Computer Engineering
Robotics Engineering
Network & Digital Technology
Electrical Engineering

Summer Orientation 2014

Presentation Overview

- Introductions
- Overview of Majors
- Major Requirements and Qualifications
- Academic advising & support
- Getting Started: What to take in Fall 2014
- What's Next
- Questions & Answers

Introductions: BSOE Undergraduate Advising and Student Affairs Staff

Charlie McDowell

Lydia Zendejas & Young Kim

Andrea Legg & Monique Vairo
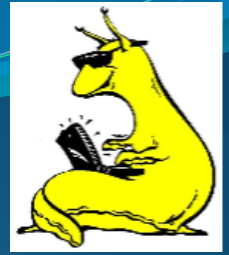

Adrienne Harrell

Start Making Connections Now!

Turn to the person next to you
- Name
- Where you're from
- Your college
- Your favorite video game or movie
- Plans for the rest of summer

All BSOE Undergraduate Majors and Programs

Applied Math & Statistics (2 minors)
Bioengineering (BS)
Bioinformatics (BS, BS/MS, minor)
Computer Engineering (BS, BS/MS, minor)
Computer Game Design (BS)
Computer Science (BA)
Computer Science (BS, minor)
Electrical Engineering (BS, minor)
Network and Digital Technology (BA)
Robotics Engineering (BS)
Technology and Information Management (BS, minor)
Engineering & Computing Cluster

Overview of Computer Engineering (CE), Robotics Engineering (RE), Network & Digital Technology (NDT) and Electrical Engineering (EE)

- majors
- CE vs CS vs EE
- career paths
- research and internships
- getting started

Computer Engineering

– three majors

- More or less same lower division requirements (numbered 1-99)
  - Math, Computer Engineering, Computer Science and Physics
- Computer Engineering major (minimum of 14 upper division courses, numbered 100-199)
  - 8 required courses
  - 4 -5 elective courses, depending on concentration
  - 2-3 senior design or thesis courses
- Robotics Engineering major (minimum of 15 upper division courses)
  - 11 required courses
  - 1 advanced robotics elective course
  - 1 elective course
  - 2-3 senior design or thesis courses
- Network & Digital Technology major (minimum of 8 upper division courses)
  - 4 required courses
  - 3 elective course
  - 1 design course (capstone)

Electrical Engineering

- Focus on math and physics
  - More math than Computer Engineering
  - Some computer science and engineering
- Broad discipline that emphasizes three general areas
  - Electronics/Optics including digital and analog circuits/devices
  - Communications
  - Micro-technology, nanotechnology and biomedical devices
- Minimum of 15 upper division courses
  - 9 required courses
  - 4 elective courses from two concentrations
  - 3 senior design courses or senior thesis

CE vs CS vs EE

- CE – a mix of computer science and engineering but more about the hardware

- CS – mostly about software and algorithms

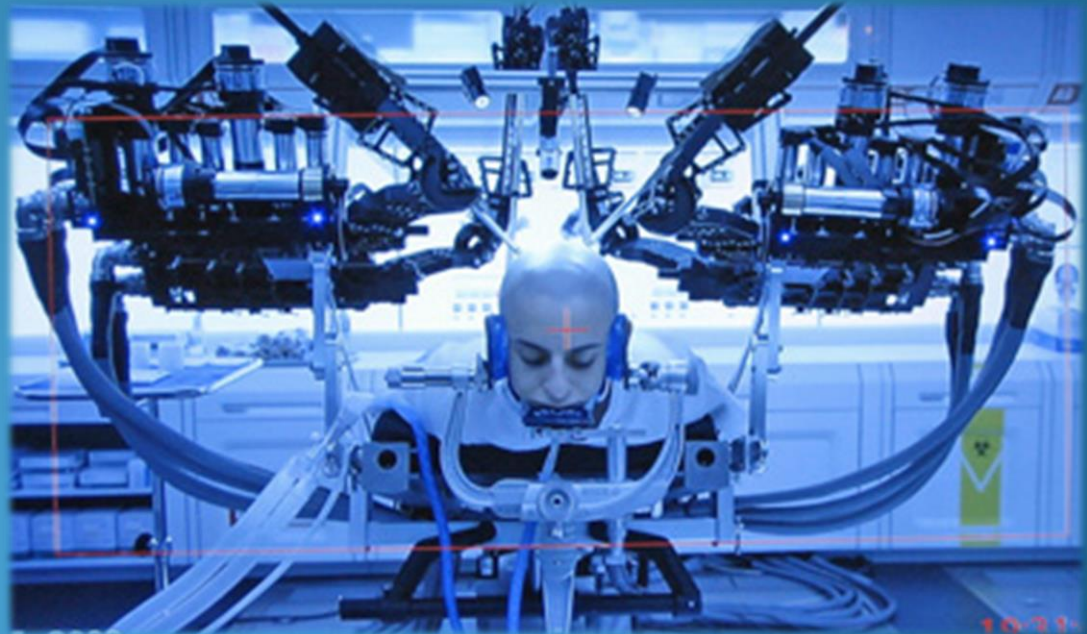- EE – all about the hardware

CE and EE are collaborative!
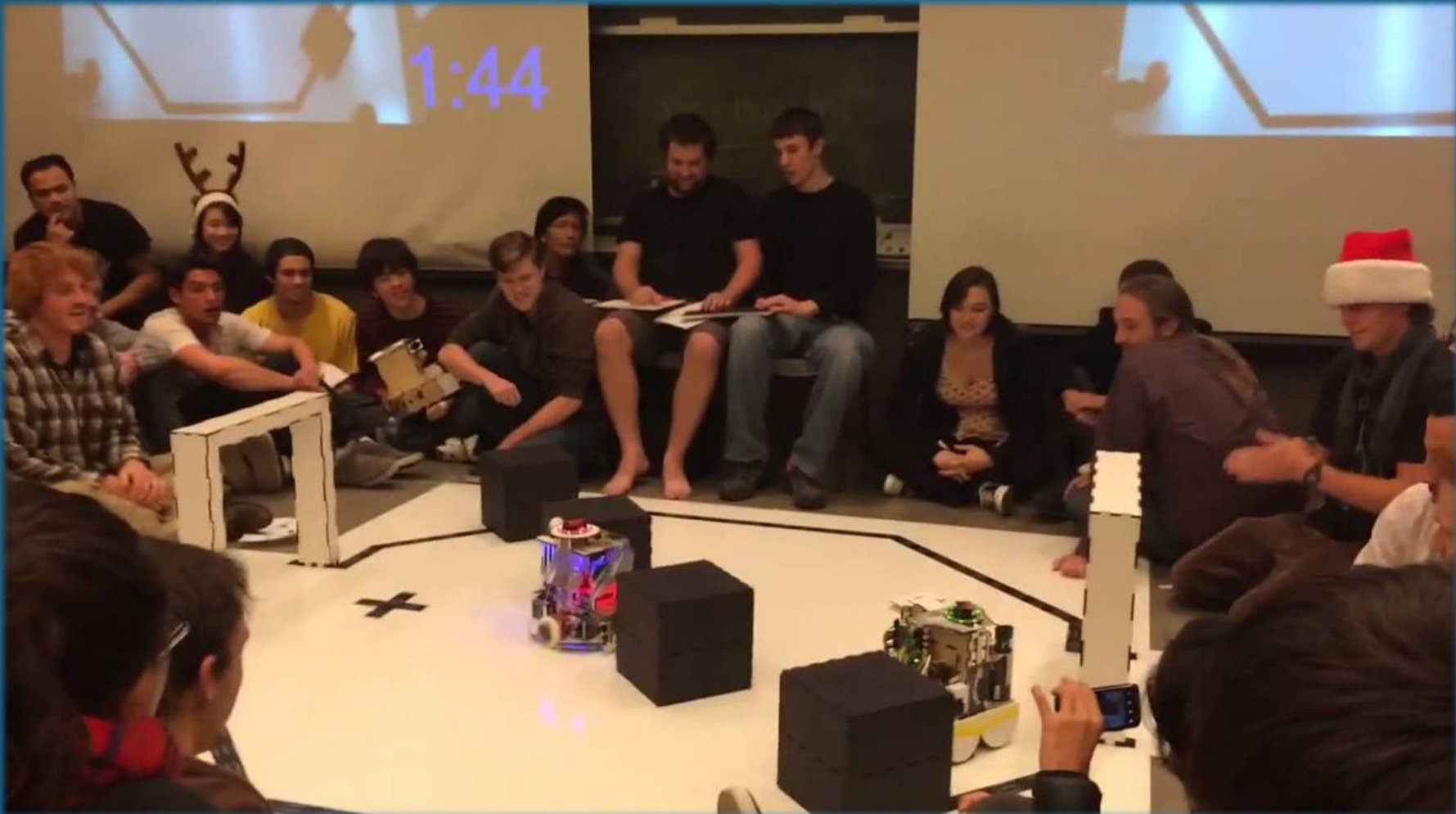
Annual CMPE 118 - Mechatronics competition

CE and EE are creative!

We get featured in movies…

The Raven II surgical robot developed in Jacob Rosen's Bionics Lab at UC Santa Cruz makes a cameo appearance

CE and EE Jobs Benefit Society

The Center for Sustainable Energy and Power Systems (CenSEPS) is poised to become a major hub for innovation in emerging clean energy technologies and tackling the challenges of energy sustainability.

https://censeps.soe.ucsc.edu/

Student Interests + Engineering = Innovative Careers!

Find out what you love to do and do that. It's that simple.

~ **Dr. A. L. Garcia**

Computer, Robotics and Network & Digital Technology Careers

- *Circuit and chip design*
- *Enterprise systems*
- *Embedded systems*
- *Data Networking*
- *Telecommunications Systems*
- *Gaming systems*
- *Health care*
- *Assistive technology*
- *Computer controlled systems*
- *...*

Electrical Engineering Careers

- *Design, develop, test, and supervise the manufacturing of electrical equipment*
- *Radar and navigation systems*
- *Semiconductor industry*
- *Electrical motors*
- *Power generation*
- *Satellite systems*
- *...*
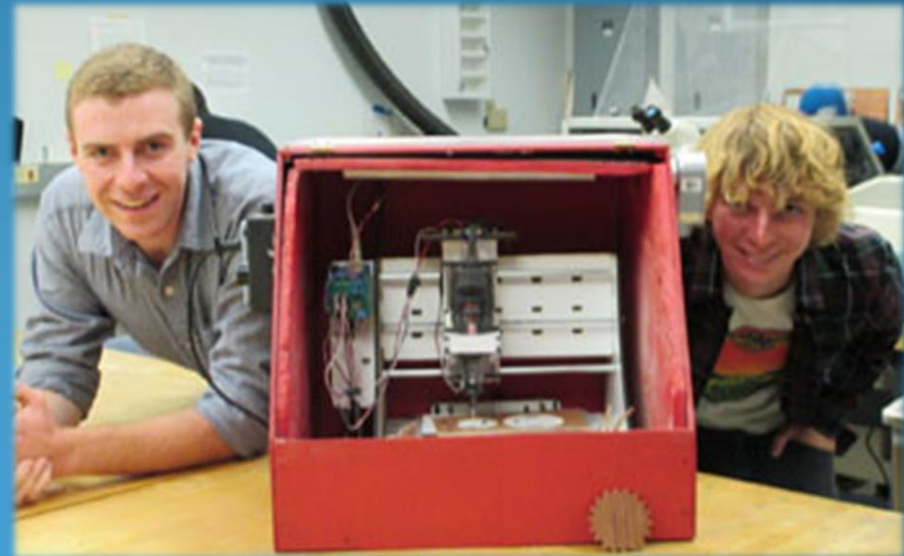
Research and Internships

- Fall is the time to shop for summer internships

- Read the weekly e-newsletter

- Seek out faculty

- Go to career fairs and company "meet and greets" (Google, Microsoft, eBay, Adobe, HP, Cruzio, and many lesser know names)

- http://www.soe.ucsc.edu/research

Two Types of Academic Advising

- **Major/Department Advising**
  - BSOE Peer Advisers – current undergraduate students with training and skills to provide help with advising and schedule planning
  - Professional Staff Advisers—full time staff whom advise for all school of engineering majors. This includes advising on major-specific requirements, declaration of major process, forms and helping students determine their qualification for school of engineering majors.
  - Faculty Advising— they are available to advise on course content, career and research opportunities, choosing electives in the major.

- **College Advising**
  - College Advisers – they advise on general education, progress to degree, non-major related advising issues.

BSOE Undergraduate Advising & Student Affairs Services

- 225 Baskin Engineering Building (West End of Building)

- Monday through Friday

  9:00-11:30 am
  - ✓ Drop-off and/or pick-up forms
  - ✓ Ask general questions
  - ✓ Get assistance with academic plans
  - ✓ Make appointments with staff for afternoon

  1:30-4:00 pm
  - ✓ Drop-off and/or pick-up forms
  - ✓ Ask general questions
  - ✓ Get assistance with academic plans
  - ✓ Meet with Staff Advisers

  Advising Workshops: Consult Schedule

- Email: advising@soe.ucsc.edu

Important Undergraduate Advising Office Resources

- Peer Advisers
- Staff Advisers
- BSOE Undergraduate Advising website: **ua.soe.ucsc.edu**
- BSOE Undergraduate e-newsletter
- BSOE Advising Workshops
  - Major Qualifications
  - Major Declaration
  - General Academic Advising

What to take in the Fall

Sign up for 3 Courses (Math+Major+College/GE course)

1. Math

- ✓ In order to enroll into a Math course, must have completed Math placement, have AP, or college level credit.
- ✓ No Placement Exam yet? Exams completed during summer orientation will be posted by August 4th.
- ✓ Specific course will depend on math placement exam score, AP, or college level credit. Students should focus on Calculus Math 19A/B (or Math 3) **Do not take the following Math series courses: Math 11A, AMS 11A or 15A, or Econ 11A**

2. Major course

- Specific course will depend on major, and in some cases math preparation.

3. College Core course or a General Education (GE) course

Getting Started

CE/RE/NDT

- Fall
  - Math
  - CMPE 8 or CMPE 12/L or Physics 5A/L
  - College Core
- Winter
  - Math
  - CMPE 12/L OR CMPE 13/L or Physics 5B/M
  - College Core
- Spring
  - Math
  - CMPE 13/L or 12B/M or Physics 5C/N
  - CMPE 80E or 2nd math

EE

- Fall
  - Math
  - Physics 5A/L or CMPE 8
  - College Core
- Winter
  - Math
  - Physics 5B/M
  - EE 80T
- Spring
  - Math
  - Physics 5C/N
  - College Core or GE

What's Next?

Today:
- ❑ Questions and Answers
- ❑ Enroll in Fall Classes

Summer:
- ❑ Spend some time reviewing the BSOE website
  http://ua.soe.ucsc.edu
- ❑ Brush up on math skills
- ❑ Check out UCSC Career Center website and resources
- ❑ Regularly check (or redirect) your SlugMail!

Fall:
- ❑ BSOE Fall Orientation, Tuesday, September 30, 2014
  9:00am – 12:00pm @ Media Theater
  - ▪ Department/Major Break-out Sessions with Faculty
  - ▪ BSOE Fall Welcome Event @ Engineering Courtyard

Questions??