ELECTRICAL AND COMPUTER ENGINEERING

A. James Clark School of Engineering
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The Department of Electrical and Computer Engineering (ECE) at the University of Maryland, College Park offers one of the strongest and most highly-ranked programs in the nation. Led by 89 full-time and affiliate faculty members and 50 research faculty and postdocs, the research programs within the department cover a wide spectrum of activities in the areas of:

- Communications and Networking
- Signal Processing
- Control, Robotics, and Dynamical Systems
- Computer Engineering
- Optics and Photonics
- Circuits and Systems
- Electronic Materials and Devices
- Bioelectronics and Systems
- Applied Electromagnetics

Faculty
Chair: R. Chellappa (Distinguished Scholar Teacher; Minta Martin Prof and Chair)

Professors: E. Abed, T. Antonsen, J. Baras, A. Barg, R. Barua, S. Bhattacharyya, G. Blankenship (Associate Chair, External Affairs), M. Dagenais, C. Davis (Distinguished Scholar Teacher; Minta Martin Prof), A. Ephremides (Distinguished University Professor), C. Espty-Wilson (Distinguished Scholar Teacher), R. Ghodsi (Distinguished Scholar Teacher), V. Gligor (Res Prof), J. Goldhar, N. Goldsman, R. Gomez (Associate Chair, Undergrad Education), A. Iliadis, J. JaJa, B. Jacob, J. Kim (Prof Of Practice), P. Krishnaprasad, R. La, W. Lawson, W. Levine (Res Prof), K. Liu (Distinguished Scholar Teacher), A. Makowski, S. Marcus (Distinguished Scholar Teacher), I. Mayersgoyz (Distinguished Scholar Teacher), H. Milchberg (Distinguished Scholar Teacher), T. Murphy, P. Narayan, R. Newcomb, P. O’Shea (Distinguished Scholar Teacher), Y. Oruc, E. Ott (Distinguished University Professor), G. Qu, S. Shamma, M. Shayman, J. Simon, P. Sprangle, A. Srivastava (Associate Chair, Graduate Education), A. Tits, S. Ulukus, T. Venkatesan (Res Prof), U. Vishkin, M. Vorontsov (Res Prof), M. Wu (Distinguished Scholar Teacher), D. Yeung (Director of Computer Engineering).


Assistant Professors: B. Babadi (Asst Prof, Aff Asst Prof), D. Dachman-Soled (Asst Prof, Aff Asst Prof), K. Daniels, T. Dumitras (Asst Prof, Aff Asst Prof), C. Papamantelou (Asst Prof, Aff Asst Prof), D. Romero (Res Asst Prof), M. Rotkowski, Y. Shoukry,

Lecturers: D. Bowen (Lecturer), W. Hawkins, P. McAvoy (Res Assoc, Lecturer), N. Mogul (Lecturer), C. Walden (Lecturer), J. Wu (Lecturer).


Affiliate Associate Professors: I. Appelbaum, M. Cukier, R. Duraiswami, R. Kishek

Affiliate Assistant Professor: Y. Chen


Programs
Majors
- Computer Engineering Major (https://academiccatalog.umd.edu/undergraduate/colleges-schools/engineering/computer-engineering-major)
- Electrical Engineering Major (https://academiccatalog.umd.edu/undergraduate/colleges-schools/engineering/computer-electrical-engineering-major)

Minor
- Computer Engineering Minor (https://academiccatalog.umd.edu/undergraduate/colleges-schools/engineering/computer-engineering-minor)

Advising
All ECE students have mandatory advising every single semester, provided by the professional advising staff of the ECE Undergraduate Studies Office. Departmental permission is required in order for students to register and for all courses in the major. The Department's Undergraduate Studies Office (2426 A.V. Williams Building, 301-405-3685) is the primary point of contact for undergraduates with advising questions and detailed curriculum requirements, registration information, and advising and mentoring procedures can be found on the ECE Undergraduate Advising website: http://www.ece.umd.edu/undergrad/advising.

Opportunities
UNDERGRADUATE RESEARCH EXPERIENCES

The Department of Electrical and Computer Engineering is affiliated with more than 40 specialized laboratories, supporting activities including: speech and image processing, high performance systems, mobile computing and multimedia, communication networks, robotics, control systems, neural systems, systems integration, VLSI design and testing, experimental software engineering, semiconductor materials and devices, photonics, fiber optics, ion beam lithography, real-time systems, human-computer interaction, and virtual reality. Undergraduate students are encouraged to engage in research at some point during their education. Active participation in research not only allows students to apply what they have learned in class, it also gives them greater insight into a specific area within ECE and an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications. Research experience also prepares students for the demands of graduate school and the work force. Information
on participating in undergraduate research can be found at http://www.ece.umd.edu/undergrad/courses/400-level/enee499.

The ECE department also offers unique summer research programs. The Maryland Engineering Research Internship Team program offers research opportunities for top undergraduates from across the country interested in using computer engineering skills and tools to address important biosystems applications. The Transportation Electrification program (http://reu.ece.umd.edu/) offers research opportunities for students interested in sustainable transportation systems, particularly in power electronics, energy storage (battery, ultracapacitor and fuel cell), optimization and mathematical modeling of grid-integrated vehicles, and sustainable transportation.

**INTERNSHIPS**

Information on internships can be found at www.coop.eng.umd.edu. Other internships are advertised by the ECE Department's Office of External Relations, and Office of Undergraduate Studies.

**CO-OP PROGRAMS**

Participation in a Cooperative Education Program or internship with private industry or a government agency is strongly encouraged. See the A. James Clark School of Engineering catalog entry for details.

**JOB OPPORTUNITIES**

Electrical and computer engineers were primarily responsible for the recent revolutions in the music, telecommunications and medical device industries. They remain at the forefront of cutting edge developments and innovations in nanotechnology, robotics, and other technologies. Electrical engineers also have wide ranging employment opportunities in other fields including electronics, microelectronics, communications and signal processing, power systems, electrophysics, computer architecture, circuits, and control systems. Specific jobs include developing fiber optic technology, lasers for biomedical applications, software for robots, electronic weapons systems, advanced wireless networks, and neuron-like sensors for various applications.

**HONORS PROGRAM**

The Electrical and Computer Engineering Honors Program (www.ece.umd.edu/undergrad/honors) is intended to provide a more challenging and rewarding undergraduate experience for students pursuing the baccalaureate in Electrical or Computer Engineering. Please visit the ECE Honors website (www.ece.umd.edu/undergrad/honors) for program course requirements. Students completing all program requirements with a "B" average (3.0 on a 4.0 scale) and a cumulative GPA of 3.0 for all undergraduate work will have their participation noted on their B.S. diploma. Students with the necessary academic qualifications are invited to apply to the program, typically after the completion of their sophomore year.

**STUDENT SOCIETIES AND PROFESSIONAL ORGANIZATIONS**

The ECE Department has an active student chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and instructions for joining can be found on their website (http://umd.orgsync.com/org/iee/home). Equally active is the Gamma Xi chapter of Eta Kappa Nu honor society which is dedicated to recognizing excellence in electrical

**SCHOLARSHIPS AND FINANCIAL ASSISTANCE**

Several scholarships are administered through the department and many others through the Clark School of Engineering. To be considered for these awards, students must submit an application by May 31st of each year for the following academic year. For more information visit: www.ursp.umd.edu/scholarships/index.html.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

**AWARDS AND RECOGNITION**

The Department of Electrical and Computer Engineering offers the following awards:

1. Outstanding academic performance award presented to a junior for academic excellence;
2. Service Award to the graduating senior who has shown a commitment of service to fellow students; and
3. Chair’s Award for outstanding academic performance to a graduating senior.