ECE.zip

A condensed guide to undergraduate life in Electrical and Computer Engineering at Rice University

2018-2019
Administration

Edward Knightly
Department Chair & Professor, ECE & Computer Science
Duncan Hall 3044
knightly@rice.edu
(713) 348.5748

Emmanuel Tunley
Executive Administrator, ECE
Abercrombie Engineering Laboratory, A204
Tunley@rice.edu
(713) 348.5081

Norma Santamaria
Undergraduate Program Administrator, ECE
Abercrombie Engineering Laboratory, B203
ns37@rice.edu
(713) 348.6722

Major Advisors

Joseph Cavallaro
ECE Undergraduate Committee Chair
Professor, ECE & Computer Science
Duncan Hall 3042
cavallar@rice.edu
(713) 348.4719

Caleb Kemere
Assistant Professor, ECE & Bioengineering
BioScience Research Collaborative 727
caleb.kemere@rice.edu
(713) 348.6089

Yingyan Lin
Assistant Professor, ECE
Duncan Hall 2040
yl150@rice.edu
(713) 348.3020

Santiago Segarra
Assistant Professor, ECE
Duncan Hall 2047
segarra@rice.edu
(713) 348.3561

Ray Simar
Professor in the Practice, ECE
Abercrombie Engineering Laboratory A208
ray.simar@rice.edu
(713) 348.2257

Peter Varman
Professor, ECE & Computer Science
Duncan Hall 2022
pjv@rice.edu
(713) 348.3990

Gary Woods
Professor in the Practice, ECE
Abercrombie Engineering Laboratory A209
gary.woods@rice.edu
(713) 348.3598

A complete directory of faculty and staff can be found at ece.rice.edu.
Welcome, class of 2022! This book encompasses the Rice ECE undergraduate experience. Use it as a reference as you move forward in your academic career.

The following pages contain helpful answers to some questions you may have, such as:

4.....Who are ELECs?
4.....What do ELEC’s do?
4.....What is ECE at Rice?
6.....What are my degree options in ECE?
6.....Tell me about the BSEE.
6.....Tell me about the BA.
6.....What do I need to do to get a degree?
7.....What are specialization areas?
8.....How do I declare my major?
8.....Who can help advise me?
9.....What is the degree planning sheet?
10.....How can I get the most out of my ECE experience?
11.....Should I study abroad?
12.....Should I do an internship?
12.....How do I find an internship?
13.....Should I do research as an undergraduate?
13.....How can I find research opportunities?
14.....Institute of Electrical and Electronics Engineers (IEEE)
...WHO ARE ELECs?

Electrical and Computer Engineers (ELECs) create, innovate and design technologies in robotics, computing, communications, electronics and automation. ECE uses hardware and software to create better, faster, safer technologies for things like cars, aircraft, computers, smart phones, and surgical robots.

...WHAT DO ELECs DO?

ELECs are a diverse, smart, creative group of problem-solvers who make devices and programs that change the world. Smartphones, GPS, cars, and even things like healthcare and national security would not exist as they do today without them. ELECs go on to work in every industry imaginable, including:

WEARABLES • HEALTHCARE • ENTERTAINMENT • RENEWABLE ENERGY GAMING • WIRELESS • SPACE • SECURITY • AVIATION

...WHAT IS ECE AT RICE?

At Rice, we focus on the following areas of research and study:

COMPUTER ENGINEERING (CE)
Computer Engineering is about designing, realizing and evaluating computing, communication and storage systems: making them fast, secure, reliable, and efficient. Our research covers the full stack of systems, from integrated circuits, VLSI, architecture to operating system. We are particularly interested in emerging platforms and application domains, such as Internet of Things (IoT), machine learning, and healthcare.

NEUROENGINEERING (NEURO)
The brain is essentially a circuit. Neuroengineering is a discipline that exploits engineering techniques to understand, repair, and manipulate human neural systems and networks. Rice is uniquely positioned to lead this field thanks to the broad, interdisciplinary research performed in conjunction with the world's largest medical center (Texas Medical Center), steps away from the Rice University Campus.

PHOTONICS, ELECTRONICS, & NANODEVICES (PEN)
This field strives to improve understanding of the interaction of light and matter, along with the application of that knowledge to develop innovative devices and technologies. PEN has applications in energy and healthcare, among others.

DATA SCIENCE/SYSTEMS (DS/S)
Data Science is a growing field that integrates the tools and techniques involved in data acquisition, data analytics, and data storage to enable extraction of meaningful information from massive data sources.

In Systems, signal processing is the analysis and transformation of signals (measurements taken over time and/or space) in order to understand, simplify or recast their structure. Image and video analysis and compression, computational neuroscience, and wireless networking systems are in this field.
At Rice, ECE is ....

National security

Energy Systems

Serving the underserved

Quantum discoveries

Rewiring the brain

Breaking world records

Mobile Health

Sensor-carrying drones

Unconverted Light

WELCOME TO THE NETWORK

Lensless cameras

Fighting Parkinson’s disease and epilepsy

At Rice, ECE is ....

The brain is essentially a circuit. Neuroengineering is a discipline that exploits engineering techniques to understand, repair, and manipulate human neural systems and networks. Rice is uniquely positioned to lead this field thanks to the broad, interdisciplinary research performed in conjunction with the world's largest medical center (Texas Medical Center), steps away from the Rice University Campus.
WHAT ARE MY DEGREE OPTIONS IN ECE?

ECE has two degree programs for undergraduates, the Bachelor of Science in Electrical Engineering (BSEE) and the Bachelor of Arts in Electrical Engineering (BA).

TELL ME ABOUT THE BSEE.

The BSEE is the typical degree pursued by students planning a career in electrical and computer engineering. The program is accredited by the Engineering Accreditation Commission (EAC) of ABET*. For more information visit abet.org. A BSEE program must have a total of at least 134 semester hours. A course can satisfy only one program requirement. Students who place out of required courses without transcript credit must substitute other approved courses in the same area. See the section in the General Announcements for the general university degree requirements.

TELL ME ABOUT THE BA.

The BA degree provides a basic technical foundation in electrical and computer engineering through a subset of the core and specialization courses offered by the department. The program leading to the BA degree is not accredited by the EAC of ABET and is often pursued by students as a component of a double major or dual degree program. A course can satisfy only one program requirement within the major. Students who place out of required courses without transcript credit must substitute other approved courses in the same area.

WHAT DO I NEED TO DO TO GET A DEGREE?

You must meet the required hours for your program, and include the courses below as well as your specialization area courses and electives that are required.

<table>
<thead>
<tr>
<th>MATH/SCIENCE COURSES</th>
<th>ECE CORE COURSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 121 General Chemistry I with lab (CHEM 123)*</td>
<td>ELEC 220 Fundamentals of Computer Engineering</td>
</tr>
<tr>
<td>ELEC 261 Electronic Materials and Quantum Devices</td>
<td>ELEC 240 and 241 Fundamentals of Electrical Engineering I</td>
</tr>
<tr>
<td>ELEC 303 Random Signals</td>
<td>ELEC 242 and 244 Fundamentals of Electrical Engineering II</td>
</tr>
<tr>
<td>MATH 101 Single Variable Calculus I (or MATH 105)</td>
<td>ELEC 301 Introduction to Signals, Systems, and Learning**</td>
</tr>
<tr>
<td>MATH 102 Single Variable Calculus II (or MATH 106)</td>
<td>ELEC 305 Introduction to Physical Electronics</td>
</tr>
<tr>
<td>MATH 212 Multivariable Calculus (or MATH 221)</td>
<td>ELEC 326 Digital Logic Design</td>
</tr>
<tr>
<td>MATH 355 or 354 Linear Algebra or CAAM 335 Matrix Analysis</td>
<td>DESIGN</td>
</tr>
<tr>
<td>PHYS 101/111 Mechanics with lab (or PHYS 103 or 111)</td>
<td>ELEC 494 Senior Design (2 semesters)</td>
</tr>
<tr>
<td>PHYS 102/112 Electricity and Magnetism with lab (or PHYS 104 or 112)</td>
<td>DESIGN LAB</td>
</tr>
<tr>
<td>COMPUTATION</td>
<td>ELEC 327 Implementation of Digital Systems or</td>
</tr>
<tr>
<td>COMP 140 Computational Thinking</td>
<td>ELEC 332 Electronic Systems, Principles &amp; Practices or</td>
</tr>
<tr>
<td></td>
<td>ELEC 364 Photonic Measurements: Principles &amp; Practices</td>
</tr>
</tbody>
</table>

** Not required for the BA.

For specific requirements on each degree program, sample schedules and forms, please visit ece.rice.edu or see the IEEE Handbook.

*ABET, Inc. 415 North Charles Street Baltimore, MD 21201 eac@abet.org
Each ECE degree program requires a minimum number of semester hours in: core areas; math and science; computation; and design. Each also requires a minimum number of specialization courses (below). For the BSEE program, a minimum of 6 specialization area courses is required, including 3 or more in one area, and courses from at least 2 areas. For the BA program, a minimum of 4 specialization area courses is required, including 2 or more in one area, and courses from at least two areas.

For both programs, each course must be at least 3 semester hours. The department may add or delete courses, and graduate courses and equivalent courses from other departments may be used to satisfy area requirements with permission. Check with your Divisional Advisor (DA) or Major Advisor for more information.

### Computer Engineering:
- COMP 321 Introduction to Computer Systems
- COMP 382 Reasoning About Algorithms
- COMP 430 Introduction to Database Systems
- ELEC 323 Principles of Parallel Programming
- ELEC 342 Analog Electronic Circuits
- ELEC 421 Operating Systems and Concurrent Programming
- ELEC 422 VLSI Systems Design
- ELEC 423 Digital Integrated Circuits
- ELEC 424 Mobile and Embedded System Design and Application
- ELEC 425 Computer Systems Architecture
- ELEC 429 Introduction to Computer Networks
- ELEC 446 Mobile Device Applications Project

### Neuroengineering:
- ELEC 380 Introduction to Neuroengineering
- ELEC 381 Fundamentals of Nerve and Muscle Electrophysiology
- ELEC 382 Introduction to Computational Neuroscience
- ELEC 383 Computational Neuroscience and Neuroengineering
- ELEC 482 Physiological Control Systems
- ELEC 483 Machine Learning and Signal Processing for Neuroengineering
- ELEC 484 Human Neuroimaging
- ELEC 485 Fundamentals of Medical Imaging I
- ELEC 486 Fundamentals of Medical Imaging II
- ELEC 488 Theoretical Neuroscience: From Cells to Learning Systems
- ELEC 489 Neural Computation
- ELEC 489 Neural Computation
- ELEC 489 Neural Computation

### Photonics, Electronics, and Nano-devices:
- ELEC 262 Introduction to Waves and Photonics
- ELEC 302 Introduction to Systems
- ELEC 303 Applied Electromagnetics
- ELEC 361 Quantum Mechanics for Engineers (or PHYS 311)
- ELEC 365 Nanomaterials for Energy
- ELEC 430 Digital Communication
- ELEC 431 Digital Signal Processing
- ELEC 432 Mobile Bio-Behavioral Sensing
- ELEC 433 Architecture for Wireless Communications
- ELEC 435 Introduction to Energy-Efficient Mechatronics
- ELEC 436 Fundamentals of Control Systems
- ELEC 437 Introduction to Communication Networks
- ELEC 438 Wireless Networking for Under-Resourced Urban Communities
- ELEC 447 Introduction to Computer Vision
- ELEC 475 Learning from Sensor Data
- ELEC 478 Introduction to Machine Learning
- ELEC 498 Introduction to Robotics
- MECH 488 Design of Mechatronic Systems
- STAT 413 Introduction to Statistical Machine Learning

Note: The sequence of COMP 140, COMP 182, and COMP 215 is recommended in addition for the Computer Engineering specialization as these courses are prerequisites for many of the Computer Science Courses.
...HOW DO I DECLARE MY MAJOR?

The School of Engineering encourages students to declare their majors in the spring semester of their freshman year before registering for your sophomore year.

To declare, you must make an appointment with a Major Advisor and bring:

1) a printed, filled-out copy of the ECE Degree Planning Sheet either for the BSEE or BA;  
2) a printed copy of your unofficial transcript; and,  
3) a printed copy of your completed declaration form (located in Esther).

After your advisor has signed off, visit Norma Santamaría in Abercrombie B203 and bring your paperwork. Once you have seen Norma, take your original declaration form and turn it into the Registrar’s Office.

...WHO CAN HELP ADVISE ME?

You have to meet with your Divisional Advisor (DA) at least once during O-week, but we suggest you also make it a habit to talk to him or her periodically regarding your academic plans. All DAs have been trained to answer exactly the types of questions you have. As long as you are undeclared, your DA is your first point of contact for any academic questions.

If your DA is not from the ECE department and you would like more help, you don’t need to wait until you’ve declared to meet with a Major Advisor. A list of Major Advisors is below. They know the latest on the curriculum and have guided many ELECs towards their Rice degree. The ECE Undergraduate Program Administrator, Norma Santamaria (ns37@rice.edu), can help with questions about course schedules, ELEC 490 and VIP (ELEC 491) registration, procedures for declaring a major, and applying to the Masters of Electrical Engineering (MEE) program.

Make sure you consult the Engineering Advising Booklet and the IEEE Handbook for more tips and information on advising.

Once you have declared, you should meet with your assigned Major Advisor once per semester. You must bring a printed copy of the ECE Degree Planning Sheet.

ECE Major Advisors:

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Office</th>
<th>Phone</th>
<th>Email @rice.edu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joseph Cavallaro</td>
<td>DH 3042</td>
<td>x 4719</td>
<td>cavallar</td>
</tr>
<tr>
<td>Caleb Kemere</td>
<td>BRC 727</td>
<td>x 6089</td>
<td>caleb.kemere</td>
</tr>
<tr>
<td>Yingyan Lin</td>
<td>DH 2040</td>
<td>x 3020</td>
<td>yl150</td>
</tr>
<tr>
<td>Santiago Segarra</td>
<td>DH 2047</td>
<td>x 3561</td>
<td>segarra</td>
</tr>
<tr>
<td>Ray Simar</td>
<td>AL A208</td>
<td>x 2257</td>
<td>ray.simar</td>
</tr>
<tr>
<td>Peter Varman</td>
<td>DH 2022</td>
<td>x 3990</td>
<td>pjv</td>
</tr>
<tr>
<td>Gary Woods</td>
<td>AL A209</td>
<td>x 3598</td>
<td>gary.woods</td>
</tr>
</tbody>
</table>

ASK. PLAN. SUCCEED!
The degree planning sheet is an essential part of your ECE undergraduate experience. The form’s purpose is to make sure you are on track to graduate and are getting the most out of your academic experience. Review your academic goals frequently and use this sheet to help you. A sample degree planning sheet is displayed below; please visit ece.rice.edu for forms and curriculum. When planning, consult Degree Works to track your progress towards completion of degree requirements.

When meeting with your Major Advisor, you must bring a completed copy of this sheet with you. If you’re declaring, also: 1) print and complete the declaration form found on Esther, and 2) bring a copy of your unofficial transcript.

---

**Rice University**  
ECE Department  
Bachelor of Science in Electrical Engineering (BSEE)  
Degree Plan 2018-2019  

<table>
<thead>
<tr>
<th>Name: ___________________________</th>
<th>Date: ___________________</th>
<th>Email: ___________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student ID #: ___________________</td>
<td>Matriculation Term: ______</td>
<td>Expected Graduation Term: ________</td>
</tr>
<tr>
<td>(last, first)</td>
<td>(semester you began at the university)</td>
<td></td>
</tr>
<tr>
<td>Name of Advisor: __________________</td>
<td>Specialization Area: ______</td>
<td></td>
</tr>
</tbody>
</table>

Consult your Degree Works audit as you complete this degree plan.

### MATH/SCIENCE

<table>
<thead>
<tr>
<th>Course</th>
<th>Completed?</th>
<th>From AP credit or Rice?</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 221</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 261</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 303</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 101 or 105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 102 or 106</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 212</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 335 or CAAM 335</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH/SCIENCE Elective*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Computer Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Completed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE - Specialization Course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Data Science/Systems

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Completed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS/S - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS/S - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS/S - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS/S - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS/S - Specialization Course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Photonics, Electronics, and Nanodevices

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Completed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEN - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEN - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEN - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEN - Specialization Course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Neuroengineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Completed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEURO - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEURO - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEURO - Specialization Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEURO - Specialization Course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ECE CORE

<table>
<thead>
<tr>
<th>Course</th>
<th>Completed?</th>
<th>(check yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 220</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 241</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 242</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 301</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 305</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 326</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMP 140</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### DESIGN LAB (choose 1)

<table>
<thead>
<tr>
<th>Course</th>
<th>Completed?</th>
<th>(check yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 327</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 332</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 364</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

*Typically approved courses include: BIOC 201, CAAM 336, CAAM 378, CHEM 122 & CHEM 124, MATH 211, and MATH 222.
...HOW CAN I GET THE MOST OUT OF MY ECE EXPERIENCE?

ECE is a vibrant community with many ways to get involved! Non-ECE-related clubs can be found in Rice Clubs Central (studentcenter.rice.edu/student-activities/).

**IEEE**
The Rice chapter of IEEE is a student organization dedicated to informing ECE students of what is going on in the department, preparing the undergrad ECE majors for life “beyond the hedges,” encouraging freshmen and sophomores to major in Electrical Engineering, and creating a greater sense of community among the ELECs. Visit ieee.rice.edu for more information.

**ETHERNEST**
Sponsored by the Electrical and Computer Engineering Department, the EtherNest is a student-run makerspace for students from all disciplines. They hold workshops for students from all majors to try their hand at tinkering. See more at ethernest.rice.edu.

**SHELECS**
SHelecs: Undergraduate Women in Electrical Engineering is a student organization on campus which supports undergraduate women in electrical engineering. It empowers ECE women through community, networking, and mentorship. To join or contact us, please email shelecs@rice.edu or contact Alexandra Du (ad55@rice.edu)

**WOMEN ExCEL**
Women Excel is a network of women in the ECE Department at Rice that aims to provide community, mentoring, and cultural enrichment for ECE graduate students. We furnish a medium for networking and discussion of women-specific issues. Contact Jill Juneau (jill.c.juneau@rice.edu) for more information.

**ETA KAPPA NU**
Eta Kappa Nu (HKN) is the electrical and computer engineering honor society for students, alumni, and other engineering professionals. Recognizing excellence in electrical and computer engineering since 1904, it has recently become a part of the larger IEEE organization. The Theta Rho chapter of HKN at Rice University inducts new members each year.

**SOCIETY OF WOMEN ENGINEERS (SWE)**
SWE is a non-profit educational and service organization that is committed to organizing professional and social events to help Rice women engineers succeed and advance their careers. The SWE mission is to “stimulate women to achieve full potential careers as engineers and leaders, expand the image of the engineering profession as a positive force in improving the quality of life, and demonstrating the value of diversity. Visit swe.rice.edu for more information.

**NATIONAL SOCIETY OF BLACK ENGINEERS (NSBE)**
Rice University’s NSBE Chapter is dedicated to realization of a better tomorrow through the development of programs and community outreach events intended to increase the recruitment, retention, and successful graduation of minorities in engineering. Visit nsbe.rice.edu for more information.

**SOCIETY OF HISPANIC PROFESSIONAL ENGINEERS (SHPE)**
SHPE changes lives by empowering the Latinx/Hispanic community to realize its fullest potential and to impact the world through STEM awareness, access, support and development. SHPE Rice is committed to making its members as prepared as possible for life after graduation through professional development, community outreach, and leadership development. Visit shpe-rice.weebly.com for more information.
As an engineer, you will be called to solve problems and find solutions on a global scale; studying abroad is the ideal opportunity for you to gain the skills necessary to function in this global context. It shapes who you will become during your Rice career and beyond.

“My research internship in Germany has been a truly eye-opening experience, both academically and culturally. I had the opportunity to take part in interesting, novel research in which I learned a lot about the state-of-the-art in fascinating fields like deep generative modeling and parametric music synthesis. I also learned how different societies and cultures behave and how to interact and work with people who come from many different backgrounds. I even got to learn a bit of German and now mein Deutsch ist nicht so schecht!”

- Vinay, ECE

Meet with your Major Advisor(s) to discuss the possibility of studying abroad, and how it will integrate with the department’s curriculum and course sequence.

I decided to study abroad because I wanted to experience a different university’s way of teaching, learn about other cultures, and explore Asia. Study abroad does require planning, but it is definitely possible to do as an ELEC. Taking classes at a foreign university and traveling throughout Asia was an amazing experience.

-Marissa, ECE

Interested?
Attend the Rice Study Abroad Fair!
Friday, September 7th, 2018.
Brochstein Pavilion.

These photos are all taken from the annual Rice Study Abroad Photo Contest!
...SHOULD I DO AN INTERNSHIP?

Picture it: you’re a recent graduate of one of the best universities in the country. Your GPA is excellent and your professors have written strong recommendation letters. The problem? You can’t get a job because you lack experience. This is where internships come in.

While most Rice ECE graduates have no problem finding a job after commencement, an internship can help you gain valuable on-the-job experience and real-world skills.

...HOW DO I FIND AN INTERNSHIP?

Many students identify internship opportunities on their own; however, there are resources on campus to help.

**RICElink**  [ccd.rice.edu/jobs-internships/](ccd.rice.edu/jobs-internships/)
RICElink is CCD's job and internship database. Unlike other job search websites, employers who post in RICElink are specifically looking for Rice students and alumni. Use RICElink to apply for jobs and internships, apply to on-campus interviewing positions, schedule appointments with CCD counselors, and RSVP for events. You can also opt-in to making your profile searchable by employers.

**SallyPortal**  [alumni.rice.edu/sallyportal](alumni.rice.edu/sallyportal)
SallyPortal is a new online professional development hub dedicated to exclusively to the Rice community. SallyPortal allows you to seek guidance from the Rice network, find a mentor, locate professional development opportunities, and engage with alumni and departments - all in the name of providing Rice students and recent graduates with the greatest possible edge.

**iNET**  [ccd.rice.edu/jobs-internships/](ccd.rice.edu/jobs-internships/)
Explore this database consisting exclusively of internship opportunities. Rice shares iNet with Duke, Georgetown, Harvard, Massachusetts Institute of Technology, New York University, Northwestern, Stanford, University of Pennsylvania, University of Southern California, and Yale. This collaboration provides Rice students with information on opportunities across the country.

**HireOWL**  [hireowl.com](hireowl.com)
Looking for a great way to make money and gain work experience on a schedule that works with your classes? Checkout HireOwl. They can provide you with a wide variety of paid part-time job opportunities, short-term projects, and internships. Signing up is easy!

---

**ECE students have interned at:**

- Google
- National Instruments
- Texas Instruments
- Microsoft
- Boeing
- Department of Homeland Security
- LyondellBasell
- HP Enterprise
- FlightAware
- Airware
- Proteus Digital Health
- Sensorfield, LLC
- HBK Capital Management
- Subaru Telescope
- Intuitive Machines
- CenterPoint Energy
- Alert Logic
- Freescale Semiconductor
- C&J Energy
- DAAD RISE
- ...and more!
**SHOULD I DO RESEARCH AS AN UNDERGRAD?**

Participation in research is a fundamental part of the Rice experience, and prepares students to make a distinctive impact on the world. If you are thinking of applying to graduate school, research experience as an undergraduate can set you apart from the competition and can also give you an edge when you begin your coursework - you will know about the research process and what to expect.

In addition, the prestigious **Distinction in Research and Creative Works Award**, is bestowed on select undergraduates at commencement. The award is granted for projects that produce a concrete outcome—e.g. an essay, invention, design, musical composition—and demonstrate commitment and/or achievement above and beyond the norm.

**HOW CAN I FIND RESEARCH OPPORTUNITIES?**

**Vertically Integrated Projects (VIP)**  [vip.rice.edu](http://vip.rice.edu)

The Vertically Integrated Projects (VIP) Program at Rice unites undergraduate education and faculty research in a team-based context. Undergraduate Rice VIP students earn academic credits, while faculty and graduate students benefit from the design/discovery efforts of their teams. VIP at Rice extends the academic design experience, through ELEC 491, beyond a single semester. It provides the time and context to learn and practice professional skills, to make substantial contributions, and experience different roles on large multidisciplinary design/discovery teams.

The long-term nature of VIP creates an environment of mentorship, with faculty and graduate students mentoring teams, experienced students mentoring new members, and students moving into leadership roles as others graduate. Rice VIP teams are comprised of students from freshmen to graduate students, with a variety of majors and backgrounds.

For more information, forms and application, visit [vip.rice.edu](http://vip.rice.edu).

**Research Fairs:**  Discover Research Fair, Wednesday, August 22, 4:30-5:30pm • Rice Memorial Center

Make a point to attend the Discover Research Fair in August and the Summer Research Fair in January. The intention of the fair is to connect undergraduate students with research opportunities at Rice University. It is an excellent way for students to learn how to pursue research opportunities that fit their goals and interests, and to discuss research with faculty and graduate students across disciplines.

**Reach out to ECE Faculty**

Many ECE faculty provide research opportunities to Rice undergraduates. Visit [ece.rice.edu](http://ece.rice.edu) to learn about the faculty in the department, and feel free to reach out to them regarding a research position. Faculty have regular research group meetings that you may ask to attend.

---

Alex Hwang, a Jones College senior from Palo Alto, Calif., is majoring in electrical engineering and physics. During the three months of his Nakatani RIES Fellowship, Hwang was able to conduct cutting-edge nanomaterials research abroad in Japan.

"I learned so much about global research and collaboration. This experience was also incredibly important in building my confidence as a research leader."

Currently, he's working in the lab of Gururaj Naik, an assistant professor of electrical and computer engineering.

"Having such a large role in the lab has been an incredibly motivating and empowering experience as a young researcher. With the help of Guru, Ph.D. student Chloe Doiron and the other members of the Naik lab, I have matured into a more confident and competent young scientist."

-Alex Hwang, '19, Academic Fellow
Jones College
About Rice IEEE

The Rice Chapter of IEEE is a student organization dedicated to connecting ECE students to exciting opportunities and resources at Rice and beyond. Our goal is to help prepare ECE majors for life “beyond the hedges.” In addition, Rice IEEE encourages freshmen and sophomores to major in Electrical Engineering and works to foster a strong community of students, faculty, and professionals. We expose students in ECE to important technical and career development topics in the field of electrical engineering by hosting weekly lunches with presentations given by professors, graduate students, and industry professionals.

For more information visit the Rice IEEE website at http://ieee.rice.edu or seek out the Rice IEEE Handbook at http://ieee.rice.edu/resources/.

2018-2019 IEEE Officers

Co-Presidents
Fasai Phuanthavornskul (fp10@rice.edu)
Jonathan Bunt (bunt@rice.edu)

Co-Vice Presidents
Neil Seoni (neil.a.seoni@rice.edu)
Cam Walton (cam.walton@rice.edu)

Treasurer
Tory Songyang (tory.songyang@rice.edu)

Communications Director
Sophie D’Amico (sophie.damico@rice.edu)

IEEE Liaison
Rachel Nguyen (rtn1@rice.edu)

Senior Class Reps
Logan Lawrence (logan.c.lawrence@rice.edu)
Ayush Chapagain (chap.ayush@rice.edu)

Junior Class Reps
Tiger Yang (tiger.yang@rice.edu)
Sage McAdams (sage.c.mcadams@rice.edu)

Sophomore Class Reps
Joshua Bae (jsb9@rice.edu)
Julia Coyner (jrc13@rice.edu)