Graduate Program Info Webinar

Nov. 5, 2020
9:30 – 11 am (CST)

Keep your microphone on “mute” mode.
Our contact address is ecegradprogram@utdallas.edu
Feel free to send us your question(s) in email.
Agenda

- Welcome remark
  - Prof. Lawrence J. Overzet, ECE Department Head

- Graduate student life at UTD and job prospects
  - Dr. Colinjivadi, Dr. Venkatasubramanian, Mr. Dutta, Mr. Alexander

- ECE Graduate Program staffs and MS academic advisors

- Overview of the ECE Department and Graduate Program
  - Prof. JB Lee, ECE Associate Department Head for Graduate Program

- FAQ session
  - Application, Admission, Financial assistance, Requirement for graduation, Internship, ...
Welcome Message

Dr. Lawrence Overzet, Ph.D.

Department Head, Fellow AVS
Electrical and Computer Engineering
Erik Jonsson School of Engineering & Computer Science
Featured speakers (graduate student life & job prospects)

- **Dr. Karthik Colinjivadi, Sr. Technical Program Manager at Lam Research** (https://www.linkedin.com/in/karthik-colinjivadi-b3544726/)
  - MS (03) / PhD (07) from UTD

- **Dr. Rama Venkatasubramanian, Director IP Development & Senior Member Technical Staff at Texas Instruments** (https://www.linkedin.com/in/ramavlinkedin/)
  - MS (05) / PhD (12) from UTD

- **Mr. Satwik Dutta, VP Graduate Student Assembly executive board, PhD candidate** (https://www.linkedin.com/in/satwik-dutta/)
  - MS (20) / PhD candidate, UTD

- **Mr. Jerry Alexander, Assistant Dean for Student Development - The Jonsson School of Engineering and Computer Science** (https://www.linkedin.com/in/internguy/)
  - Erik Jonsson School Career Services
About myself:  

Karthik Colinjivadi, PhD

- Education:
  - B.E (2001), Univ. of Madras, India
  - M.S (2003) and PhD (2007), University of Texas at Dallas
    - Electrical Engineering, majored in Microelectronics
    - Teaching & Research Assistant in ECE Department
    - Internships at Dallas Semiconductor, Zyvex Corporation, Novellus Systems

- Research interests:
  - Microelectromechanical Systems (MEMS), Semiconductor processing

- Work Experience:
  - 2007 to Present (Lam Research, Fremont, CA)
    - Process Development Engineer (Deposition, Etch, EUV lithography)
    - Sr. Technical Program Manager (for Tier-1 customer)
Graduate degree can
- Make you more well-rounded
- Hone your critical thinking skills
- Keep you competitive for future job market
- Qualify you for more jobs
- Earn you $17,000 more than Undergraduate degree holders!! (*2015 Georgetown univ study)

To learn, earn & earn more
Next step
Take your today
UT Dallas Electrical and Computer Engineering
– Perspective of an Industrial Advisory Council member

Rama Venkatasubramanian
Engineering Director, Texas Instruments, Dallas
About myself

- Rama Venkatasubramanian, PhD

Education
- NIT Trichy, India, BE (2001)
- UT Dallas, MS (2005) and PhD (2012) in Electrical Engineering

Job Title:
- Engineering Director, Processor Business Unit, Texas Instruments (Joined TI in 2005)

Time at TI: 15 years

Member of UTD Industrial Advisory Council: 5 years
Role of Industrial Advisory Council
- UTD Electrical Engineering Department

- Experts from Industry on various domains, passionate to see UTD Grow
  - 12+ members spanning TI, ATT, IBM, Lockheed Martin, Raytheon, Sandvine
  - Meet twice a year - Regular participation and feedback
  - Course Reviews and Curriculum Advice, Hiring advice

- IAC Sub-Committees:
  - Sub-Committee on Undergraduate Students
    • Work with the Department on all matters related to undergraduate (UG) education with a focus on developing beneficial interactions between corporations and UG students.
  - Sub-Committee on Graduate Students and Faculty
    • Work with the Department on all matters related to graduate education with a focus on developing beneficial interactions between corporations and graduate students as well as faculty members.
  - Sub-Committee on Department Administration
    • Work with the Department on all matters related to department administration including but not limited to: Strategic planning; ABET and program assessment; department structure; obtaining donations/funds; and outreach to corporations, foundations, alumni and the community.
DFW Metroplex / North-Texas

- **Overall Job prospects:**
  - Technology companies form hubs around their ability to attract strong talent
  - Engagements w/ Research universities is an important component of where to establish presence
  - DFW metroplex is an established metroplex, with strong job growth potential, and growing number of companies.

- **IT Services Hub, Oil/Gas Industry Headquarters**
- **Communications Headquarters for US (ATT, Ericsson, Nokia leading the way)**
- **Semiconductor companies – Texas Instruments, Dallas Semiconductor (now Maxim)**
- **Headquarters for below Fortune-500 Semiconductor/Technology companies**
  - ATT
  - Texas Instruments
- **Headquarters for below companies with semiconductor presence as well:**
  - Ericsson
  - Huawei (USA Headquarters)
  - Lockheed Martin
  - NOKIA (North American Headquarters)
  - Toyota Motor North America (Headquarters)
  - Uber Technologies

- **Little to NO impact due to COVID in semiconductor industry**
  - Economy slowed 2Q-3Q'20, has fully recovered.
  - Infact, increased demand due to work from home and other opportunities accelerating digital transformation
  - TI and many companies hosted summer internship program virtually
  - TI hiring has been ongoing as well.
  - Same across the industry.
  - Nature of jobs changing for many impacted areas (travel, medicine, health etc.,)
• Thank you
Graduate Student Speaker: Satwik Dutta

Fall 2018
Joined UT Dallas as a MS-EE student

Spring 2020
Defended my MS Thesis

Fall 2020
Joined UT Dallas as a Ph.D. candidate in Child Speech Processing under Dr John Hansen

Financial Aid
- Jonsson School Graduate Scholarship 2018-19
- Pathways to Research Scholarship 2019-20
- Research Assistantship 2020-

Research
- Center for Robust Speech Systems & Callier Center for Communication Disorders
- Analyzing child-adult interactions in pre-school classrooms
Academics & Research experience at UT Dallas

Courses

- Decide the suitable courses? Talk to Academic advisor
- Course resources are provided by professors
- Engage in interactions & discussions in your course
- Meet your professors in office hours (currently virtual) for more questions

Masters Thesis
Jonsson School Graduate Scholarship, Pathways to Research Scholarship, Master’s Research Fellowship Program

PhD
TA/RA, Jonsson School Fellowships, Office of Graduate Education Fellowships

Research

- Very Good GPA (> 3.5)
- Strong Letters of Recommendation
- Research Statement of Purpose
- Publications (PhD)

MS \(\rightarrow\) MS Thesis \(\rightarrow\) PhD
Student life at UT Dallas

**Graduate Student Assembly**
- Communicate key issues to leadership
- Organize and host social events
- Provide resources related to improving mental & emotional health
- Promote student representation of graduate students on school-wide committees

**Diverse International community**

**Recreation Center**

**Career Center & ECS IPP**

**Health Center**

**Counseling Center**

**Office of Grad Education**

**Wellness Center**

THE UNIVERSITY OF TEXAS AT DALLAS
Erik Jonsson School of Engineering and Computer Science
What We do

- The Jonsson Career Services staff is committed to providing excellent services for students interested in participating in student internships and entry-level job opportunities.
- Our program provides career development support to students.
- We encourage participation in activities that promote the development of skills and relationships that are beneficial.
Services Provided by JCS

- Career Development Workshops
- Job Search Guidance
- Resume Critiques and Mock Interviews
- Internship Fairs and Recruiting Events
- Curricular Practical Training Authorization
Workshops We Provide

- Technical Resume Workshops
  - Attend a resume workshop to find out what organizations look for in a resume and learn how to format your technical student resume.

- Interview Preparation Workshops
  - In this workshop, Internship Coordinators discuss strategies for answering common interview questions and how to prepare for an interview.

- Job Search Preparation Workshops
  - This workshop covers the basics of all things job-search, from resume and interview tips to networking and job search resources.
Fairs and Recruiting Events

- Career Fairs- held every Fall and Spring semester
  - Intern Fair
  - STEAM Career Expo
- On-Campus Interviews
- Employer-Hosted Events (Google, Amazon, Facebook, etc.)
  - Employer Spotlights
  - Informational Sessions
  - Tech Talks
Student Organizations

- Association for Computing Machinery
- Developer Student Clubs
- Grads of Computer Science
- Institute of Electrical and Electronics Engineers
- Women Who Compute
Curricular Practical Training

- International students on an F-1 Visa are required to obtain Curricular Practical Training approval in order to work an internship in the US.
- Jonsson Career Services provides CPT Orientations, CPT advising, and CPT approval for F-1 students.
- F-1 students are required to attend a JCS CPT Orientation prior to receiving an internship.
Top Employers

- Advanced Micro Devices, Inc.
- Facebook, Inc
- Intel Corporation
- Qorvo
- Samsung
- Texas Instruments
Graduate Program Advisors and Staffs

- **MS Academic Advisors (degree plan, course registration, ...)**
  - Dr. Randall Lehmann (EE)
  - Dr. Matthew Heins (EE)
  - Dr. Diana Cogan (CE, EE)
  - Dr. Marco Tacca (TE, EE)
  - Dr. JB Lee (Assoc. Dept. Head)

- **Staffs**
  - Barbara Parker
  - Patricia Williams
  - Kimberly High
  - Diane Huang
Overview of the ECE Department and Graduate Program
The Jonsson School & ECE – *Fast Facts*

- **Jonsson School established in 1986.**
  - ECE, CS, MSEN, MECH, BMEN, and SYSE

- **ECE faculty members: 40 / 18**
  - 16 IEEE Fellows

- **Annual research expenditures: $13.5M (ECS $57M)**

- **Internships**
  - **156 (2018-19), 138 (2019-20)** students got internships

  - CE – **52nd**, **32nd** public universities, **3rd** Texas public universities
  - EE (TE) – **50th**, **28th** public universities, **3rd** Texas public universities

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<th></th>
<th>BS</th>
<th>MS</th>
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<tr>
<td>ECS total</td>
<td>6,438</td>
<td>1,193</td>
<td>608</td>
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<tr>
<td>EE / CE / TE</td>
<td><strong>1,100</strong></td>
<td><strong>219</strong></td>
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UTD ECE & DFW

- UT Dallas is located in Richardson, Texas in the Dallas-Fort Worth (DFW) Metroplex, one of the nation’s largest urban areas and one of the nation’s busiest and fastest growing business regions. UT Dallas graduates are highly recruited by local and companies around the nation. DFW is home to more than 600 high-tech companies (TI, Lockheed Martin, Raytheon, ...) and countless start-up companies.

An email from a major international company located in San Diego, CA

Company A is looking to build a more official partnership with UT Dallas for our internship and new grad recruiting from the ECE department. We have hired great Master’s-level students from UT Dallas into Company A’s YYY group. We’d like to kickstart our partnership with $$$ in funding to go towards advancing ..... in the MS and PhD programs. ...... Our 2020 summer internship program transitioned from on-campus to a completely virtual format, and we will continue our fall recruiting virtually as well. ...... Our hiring for the Summer 2021 and new college grad opportunities will remain just as robust as last year with a target of ZZZ interns. We will be continuing to look for talent from the Computer Engineering, Computer Science, and Electrical engineering majors.

- Templeton Endowed Fellowships – Rich Templeton (Chairman and CEO of Texas Instruments)
- Texas Instruments Analog Excellence Graduate Fellowship
- Jonsson School Industrial Advisory Council Fellowship
EE: 5 concentrations

- Circuits
- Computing Systems
- Devices
- Power Electronics and Energy Systems
- Signals and Systems

MS EE requirement: 33 semester credit hours (SCHs)
- 9 SCHs (core courses)
- 18 concentration electives (EExx)
- 6 school-wide electives
EE Areas of Study: Circuits

Focus of Concentration

- **Design and analysis** of advanced electronic circuits
- Application & theory of modern electronic devices, circuits, and systems in the digital, analog, and radio frequency and microwave regime
- Core design principles around digital, analog, and RF circuits

Three (3) core courses (9 SCH)

- EECT 6325 – VLSI Design
- EECT 6326 – Analog Integrated Circuit Design
- EERF 6311 – RF and Microwave Circuits

Job Horizon for Internship & Future Career (Historical Examples)
EE Areas of Study: Devices

Focus of Concentration

- Semiconductor device modeling, Quantum devices
- Plasma science and technology, CNT electrodes/sensors
- MEMS devices, Nano-electronic devices, Bio sensors, Nano-photonic devices, Packaging technologies

Three (3) core courses (9 SCH)

EEGR 6316 Fields and Waves
EEMF 6319 Quantum Physical Electronics
EEOP 6311 Photonics Devices and Integration
EE Areas of Study: Power Electronics and Energy Systems

Focus of Concentration
- Transportation electrification
- Distributed power generation
- Energy storage, management and harvesting
- Power electronics, motors & drives

Three (3) core courses (9 SCH)
- EEPE 6354 Power Electronics
- EEPE 6398 General Theory of Electric Machines
- EEPE 6357 Control, Modeling, and Simulation in Power Electronics
EE Areas of Study: Signals and Systems

Three (3) (9 SCH) required core courses:
- One of the three required core courses must be EESC 6349 Probability, Random Variables, and Statistics
- The other two required core courses must be from this list:
  - EECS 6331 Linear Systems
  - EESC 6352 Digital Communication Systems
  - EESC 6360 Digital Signal Processing I

Two main thrusts:
(1) **Communications** including wireless communication, communication networks, and information theory
(2) **Signal Processing** including speech processing, image processing, and machine learning
EE Areas of Study: Computing Systems

Computing Systems

Three (3) core courses (9 SCH)
EEDG 6301 – Advanced Digital Logic
EEDG 6304 – Computer Architecture
EEDG 6302 – Microprocessor Systems

Computer Architecture
Electronic Design Automation
Hardware Security
Reconfigurable Computing
Edge Computing
Wearable Devices
Software Defined Networks
Network Virtualization
Embedded Systems Concentration
Four (4) core courses (12 SCHs)
- CE / EEDG 6302 – Microprocessor and Embedded Systems
- CE / EEDG 6304 – Computer Architecture
- CE / EEDG 6370 – Design and Analysis of Reconfigurable Computing Systems
- EESC 6367 – Applied Digital Signal Processing

Computer Systems Concentration
Four (4) core courses (12 SCHs)
- CE / EEDG 6304 – Computer Architecture
- CE / EECT 6325 – VLSI Design
- CS 6363 – Design and Analysis of Computer Algorithms
- CS 6378 – Advanced Operating Systems
Telecommunications Engineering

**Five (5) core courses (15 SCHs)**
- CS/TE 6385 Algorithmic Aspects of Telecommunication Networks
- EESC 6349 Probability, Random Variables, and Statistics
- EESC 6352 Digital Communication Systems
- CS 6352 Performance of Computer Systems
- CS 6390 Advanced Communication and Computer Networks

Telecommunications Engineering

Networks
- Digital Communications
- Mobile Computing
- Personal Communication Systems
- Software Defined Networks
- Network Virtualization
FAQ Session
FAQ: application/admission

Is GRE/TOEFL waived? ([https://ece.utdallas.edu/admissions/graduate-programs/](https://ece.utdallas.edu/admissions/graduate-programs/))
- We review application without GRE and “conditional” admission is given.
  - GRE scores must be submitted by the end of the 1st semester of enrollment.
  - GRE at home is available. ([https://www.ets.org/s/cv/gre/at-home/](https://www.ets.org/s/cv/gre/at-home/))
- Temporarily accepts Duolingo English Test (as an alternative to TOEFL) results for tests taken between February 1 and December 31, 2020. ([https://www.utdallas.edu/admissions/graduate/coronavirus/](https://www.utdallas.edu/admissions/graduate/coronavirus/))

Application fee, incomplete materials and deferment
- Must contact Office of Admission and Enrollment ([https://utdallas.edu/admissions/graduate/contact-us/](https://utdallas.edu/admissions/graduate/contact-us/))
- Can I get application fee waiver?
  - ECE does not have authority to waive the fee.
- Can I defer to Fall 2021?
- I got an alerts of missing items and/or hold
  - Application materials are forwarded to ECE once materials are complete.
  - Application to do list, deferment are all handled by the Office of Admission.
FAQ: application/admission

I was admitted to EE (or CS). Can I change to CE?
- EE & CE are different programs. A new application is needed.
- CS and ECE are different departments. A new application is needed.

I got admission for Spring 2021. When should I arrive?
- Orientation is mandatory for new students. Spring 2021 Orientation is online and on Jan. 7, 2021. First day of class of the Spring 2021 semester is Jan. 19, 2021.

I will be starting in Spring 2021. Am I allowed to work as a RA/TA remotely?
- Working remotely from a foreign country is not allowed.
FAQ: TAs, RAs & Fellowships

TAs
- Application (online, Feb. 1 ~ Feb. 15)
- TA appointments are yearly basis (Fall & Spring)
- Competitive, priority given to PhD students, faculty support is crucial

RAs
- RAs are awarded by faculty member(s) depending on their research funding

Fellowships (most deadline is June each year)
- Beecherl fellowship, Excellence in Education Doctoral fellowship, Jan P. van der Ziel fellowship, Jonsson School Industrial Advisory Council fellowship, OK Kyun Kim and Youngmoo Cho Kim Graduate fellowship, Phil Ritter Endowed scholarship, Templeton Endowed fellowship, Texas Instruments Analog Excellence Graduate fellowship, Betty and Gifford Johnson travel funds, Pathways to Research Scholarship, Jonsson School $1,000 Graduate Study scholarships
FAQ: orientation & registration

**Orientation** ([https://ece.utdallas.edu/graduate-programs/graduate-student-forms/](https://ece.utdallas.edu/graduate-programs/graduate-student-forms/))

Spring 2021 ECE New Graduate Student Orientation
January 7, 2021 @ 9:30 am – 11:00 am (Tentative)
Venue: Online

- Orientation is mandatory for all new graduate students. You can register courses **after** you attend the orientation.

**Registration** (**must be registered by Jan. 14**)

- Meet with academic advisors and get your course registration form ([https://cpb-us-e2.wpmucdn.com/sites.utdallas.edu/dist/e/421/files/registration.pdf](https://cpb-us-e2.wpmucdn.com/sites.utdallas.edu/dist/e/421/files/registration.pdf)) signed, then the form would be sent to the graduate office staff for course registration. You will receive acknowledgment about your course registration in email.
- MS students – academic advisors
  - EE – Dr. Randall Lehmann, Dr. Mathew Heins
  - CE – Dr. Diana Cogan (EE)
  - TE – Dr. Marco Tacca (EE)
- PhD students – need to find your own research advisor
- Work on your degree plan ([https://ece.utdallas.edu/graduate-programs/graduate-student-forms/](https://ece.utdallas.edu/graduate-programs/graduate-student-forms/)) with your advisor
FAQ: transfer of credits, waiver of prerequisites

ียวTransfer of Credits

✔ Only 25% of graduate course work for your degree plan can be transferred from another graduate school. This equates to 8.25 SCHs for MS students.
✔ Transfer of MS level credit into a PhD program is limited to a max. of 36 SCHs

يفةWaiver of prerequisites

✔ If you feel that you have already taken a prerequisite stated in your admission letter, then

➢ Fill a waiver form, prove that prerequisite was taken in the last four (4) semesters of your UG degree with a grade of B or better, and submit transcripts and syllabus of the equivalent course.
➢ Must submit it within the 1st week of the semester.
Your degree requirements are outlined in the Graduate Catalog (https://catalog.utdallas.edu/2020/graduate/home)

Degree plan
- Degree plan must be submitted (to academic advisors for signature) by the end of the first semester of enrollment & the graduating semester
- A degree plan is a tool that helps you track your progress

Every concentration area has Core courses and Elective courses
- Choose your classes carefully to maximize learning!!
- Take required core courses as quickly as possible
  - https://ece.utdallas.edu/files/MSEE-Degree-Plans.pdf (MS EE degree plan)
  - https://ece.utdallas.edu/files/MSCE-TE-Degree-Plans-v.4.pdf (MS CE & TE degree plan)
PhD Students

- Complete a minimum of 75 SCH beyond the baccalaureate degree
  - If admitted w/o MS degree, must take 30 graduate-level SCHs, then min. of 45 SCHs
  - If admitted with MS degree, you can complete a minimum of 45 SCHs
  - The last 45 SCHs can be combined 42 research and additional graduate-level course SCHs and 3 Dissertation SCHs
  - If you stay long in the PhD program (> 99 SCHs) you need to pay nonresident tuition

- Must pass a two-part Doctoral Qualifying Exam (QE)
  - Part 1 tests background knowledge and Part 2 tests research capability
  - Students with an MS degree must pass within three (3) long semesters.
  - Students without an MS degree must pass within four (4) long semesters.

- Pass the Doctoral Proposal Examination

- Complete a dissertation with oral defense
Online Resources for ECE Students

• Graduate Student Resources webpage
  - http://ece.utdallas.edu/academics/graduate-programs/
  - https://catalog.utdallas.edu/
  - https://ece.utdallas.edu/graduate-programs/graduate-student-forms/
  - https://graduate.utdallas.edu/faculty/forms/
  - https://engineering.utdallas.edu/engage/students/internships/

• If you need help, please contact ecegradprogram@utdallas.edu for assistance
International student orientation

- UTD ISSO hosts international student orientation
  - [https://icp.utdallas.edu/students/international-student-orientation/](https://icp.utdallas.edu/students/international-student-orientation/)
  - [https://www.youtube.com/playlist?list=PL5uFR-SQ0b47gOhFlIbfuJFaxpt7yk1-H](https://www.youtube.com/playlist?list=PL5uFR-SQ0b47gOhFlIbfuJFaxpt7yk1-H) (many recorded Fall 2020 sessions available)

- International Student Association: Friendship Association of **Chinese Students** and Culture Orientation (FACSS), **Nov 11, 8:30 am**

- International Student Orientation: **Indian Student** Association Orientation (ISA), **Nov 11 8:30 am**

- International Student Orientation: UTD Big Howdy, **Nov 17 8:30 am**