Electrical Engineering
Graduate Student Orientation
Ertem Tuncel
EE People By Numbers

- 24 faculty members (1 on leave)
  - 7 IEEE Fellows
  - 6 AAAS Fellows
  - 7 NSF Career Award recipients
  - 3 ARO and NRO Young Investigator Award recipients
- 6 adjunct faculty, 3 lecturers, 18 cooperating faculty
- 19 MS and 105 PhD students
- 6 staff members
Control and Robotics

Jay Farrell
Chair

Wei Ren

Jie Chen

Anastasios Mourikis
Communications and Signal Processing

Ilya Dumer

Daniel Xu

Yingbo Hua

Ertem Tuncel
Graduate Advisor

ON LEAVE
Intelligent Systems

Bir Bhanu
Matt Barth
Ping Liang
Amit Roy Chowdhury
Hamed Mohsenian-Rad
Integrated Circuits and VLSI System Design

Albert Wang
Sheldon Tan
Qi Zhu
Our Staff

William Bingham
Financial & Administrative Officer

Adrienne Thomas
Academic Program Officer

Trudi Loder
Analyst

Elmar Palma
Associate Development Engineer

Tom Gregory
Systems Administrator

Eu-Jin Ooi
Assistant Systems Administrator
EE Research By Numbers

• $10M research spending in 2011/2012

• Placed in the top quartile in National Research Council S-rankings.

• Graduated 33 MS and 41 PhD students last two years
NRC S-Rankings

- UNIVERSITY OF CALIFORNIA-SANTA BARBARA
- UNIVERSITY OF CALIFORNIA-LOS ANGELES
- UNIVERSITY OF CALIFORNIA-BERKELEY
- UNIVERSITY OF CALIFORNIA-RIVERSIDE
- UNIVERSITY OF CALIFORNIA-SAN DIEGO
- UNIVERSITY OF CALIFORNIA-SANTA CRUZ
- UNIVERSITY OF CALIFORNIA-IRVINE
- UNIVERSITY OF CALIFORNIA-DAVIS
Where Our Graduates Went

- WD Western Digital
- Cadence
- IBM
- BlackRock
- Synopsys
- Omnisys
- Samsung
- Nokia
- Sony
- Texas Instruments
- Rambus
- Qualcomm
- Google
- Finisar
- Fairchild Semiconductor
- Intel
- UCSB
- Lawrence Livermore National Laboratory
- USC
- Berkeley Lab
- UCLA
- UIC
- University of Illinois at Chicago
- I-State
- Eastern Illinois University
- FIU
For MS Students

• You need to complete 36 units of graduate or upper division undergraduate course work

• Additional requirements depend on whether you choose the Thesis Option (Plan I) or the Exam Option (Plan II)
For MS Students

THESIS OPTION

• 24 of the 36 units should come from graduate courses
• Max 12 units from EE 297/299
• A thesis must be submitted and defended

EXAM OPTION

• 18 of the 36 units should come from graduate courses
• None from EE 297/299
• Max 6 units from EE 290
• Must pass the Comprehensive Exam
Comprehensive Exam

- Conducted twice a year
- Must solve 5 problems in 3 specialization areas
  - 3 from the major area
  - 1 each from two minor areas
- Specialization areas:
  - Nano-materials, Devices, and Circuits (NMDC)
  - Control and Robotics (C&R)
  - Communications and Signal Processing (C&SP)
  - Intelligent Systems (IS)
  - Integrated Circuits and VLSI System Design (VLSI)
Examples

• The good news is, many courses appear in more than one area

- EE 224 (C&SP)
- EE 225 (C&SP)
- EE 250 (C&SP)
- EE 235 (C&R, C&SP, IS, VLSI)
- EE 236 (C&R, C&SP, IS)

- EE 230 (NMDC, C&R, C&SP, IS, VLSI)
- EE 235 (C&R, C&SP, IS, VLSI)
- EE 245 (C&R)
- EE 215 (NMDC, C&R, C&SP, IS, VLSI)
- EE 236 (C&R, C&SP, IS)

• For a complete list of courses in each area, please refer to the EE Graduate Manual.
For PhD Students

• There is no official requirement for minimum amount of course work.

• But you are still expected to take courses to

  • achieve a depth of knowledge in your field
  • equip yourselves with mathematical tools to do research
  • get prepared for (or get credit for) the Preliminary Exam
For PhD Students with Financial Support Packages

• Report to your research advisor (professor) listed on your award statement as soon as possible

• Your continued support is contingent upon

  1. a minimum GPA of 3.00

  2. satisfactory performance in your research advisor's lab
PhD Preliminary Exam

- Conducted at the end of the Spring quarter.
- Must solve 5 problems from the major specialization area
  - 3 basic courses (for each course, exempt if you receive at least A)
  - 2 advanced courses (for each course, exempt if you receive at least A-)
- If you cannot clear all 5 courses after your first try, you'll have a second chance within a month to clear them.
PhD Oral Qualifying Exam

• Must be taken by the end of the Summer.

• Must form a committee of 5 faculty members
  • At least 3 EE members and at least 1 non-EE member

• Tests if you have a thorough understanding of your research field and if you have potential to do cutting-edge research

• Once you pass the Preliminary Exam and the Oral Qualifying Exam, you are a PhD Candidate
Ph.D. Progress

Establish major area and choose Advisor by the end of 2nd Quarter.

Take exam second time within one month

Pass?

N

Academic Dismissal

Y

Ph.D. Preliminary Exam at the end of 3rd Quarter

Pass?

N

Nominate Qualifying Exam Committee (5 members, at least 1 outside of department)

Choose topic, write a report explaining state-of-the-art and proposing new research directions.

Y

Ph.D. Oral Qualifying Exam at the end of 1st year

Pass?

N

Modify and enhance report and presentation

Take exam second time within one quarter

Pass?

N

Academic Dismissal

Y

Advance to PhD Candidacy

Nominate Dissertation Committee (at least 3 members)

Do Research

Ph.D. Dissertation Proposal Evaluation at the end of 3rd year and no earlier than 6 months before PhD Defense. Must be accompanied by a written report

Incorporate recommended changes and do more research following new suggested directions.

Receive PhD!

Submit the dissertation to the committee and defend Ph.D. Dissertation in examination open to public.
### Courses Offered in Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>NMDC</th>
<th>C&amp;R</th>
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- Also available are non-exam courses
  - EE 273 LIVE IMAGING & ANALYSIS OF CELLULAR & MOLECULAR BEHAVIORS
  - EE 274 INTRODUCTION TO MEDICAL IMAGING AND ANALYSIS
  - EE 276 COLLOQUIUM IN VIDEO BIOINFORMATICS

- Mandatory for all first year graduate students
  - EE 259 COLLOQUIUM IN ELECTRICAL ENGINEERING
# Courses Offered in Winter

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>NMDC</th>
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<td>FUNDAMENTALS OF SEMICONDUCTORS</td>
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# Courses Offered in Spring

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</table>
The SPEAK Test

- You must get a clear pass (50 out of 60) on this test in order to
  - work as a Teaching Assistant (TA)
  - graduate with a PhD
- If you get <50 but >39, you may perform TA duties, but must participate in the ESL Program at University Extension
- The test is conducted several times a year
- Students are charged a fee of $50
Safety Training

- All graduate students are required to attend the Laboratory Safety Training Orientation

- If working in a wet lab, Hazardous Waste Management training required

- If working with microwaves, radioisotopes, antennas, or other EM devices, Radiation Safety Training is required

- Go to www.ehs.ucr.edu/training to register

- Submit Certificate of Completion to Elmar Palma, the Associate Development Engineer
THANK YOU!