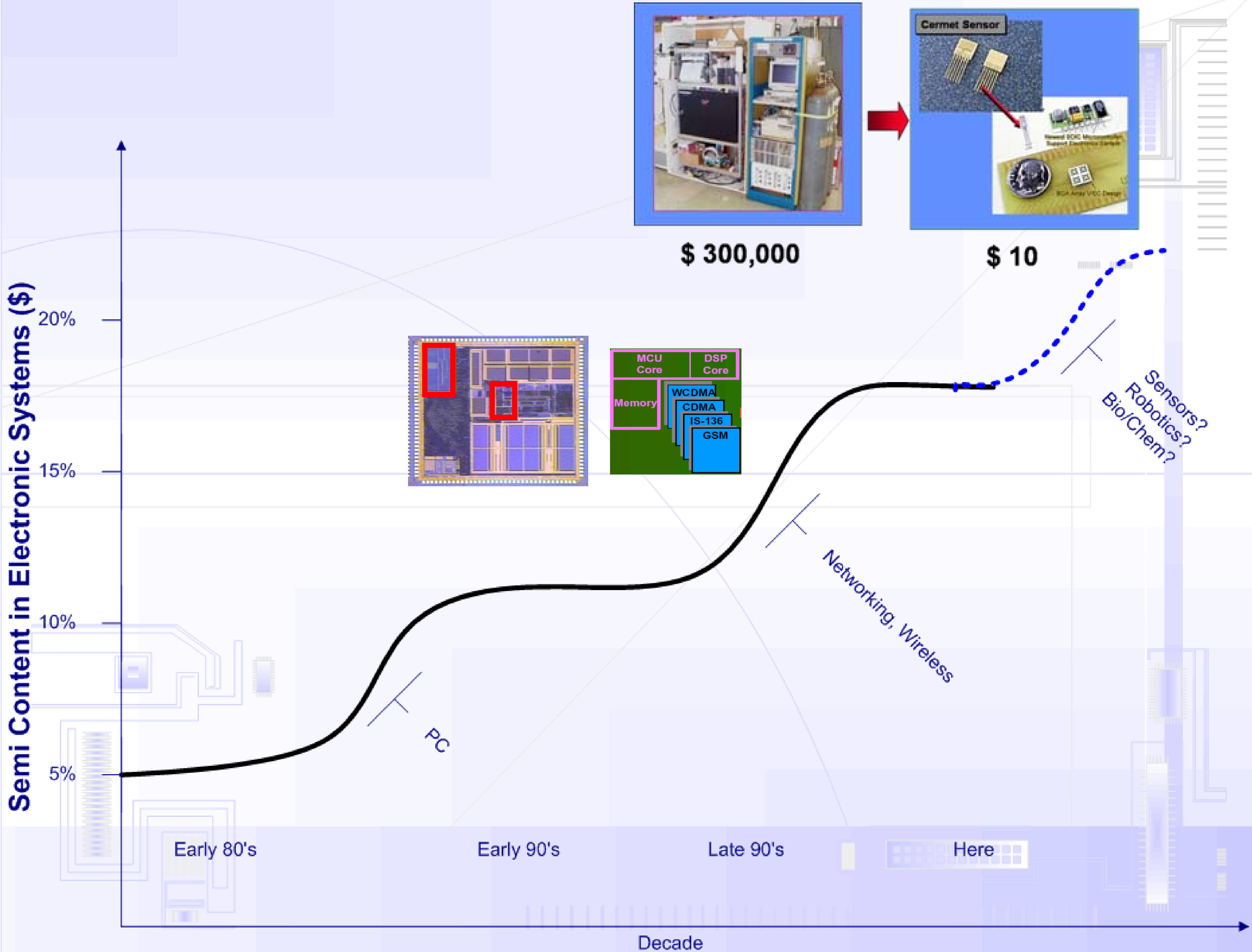


Cypress PSOC

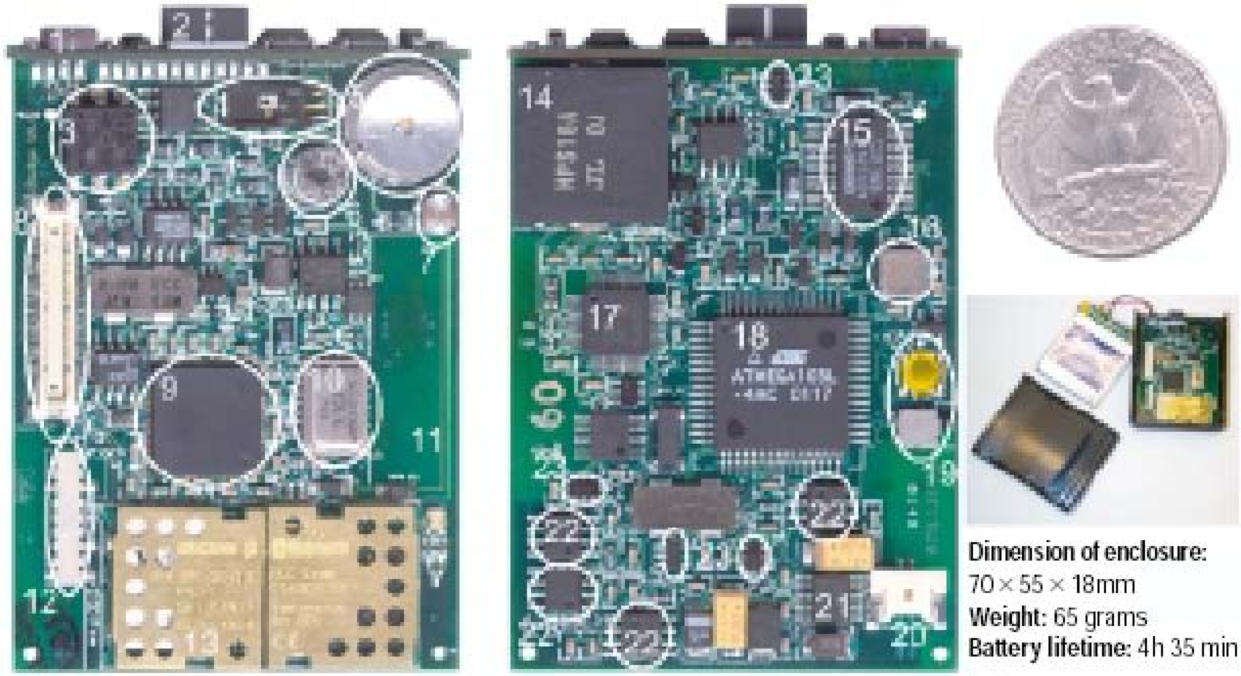
…to multi-processor systems



Pad-limited die in 65nm


Cermet Sensor
$ 300,000
$ 10
Semi Content in Electronic Systems ($)
20%
15%
10%
5%
MCU Core
DSP Core
Memory
WCDMA
CDMA
IS-136
GSM
PC
Networking, Wireless
Sensors?
Robotics?
Bio/Chem?
Early 80's
Early 90's
Late 90's
Here
Decade

Migration to sensorial computing



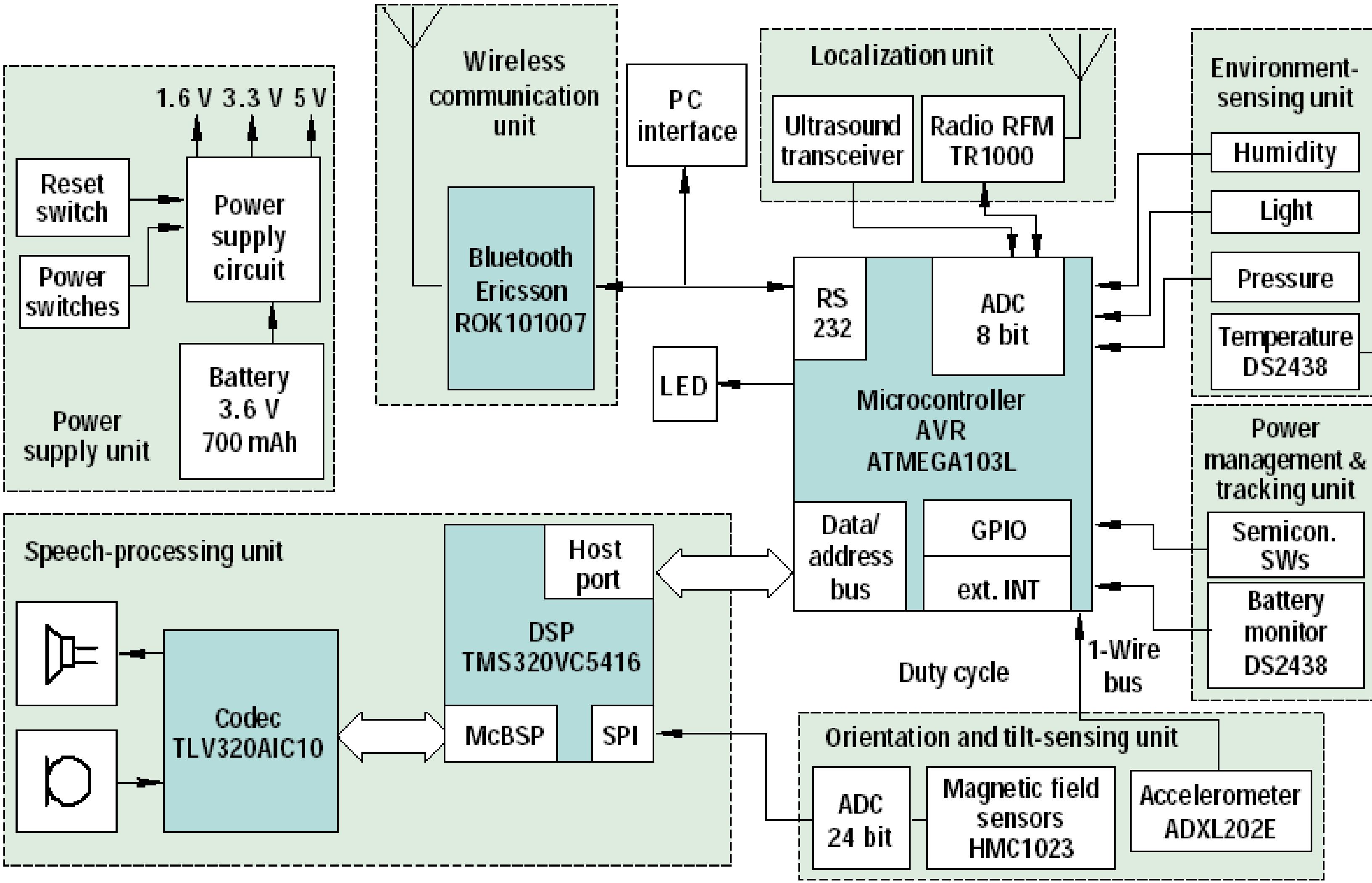
(a) Top Bottom (b)

47 × 68 × 7 mm (1.85 ×2.78 × 0.28″)

1. Accelerometer forx, y-axis
2. Magnetic field sensor
3. Pressure sensor
4. Humidity sensor
5. Ultrasound tranceiver
6. Microphone
7. Light sensor
8. Connector (SW download)
9. DSP
10. RFM radio (for localization)
11. PCB antenna for RFM radio
12. Blue tooth antenna
13. Blue tooth module
14. Loudspeaker
15. ADC magnetic field sensor
16. Accelerometer for x-axis
17. Codec chip
18. Microcontroller
19. Switches (Power, Reset)
20. Battery connector
21. Power supply
22. Battery monitors
23. Switches to functional units

►Tremendous innovations in form and function

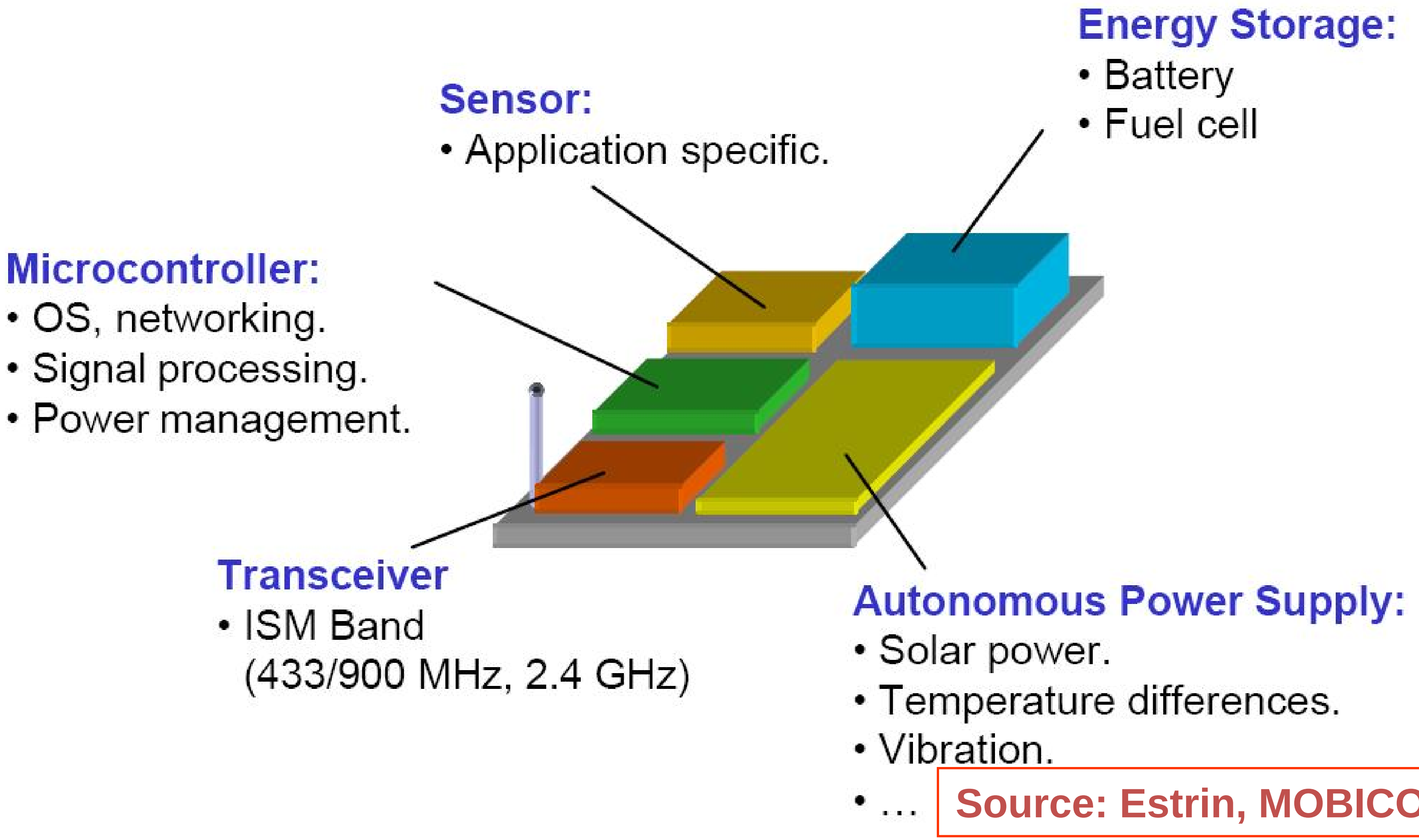
Shape of computers to come…small



Courtesy: Mani Srivastava, UCLA

Pointer to major sensor node platforms at http://mesl.ucsd.edu/gupta/SPOTSurl.html

…and mobile



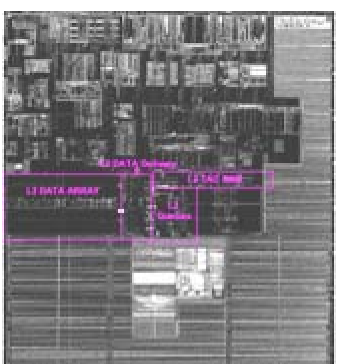
Source: Estrin, MOBICOM'03

Ü Intelligent, mobile, perceptive embedded systems

Embedded Computing = Computing + Space + Time

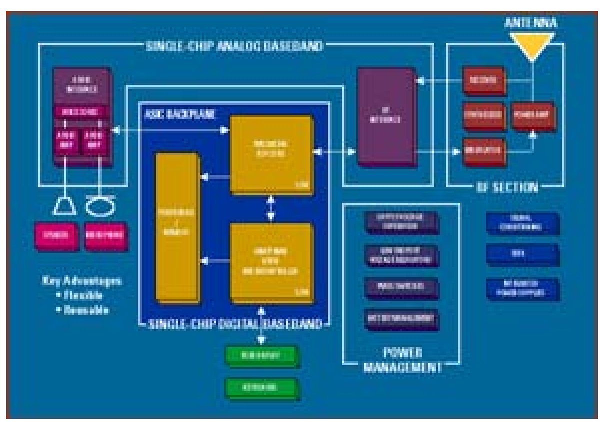
- Location information is part of the computational infrastructure. Mobile device or mobile environments.
- Three broad classes:

W



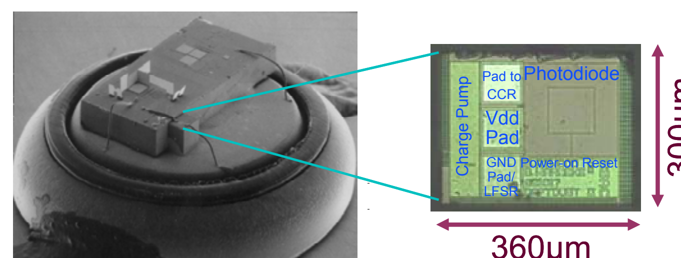
Stationary Devices

mW



Mobile Devices

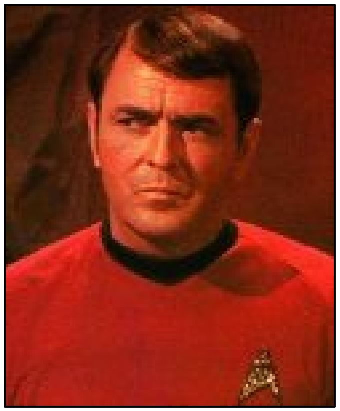
µW



Sensor Devices

Engineering The Engineer

‘The Engineer’ circa 24th Century



a.k.a. Montgomery 'Scotty' Scott

He played the quintessential engineer that was able to work miracles. Hence the name The Miracle Worker. He appeared in all seven of the Star Trek movies with an appearance on Star Trek The Next Generation in the episode 'Relics'. One of the more memorable lines from that episode is Scotty talking to the holodeck computer saying:

"N-C- C-1-7-0-1. No bloody A, B, C, or D".

The Engineer

- The quintessential engineer, circa 1970
  - Calculus, material properties, fluid/thermo dynamics
  - Time variant, time invariant systems, signals and circuits
  - Ability to quantify, parameterize problem space
  - Practiced and practical

ABET Certification Criteria, 2004/2005

Criterion 6. Facilities

Classrooms, laboratories, and associated equipment must be adequate to accomplish the program objectives and provide an a Appropriate facilities must be available to foster faculty-stu mate that encourages professional development and professional activities. Programs must provide opportunities for students to learn the use of modern engineering tools. Computing and information infrastructures must be in place to support the scholarly activities of the students and faculty and the educational objectives of the program and institution.

Engineering Facilities

1. Curriculum

The program must demonstrate that graduates have: the ability to apply advanced science (such as chemistry and physics) and engineering principles to materials systems; an integrated understanding of scientific and e e four major elements of the field, viz. structure, properties, proc the material systems appropriate to the field; the ability to apply and integrate knowledge from each of the above four elements of the field to solve material selection and design problems; and the ability to utilize experimental, statistical, and computational methods consistent with the goals of the program.

Ceramic Engineering

thermodynamics of physical and chemical equilibria; heat, mass, and momentum transfer; chemical reaction engineering; continuous and stage-wise separation operations; process dynamics and control; process design; and appropriate modern experimental and computing techniques.

Chemical Engineering

Mechanical Engineering

1. Curriculum

The program must demonstrate that graduates have the ability to use mathematical and computational techniques to analyze, model, and design physical systems consisting of solid and fluid components under steady state and transient conditions.

Industrial Engineering

of manufacturing operations using statistical and calculus based methods, simulation and information technology; lab ... e able to measure manufacturing process variables in a manufacturi ... rences about the process.

1. Curriculum

The program must demonstrate that graduates have the ability to design, develop, implement, and improve integrated systems that include people, materials, information, equipment and energy.

The program must include in-depth instruction to accomplish the integration of systems using appropriate analytical, computational, and experimental practices.

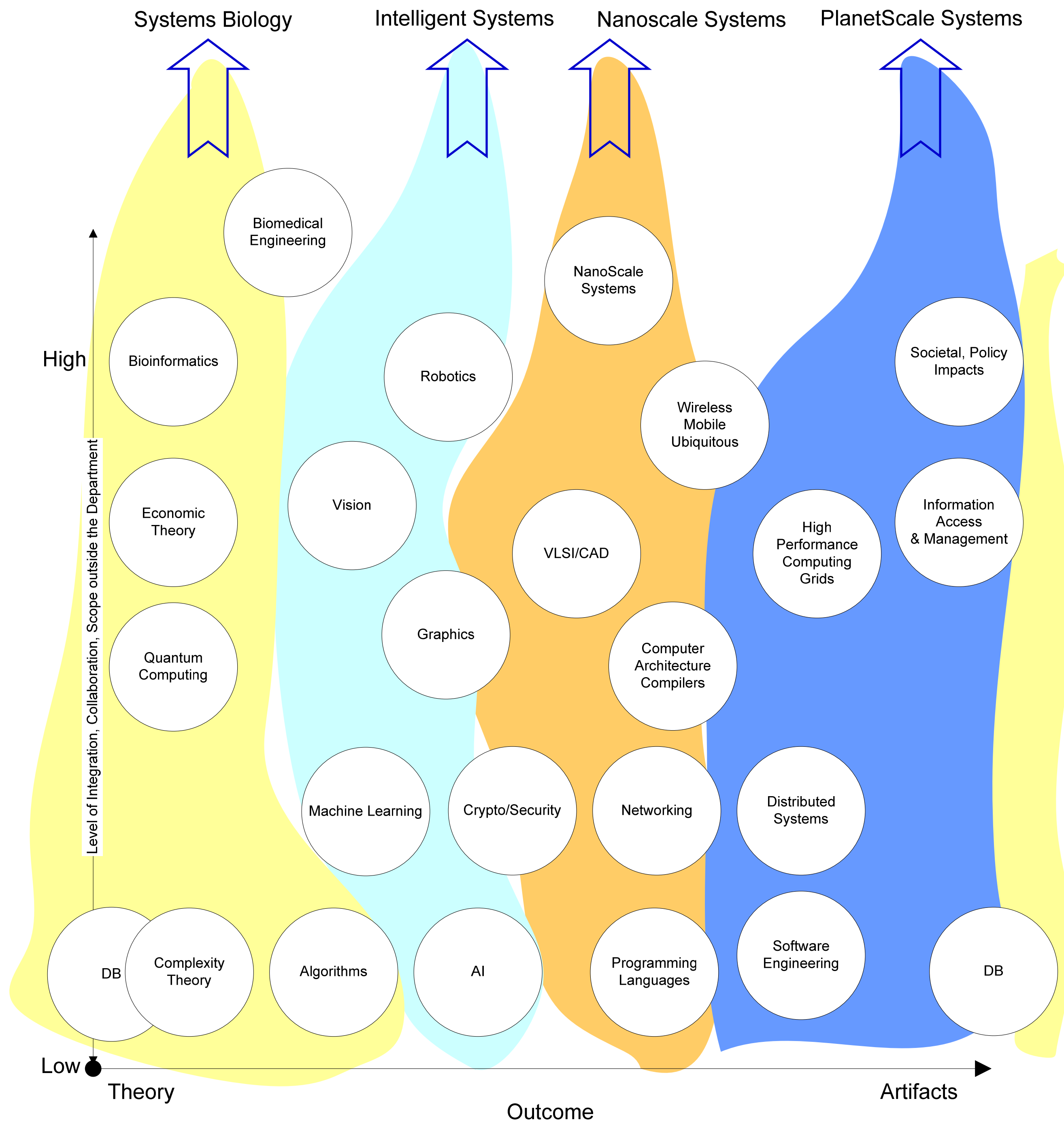
1. Curriculum

The curriculum must provide both breadth and depth across the range of engineering and computer science topics implied by the title and objectives of the program.

Materials Engineering

prop ... ated to material systems appropriate to the field; the ability to ap ... of the above four elements of the field to solve materials selec ... o utilize experimental, statistical and computational methods consistent with the goals of the program.

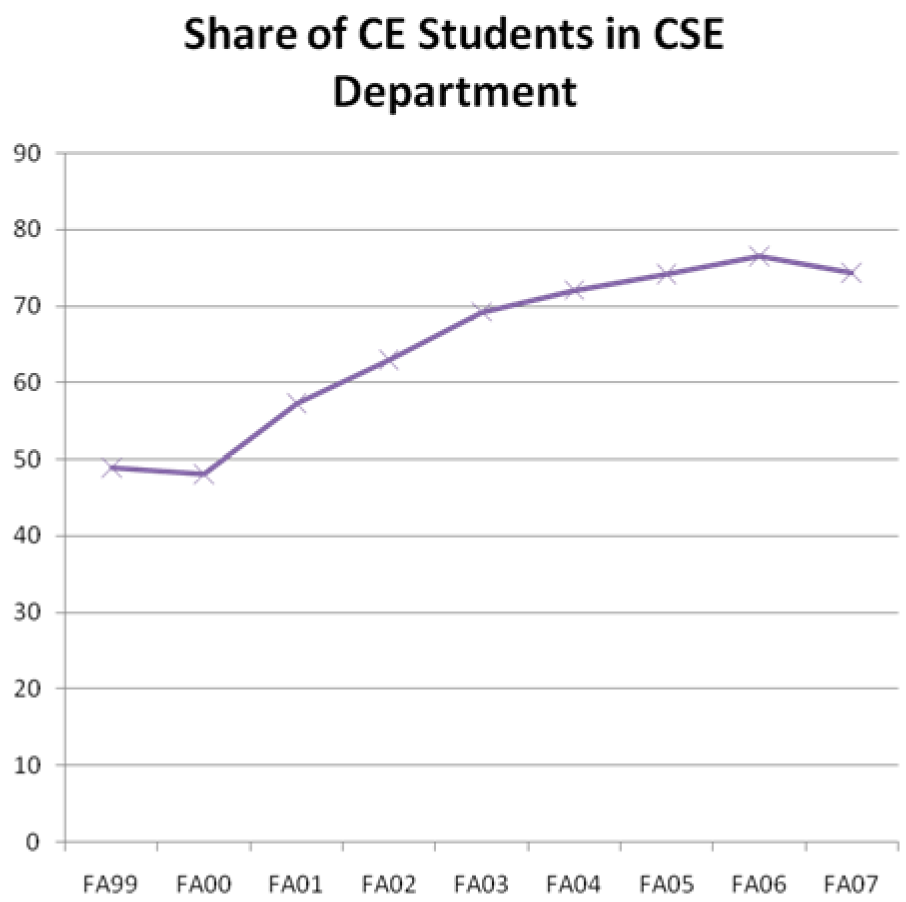
Changing Life, Living, Science, Society



Computer Science & Engineering

- Problems of Scale and Diversity
  - Millions of transistors, thousands of complex, diverse blocks working together
  - Technology, methods must scale at every level
  - Widespread heterogeneity
- Problems of Operational Efficiency
  - Widening gap between what is achievable and what is actually built
  - Lots of Si capabilities are left on the table
    - "loss" at all levels: architecture, circuits, SW, application

Computer Engineering: A Changing Discipline



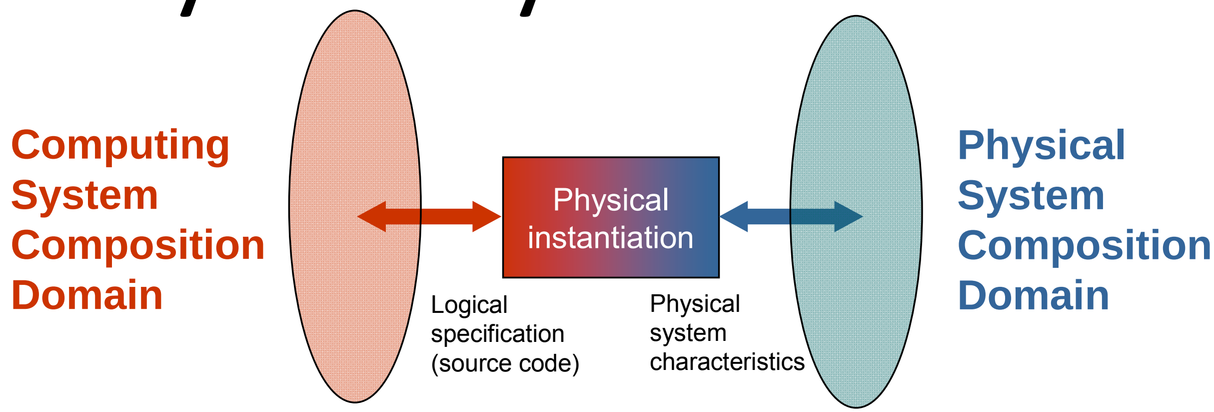
60 CE majors randomly chosen
14 students responded in CSE Dept.
18 students responded in ECE Dept.
9 questions asked

Main reason for choosing CE:
20: both hardware + programming

Top needs for courses:

- Embedded Systems, Hardware
- Parallel Programming
- High Performance Computing

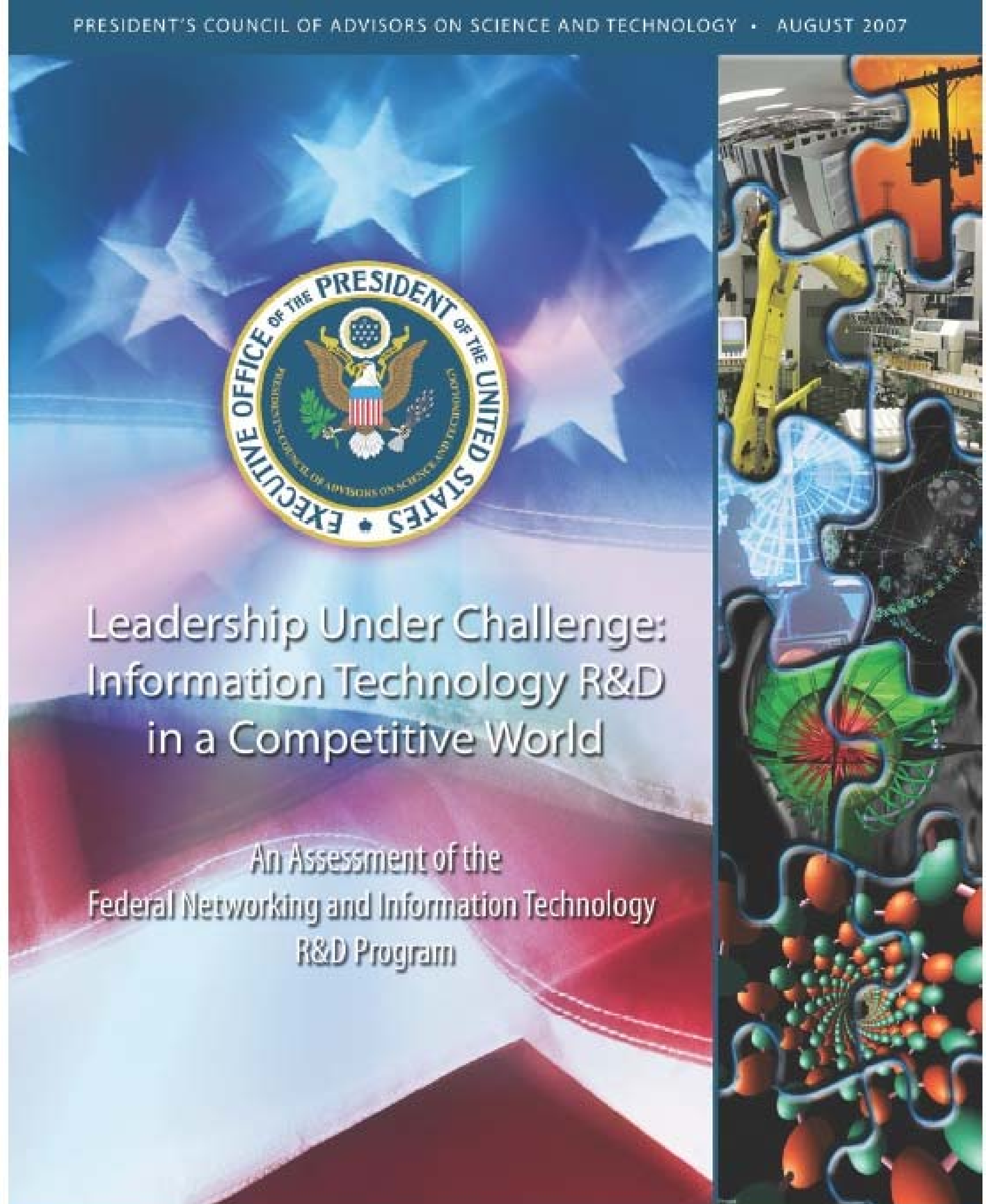
Cyber-Physical Systems



- “Cyber” Models
- Modeling Languages
  - Structure
  - Behaviors
- Mathematical Domains
  - traces/state variables
  - no reference semantics or “semantic units”

- Physical Models
- Modeling Languages
  - Structure
  - Behaviors
- Physical Laws
  - Physical variables
  - Physical Units

Executive office tasked with directing national R&D priority across all areas of S&T.



http://www.nitrd.gov/pcast/reports/PCAST-NIT-FINAL.pdf

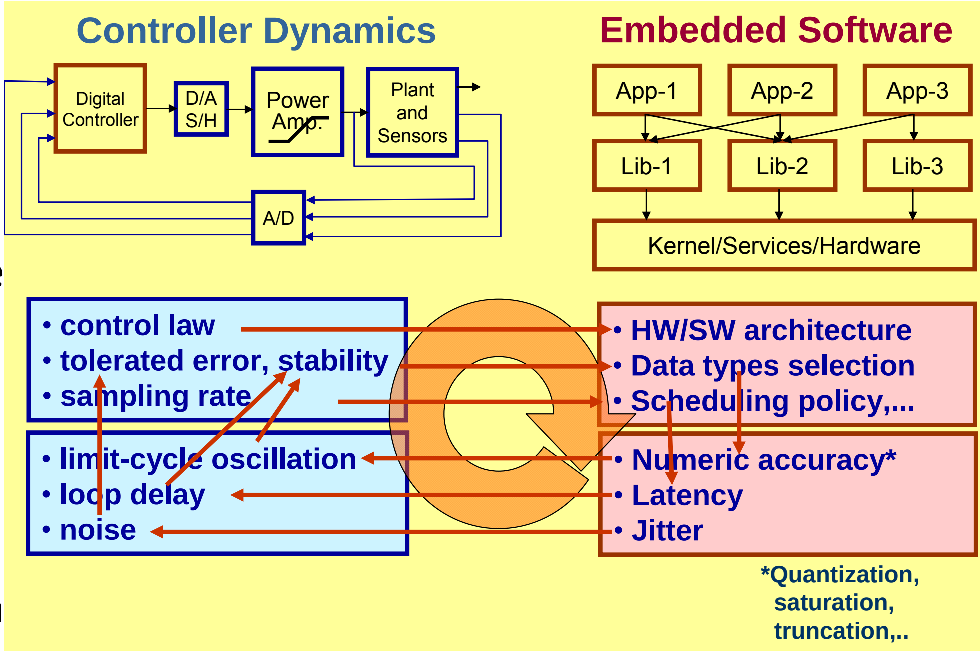
#1 Priority

As new funding becomes available, the following four areas should receive disproportionately larger increases because they address issues for which progress will have both the greatest effect on important applications and the highest leverage in advancing NIT capabilities.

- *NIT Systems Connected with the Physical World* (which are also called embedded, engineered, or cyber-physical systems): The NITRD Subcommittee should develop and implement a Federal Plan for high-confidence NIT systems connected with the physical world.
- *Software:* The NITRD Subcommittee should facilitate efforts by leaders from academia, industry, and government to identify critical issues in software design and development to help guide NITRD planning on software R&D.
- *Digital Data:* The Interagency Working Group on Digital Data, in cooperation with the NITRD Subcommittee, should develop a national strategy and develop and implement a plan to assure the long-term preservation, stewardship, and widespread availability of data important to science and technology.
- *Networking:* The PCAST endorses the ongoing effort to produce a Federal Plan for Advanced Networking Research and Development, expected in 2008, which includes an R&D agenda for upgrading the Internet and R&D in mobile networking technologies, and addresses network security and reliability.

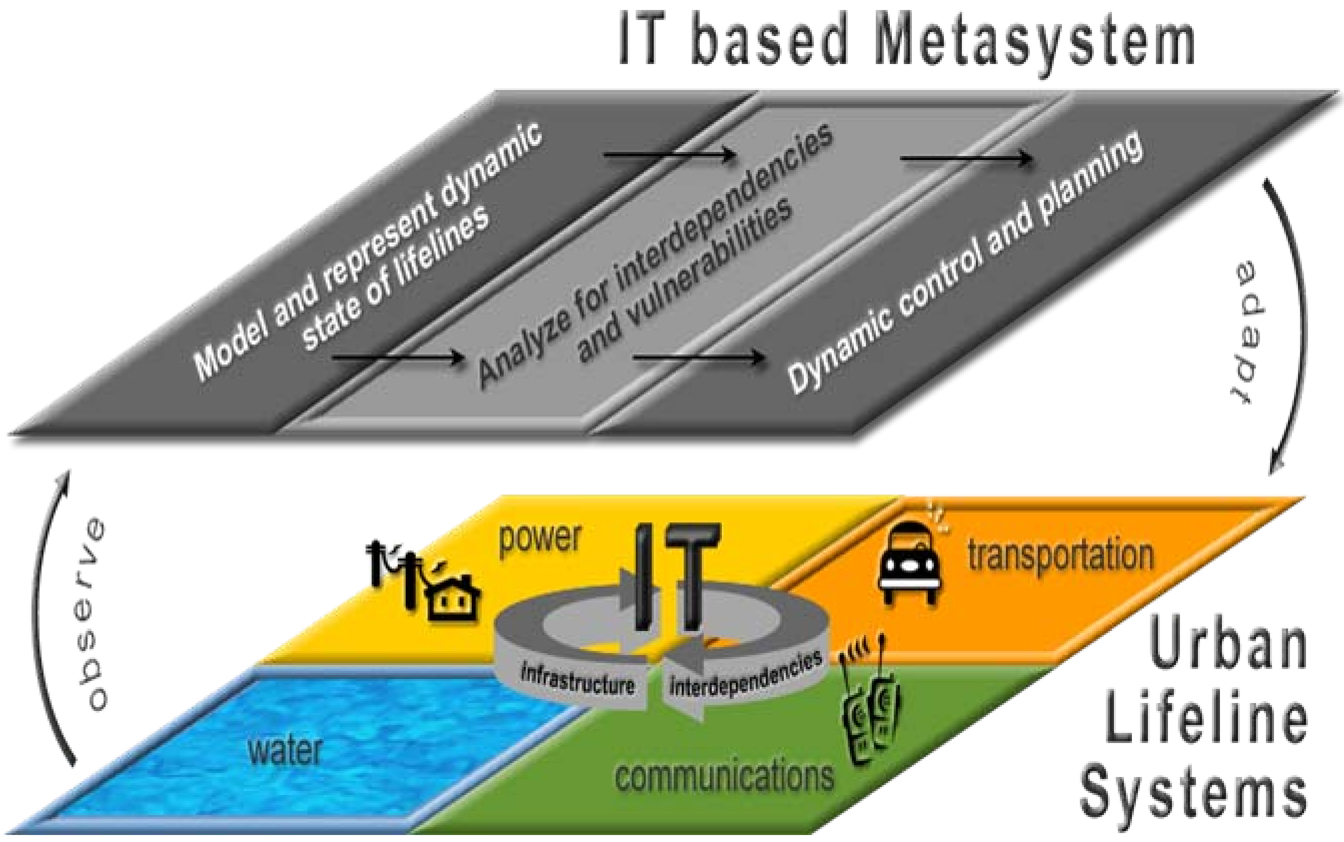
Embedded Systems in Society

- Great toys but meaningful impact is yet to be seen
  - Intelligent transportation networks
  - Power distribution and delivery
  - Healthcare
  - Emergency response
- Challenges
  - Highly distributed, complex 'syste of systems'
  - Societal integration challenges: legacy, scalability, policy goals
- Goal:
  - Combat fragility, devise robust an adaptable solutions to societal applications.



Janos Sztipanovits, Vanderbilt

But, it sure fires up the imagination…



Sharad Mehrotra, UC San Diego

SWEETSPOTS
THE NEXT 3-5 YEARS

BEST PRACTICES
- INTERNATIONAL INNOVATION DISSEMINATOR
- ONLINE SUSTAINABILITY PROJECT AGGREGATOR AND COMPARATOR (A>B)
- Organize a Global set of "Greening" Campuses that compare data
- Effective Technology Transfer
- Micro-tools versus Big Impact
- SCHOOL OUTREACH in ENERGY TOPICS

SIMULATION
- Geoengineering by Simulation
- Create a "digital Social" environmental model to underpin water, transportation, and land use research
- "Sim World" type GAME / online environment to ILLUSTRATE & MODEL GLOBAL SYSTEMS (eco, climate, energy, etc.) ST/...
- Simulation of Central Valley Ag. & WATER Scenarios e.g. reclamation & De-Salinization -
- URBAN INFRASTRUCTURE SIMULATION
  - LAND USE + URBAN FORM
  - TRANSPN
  - UTILITIES
  - ECONOMIC ANALYSIS

BEHAVIOR MODIFICATION
- Tech & Design that Makes Information beautiful, and behavior change FUN.
- The Music Environment [Verified positive individual Climate behavior for free downloadable music]
- Mobile energy Coach
- Campus-scale human behavior modification testbed for lowering carbon lifestyles
- Infrastructure for health monitoring and shared sense making.
- data sonification

DASHBOARD DECISION SUPPORT TOOLS
- Integrated Systems to Deliver your Current Resource USAGE TO You
- Visualizations & user Interfaces for aggregated data About Energy Consumption
- CREATION OF DATASET TO ENABLE UNDERSTANDING OF WHERE ENERGY GOES?
- Environments That display energy usage
- INTUITIVE REAL-TIME ENERGY FEED BACK FOR WORKGROUPS VIA VISUALIZATION
- TIME HORIZONS VISUALIZATION (NOW ... THEN)
- REAL-TIME PERSONAL CONTROLS FOR ELECTRICITY SOURCING.
- BETTER CARBON CALCULATOR

SENSORS
- Data mining of Large Scale Sensor Nets To Learn about energy Consumption
- Power for large Scale Sensor network
- Low energy computation Sensor Devices for Data Collection, Informative feedback, to improve management Efficiency. Regulation, provision.
- Sensor Development for Occupant Heat Load
- MAKING Sensor DATA Availability Across Devices
- REAL TIME SENSING
- ENERGY HARVESTING

PERVASIVE MONITORING
- CHEAP POACHING DETECTION
- IR GOOGLE STREETVIEW
- IR MAPS
- ANNOTATED WORLD
- Passive RFID WikiPedia Data Base

POWER MGT
- Instant On (NOT ALWAYS ON) Tiled Walls
- Agressive Duty Cycle IT Power Management
- SENSORIAL ENVIRONMENTS. → environmental control (light, temp...) only when in presence of perceptor.
- LOCAL INERTIAL MANAGEMENT (OR, STORAGE)
- CENTRAL WIRELESS APPLIANCE CONTROL

ENERGY STORAGE
- ADVANCED ENERGY STORAGE FOR RENEWABLE ENERGY SOURCES
- UW COMPRESSED AIR ENERGY STORAGE
- Energy Storage Devices for Energy Tx/Distribution & Home.
- Large Scale Energy Storage
- Small Scalable Solar Pwr 1 Panel + Up
- Bi-Directional Electrical Line + Load Regulation
- MICRO SOLAR UTILIZATION

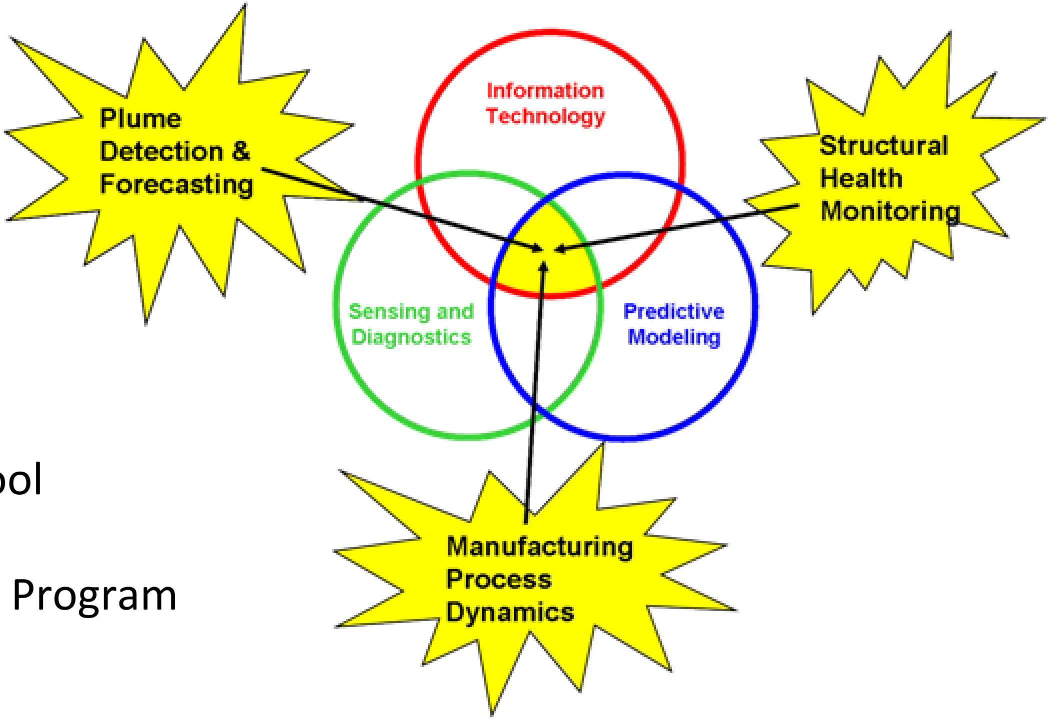
SMART CAMPUSES and BUILDINGS
- Build a fine-grained two campus smart Electrical Grid with open data (SMART CAMPUS)
- DEMAND RESPONSE MANAGEMENT.
- Every bldg. have Chip and IPV6 address (SMART CAMPUS)
- PROTO-TYPE SMART BUILDINGS WITH SMART APPLIANCES
- INFORMATION - ENERGY - WORK LIMITS
- HYBRID BUILDINGS DATA-CENTERS
- PROTO-TYPING THE MODEL MICRO SMART GRID FOR GLOBAL COMMUNITIES

Active and Long-Term Collaboration

Across several engineering disciplines: EE, CS, SE, MAE, NE.

Tom Bewly, MAE; Michael Todd, Freider Seible, SE
Rajesh Gupta, Sanjoy Dasgupta, Tajana Rosing, CSE; Bill Hodgkiss, EE
Chuck Farrar, Guyhae Park, Matt Hemez, LANL

UCSD & CYBER PHYSICAL SYSTEMS



- Los Alamos Dynamics Summer School
- Multi-Disciplinary Graduate Degree Program
- Collaborative Research with UCSD
- Annual Workshops
- Industry Short Courses (Structural Health Monitoring)

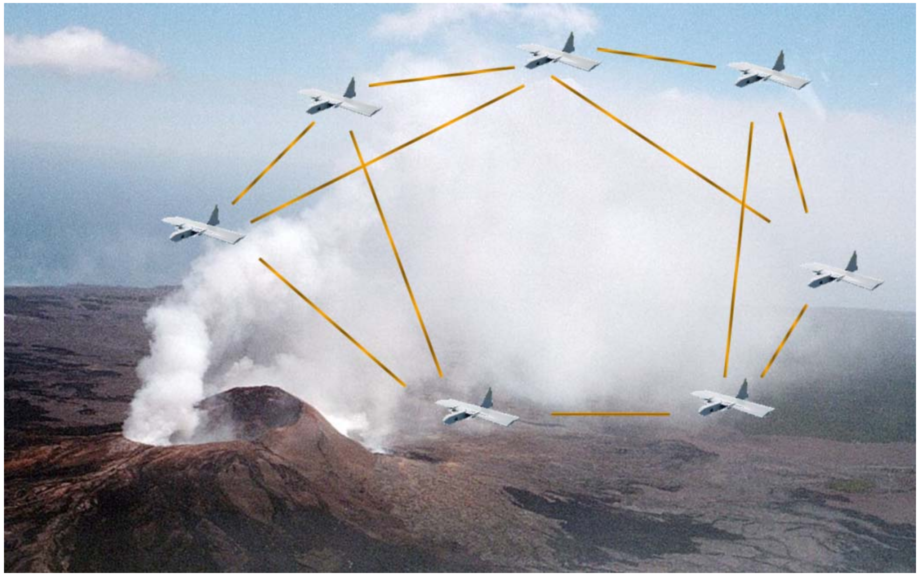
Directed by
Charles Farrar, Las Alamos National Lab.

http://www.lanl.gov/projects/ei/

Coordinating UAVs for Plume Detection, Tracking and Prediction

Sensors Networks, NDE, Controls, & Embedded Systems Research
Develop new network communications protocols

Data Assimilation Research for Complex Multi-scale Systems
Estimate and forecast plume dispersion in near real time base on sensor feedback



Aerospace Systems Research
Develop optimal UAVs For Detection and Tracking Problem

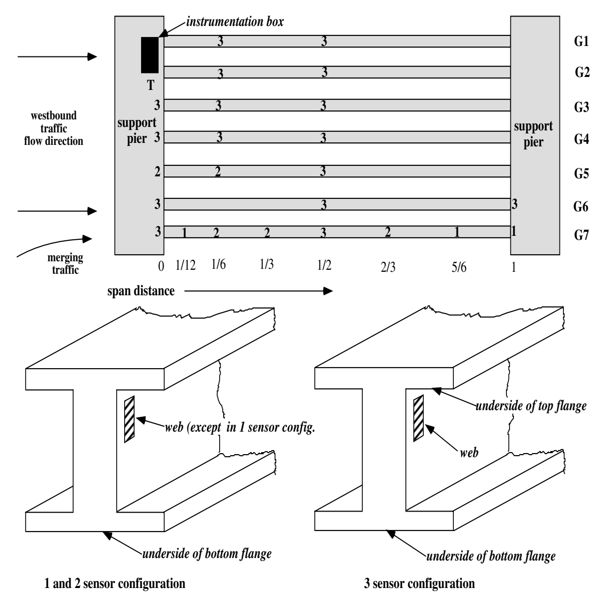
Adaptive Operations & Information Technology Research

Coordinate UAV flight trajectories using shared data from all sensor nodes

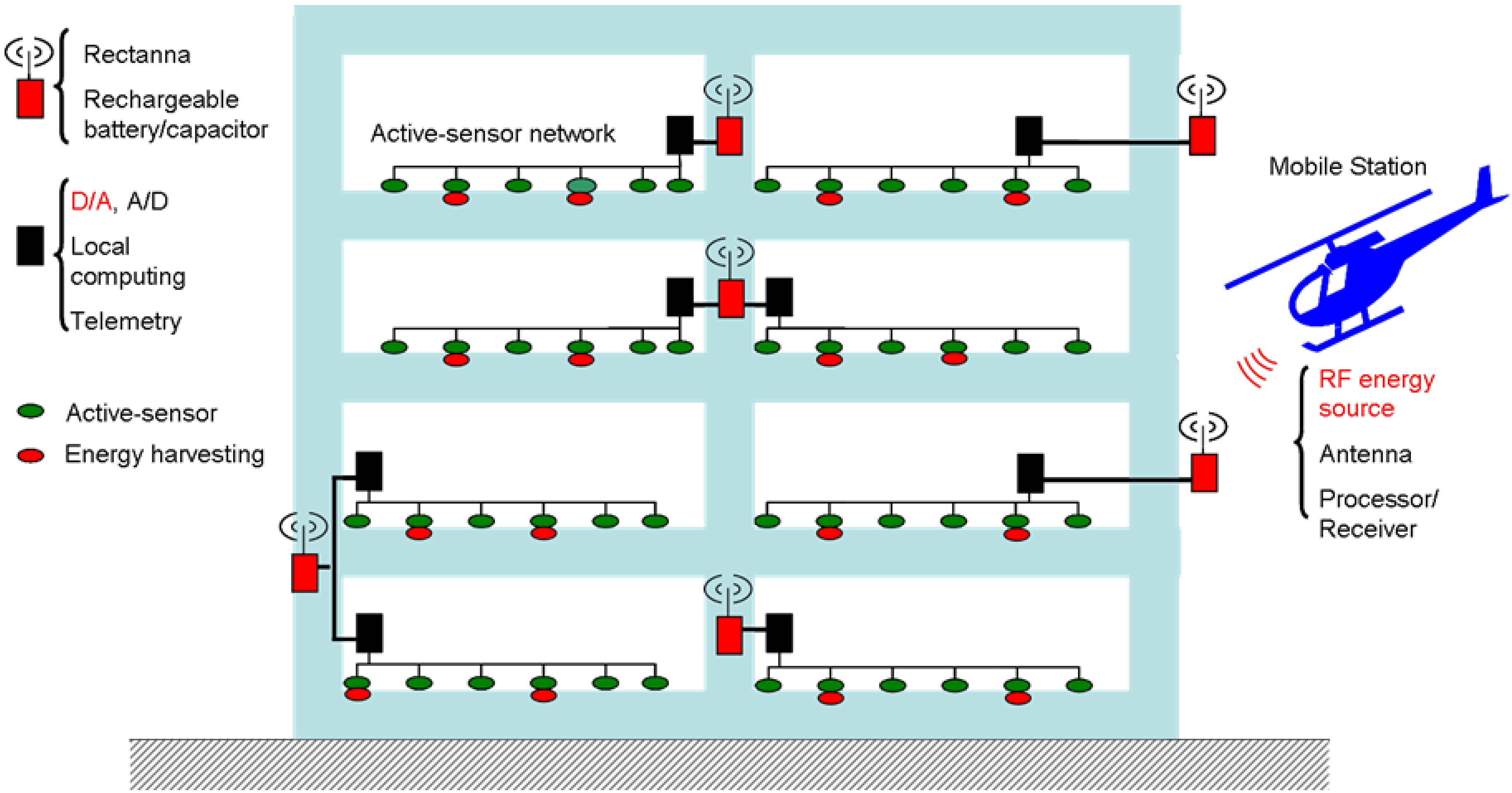
I-10 Bridge Monitoring in Las Cruces, NM

- **78 sensors**
- **9-month continuous monitoring**
- **data remote link**

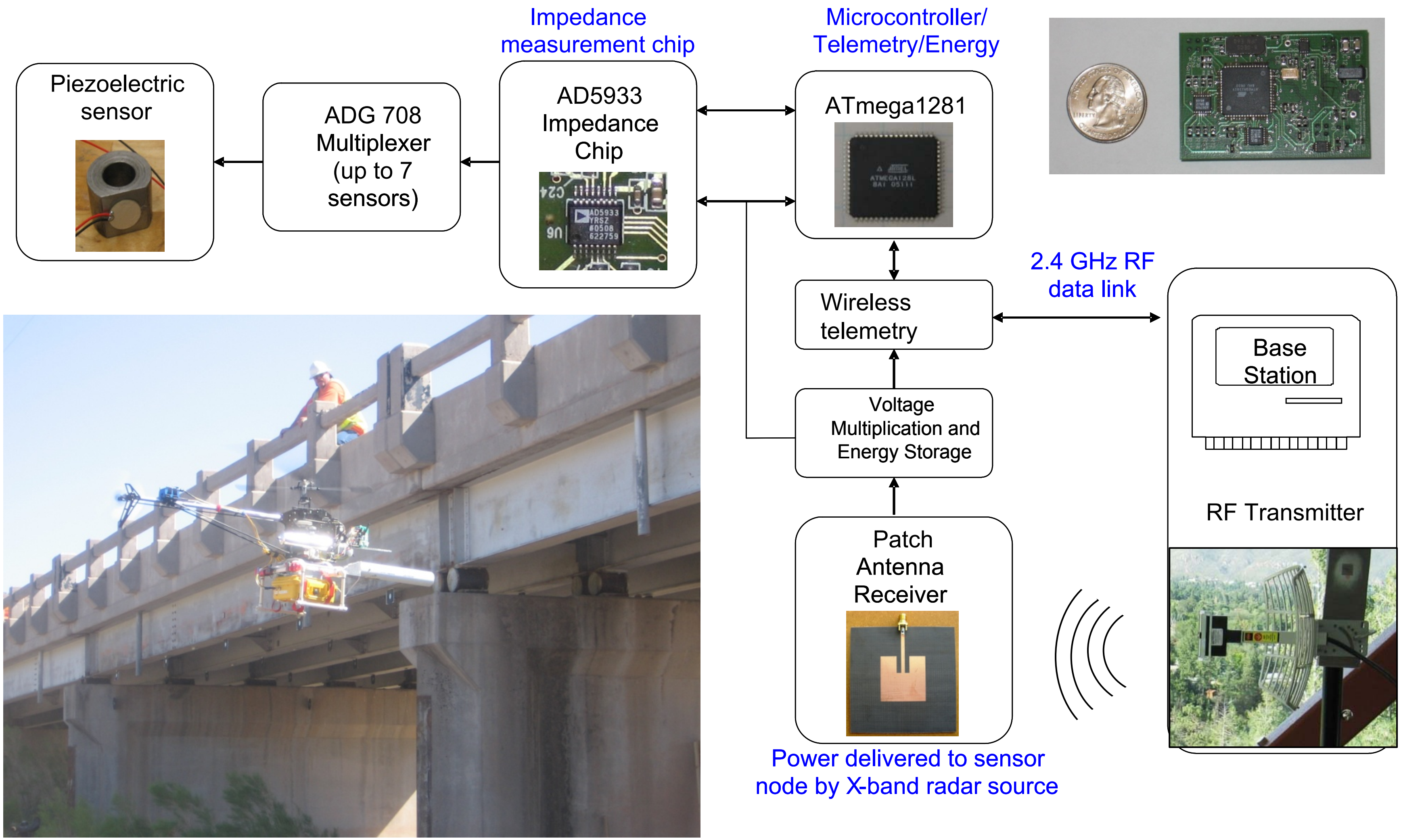
instrumented span



Active, Hierarchal Wireless Sensor Paradigm



LANL/UCSD Wireless Active Sensor Node



Our Explorations


DELL
28 4:24 PM


28 4:26PM

Initiation Exercises

Basic I/O

P1: PushButton
& LED/LCD

P2: Potentiometer
& LED/LCD

Bus Control

P3: “Hello Chip!”
(I2C Bus)

P4: Event Capture
& Count/Measure

Touch
P5: Capsensing
& Display
& Count

P6: Music Synthesis
& Bar graph

USB
P7: Joystick Mouse!

P8: Logic Design

P9: Process Controller

Wireless and Motion

P10: Transceivers

P11: Motion Control

Choon B. Kim

“Play Music”: 6 concepts in 62 lines

```
#include <m8c.h>
#include “PSoCAPI.h”
```

```
#define CLOCK 32000
#define C4_NOTE 261.63
#define D4_NOTE 293.66
#define E4_NOTE 329.63
#define F4_NOTE 349.23
#define G4_NOTE 392
#define A4_NOTE 440
#define B4_NOTE 493.88
#define C5_NOTE 523.25
```

```
void main(){
   LCD_1_Start();
   CSD_1_Start();
   CSD_1_SetDefaultFingerThre();

   while (1) {
       CSD_1_ScanAllSensors();
       …
       if (bIsSensorActive())
           freq = _NOTE;
       PWM8_1_WritePeriod(freq);
  }
}
```

API, Touch/Sample, Display, Reactivity, Frequency, Calibration

CSE Lab: Courses & Faculty

- Courses
  - Embedded systems
    - CSE 30, CSE 237A, CSE 237B, CSE 237C, CSE 237D
  - Logic
    - CSE 140, CSE 140L, CSE 143
  - Architecture
    - CSE 141, CSE 141L, CSE 148
- Faculty
  - CK Cheng, Yoav Freund, Rajesh Gupta, Ryan Kastner, Steve Swanson, Michael Taylor, Dean Tullsen, …
  - Andrew Kahng, Charles Elkan
- Choon Kim

Thank You!

- Intel Corporation
- Cypress Corporation
- Northrop-Grumman
- QUALCOMM
- Xilinx
- Convey Computers

CAP Business:

Anne O'Donnell

Director, Corporate Affiliates Program (CAP)

2009 results:

- SAIC sponsored best poster awards
- Keynote speaker on innovation from NASA’s Jet Propulsion Laboratory
- ViaSat, NORTHROP GRUMMAN and BD Sponsorship
- You can sponsor the 2010 event!

UCSD Jacobs School of Engineering

RESEARCH EXPO

IGNITING INNOVATION

APRIL 15, 2010

More Innovation!

Research Expo will be moving to a new month – April 15th, 2010 concurrent with National Academy of Engineering Regional Meeting at UCSD!

New Time…

New Venue…

New Format…

NAE attendees!

Identify & Grow Corporate Alumni Clusters

Jacobs Day @

ENTROPIC communications

Identify & Grow Corporate Alumni Clusters

Adopt a Student @

intuit

"It's really exciting to be able to share my experience with a student. It was very rewarding in the end to hear that she learned about engineering processes even with her short stay here."

"A reminder of how eager I used to be in my field."

Intuit Alumni

"I was able to see first-hand what technologies are used in industry and this allows me to go back to UCSD and learn the things I need to know for my future job searches."

Jacobs School Students

UCSD Jacobs | School of Engineering
Team Internship Program

Team Internship Program (TIP)
Team Training Day
Saturday, May 30, 2009

Goals for Workshop:

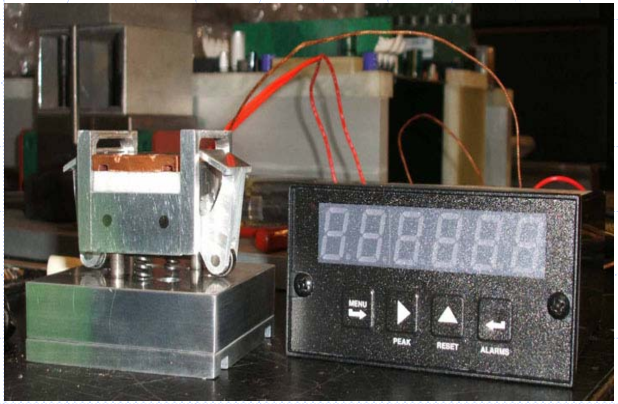
- TIP team members meet for the first time
- Engage in team dynamics to:
  - understand and appreciate different learning and communication styles
  - build high performing teams for the summer.
- Review proper business etiquette
- Answer questions and concerns of all the students
- Feature experience of TIP veterans

Looking For a Few Good Mechanical Engineering Capstone Design Projects

Jerry Tustaniwskyj , Ph.D.
MAE156B Visiting Lecturer
and
Delta Design CAP Executive

Teams of Mechanical Engineering Seniors Work on Developing Working Prototypes

- Mechanical
- Electro-mechanical
- Fluids
- Heat transfer
- Control

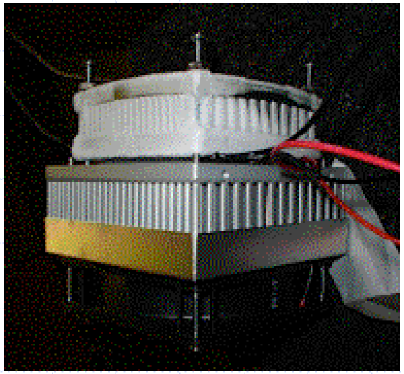


What Course Provides

- Teams of 3-6 students
- 15 week duration projects
- Support from full machine shop and electronics shop
- CAD and simulation software
- Instructor guidance on a weekly basis

Sponsor Responsibility

- Project Description
- Weekly meetings
- Budget
  - Parts and Materials
  - $1500 shared machine shop expense



Project Descriptions Due Dates

- October 1 for Fall-Winter projects
  - project kickoff at beginning of November
  - project completion in mid March
- January 15th for Winter-Spring projects
  - project kickoff in mid February
  - project completion in mid June

www.maelabs.ucsd.edu/mae156/student_projects.htm

See Spring 2009 Projects at Poster Session
Friday June 12th 11:30am-2:30pm

- 26 Projects and Over 100 Students
- Hardware prototypes by posters
- Opportunity to speak to graduating seniors
- Details in flyer; please RSVP

CALIT2 Undergraduate Research Venture

TAKING YOU BEYOND THE CURV

Saura Naderi, EE ‘08

Calit2 Undergraduate Research Venture

Hilti Summer 2007 Team Internship Program Alumna

robotsaura@gmail.com

CALIT2 Undergraduate Research Venture
TAKING YOU BEYOND THE CURV

VISION:

Undergraduate engineering students get hands-on experience with design, electrical devices and tools

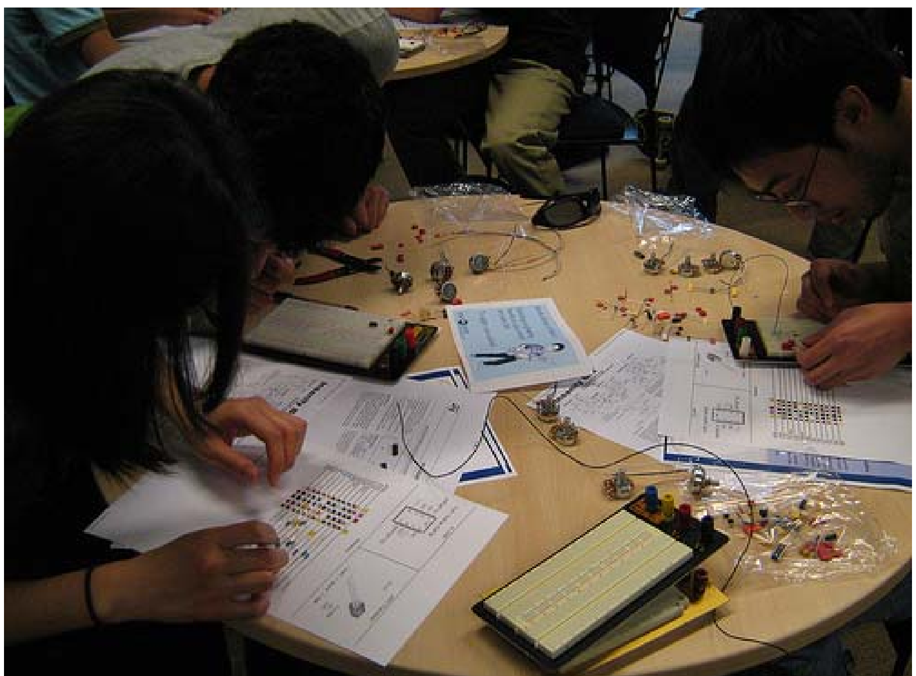
- A lab where students are free to come in to design, create, and enjoy
- Encourage students to use their imagination and take risks
- Provide projects with real world applications e.g. Guitar Pedal Workshop
- Promote a creative and collaborative design and learning environment
- Where all UCSD students feel welcome to work on engineering-based projects

CALIT2 Undergraduate Research Venture

TAKING YOU BEYOND THE CURV

•Filled up our maximum of 30 studentsin 4 days! (20 wait listed by workshop day)

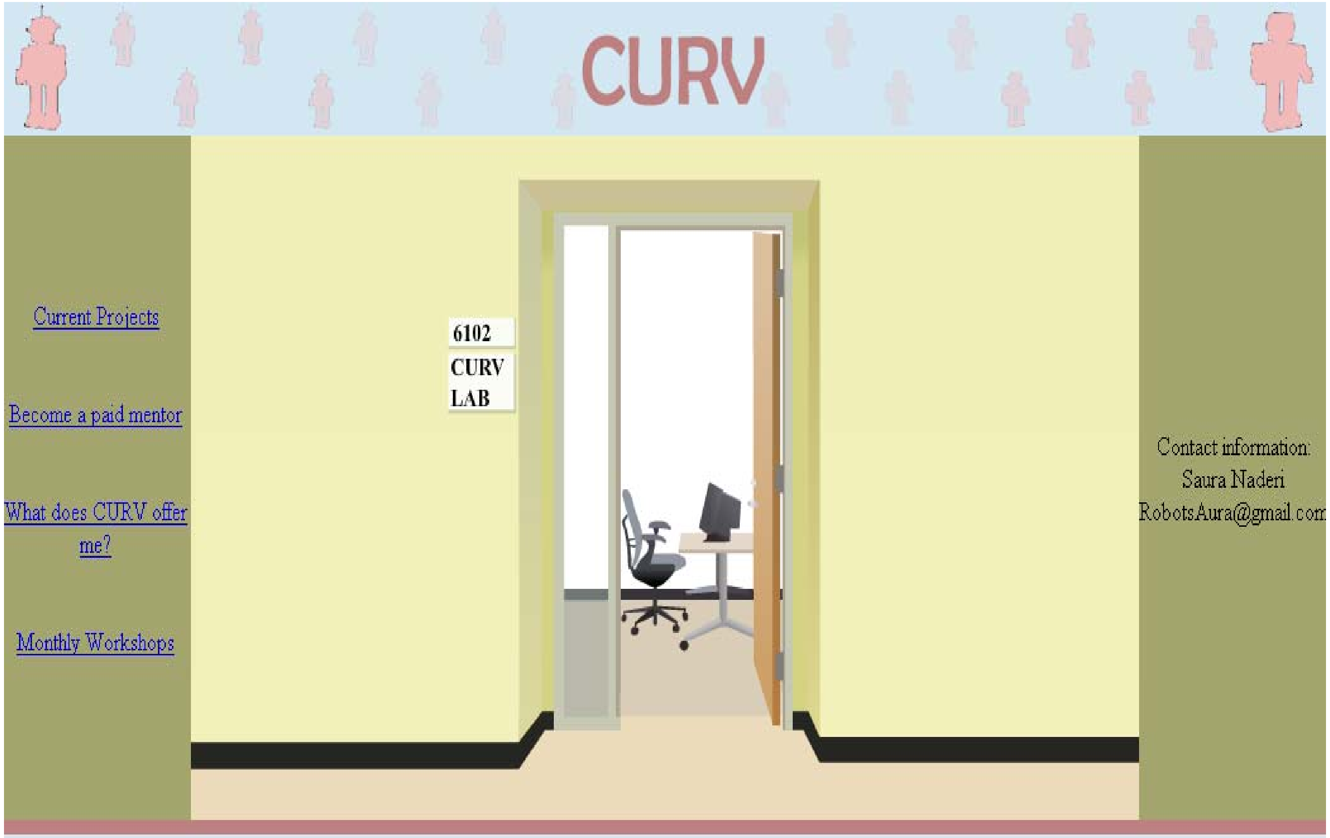
• Cross-disciplinary students



Q: Did you find the workshop useful?

“The workshop was definitely useful. It gave me a reason to pay attention more in class because it seems like some of the techniques I learned in class did become useful.”

-Omeed Mirbod (Computer Engineer)



- Welcome ideas and participation from industry and individuals
- Students will become mentors to their peers
- Students will gain confidence among their peers and be better prepared for team working environments in their future

Email Saura at: robotsaura@gmail.com

CAP Business:
Anne O'Donnell, Director

Dates to Remember in 2009:

June 12, 2009 MAE Senior Design Projects Poster Session

Sept. 14, 2009 *Spirit of Solar* Cruise

October 1, 2009 CAP Executive Board Meeting

April 15, 2010 Jacobs School Research Expo

Thank you CAP 2008 - 2009 Leadership

CAP Chairman:

Rich Goldberg

VP, Corporate Quality, Cisco

CAP Vice Chairman:

Danny Brown

VP, Technology Development, Cymer


UCSD Jacobs
School of Engineering