

SAMUEL GINN COLLEGE OF ENGINEERING

COMPUTER SCIENCE AND SOFTWARE ENGINEERING



WHAT IS COMPUTER SCIENCE AND SOFTWARE ENGINEERING?

Computer scientists and software engineers design and develop software for the smartphones, tablets, personal computers, large computer systems and networks that power today's world. Whether you're keeping up with friends on social media, streaming a movie, making a purchase with your debit card or driving your car, you are depending on software. Software enables most of the social, economic and governmental systems that we rely on every day. From personal apps to life-critical software that powers medical, flight and space systems, today's society requires software that is engineered to demanding performance, reliability and safety standards. Engineering such software requires a high degree of specialization. The individuals with the critical expertise to do this are computer scientists and software engineers. It's these people who make the magic happen.

NOTABLE

- 914 undergraduate students and 169 graduate students enrolled in fall 2017
- 26 full-time faculty members
- Providing the nation's first bachelor's degree in software engineering at a public institution
- Offering the first and only bachelor's degree in wireless engineering
- Serving as a National Security Agency Center of Academic Excellence, supporting research and education in cybersecurity
- Computer Science minor provides a background in computer science theory and practice, including programming in high-level languages, algorithms and data structures
- Information Technology minor provides the skills necessary to administer computer and Internet technology, including web, applet and servlet development and object-oriented programming

UNDERGRADUATE CURRICULUM

Bachelor of Science in Computer Science

Through hands-on exposure to a variety of computer systems, tools and techniques, computer science provides excellent preparation for students seeking careers in software-related computing fields. Course work includes computer algorithms, operating systems, networks, and theoretical computer science. Students also have the ability to specialize in topics such as artificial intelligence, machine learning and big data through electives.

Bachelor of Software Engineering

Equipping students with a balance of theory and practical application, software engineering focuses on the complete development of software systems. Topics include software modeling and design, construction, process and quality assurance, networks, operating systems and computer architecture.

Bachelor of Wireless Engineering – Software Option

Wireless software engineering focuses on application development for embedded software on wireless platforms, as well as the associated server-side and client-side aspects of wireless networks. Wireless software engineering majors are introduced to wireless communication theories, devices, circuits, systems, networks and applications.

For information about academic programs and minors, visit www.eng.auburn.edu/programs

GRADUATE CURRICULUM

Graduate study in computer science and software engineering provides students with opportunities to further their education through advanced courses in their area(s) of interest, and to exercise and sharpen skills developed during their undergraduate education. The graduate curriculum is directed toward creative research with a faculty mentor. All degrees are designed to appeal to working professionals as well as full-time students, and available both online and on campus.

Master of Science (M.S.) thesis option — requires completing a set of courses approved by the student's advisory committee, carrying out research on a chosen topic, completion and defense of a thesis and passing the final examination (thesis defense).

Master of Science (M.S.) non-thesis option — this degree can be earned by successfully completing a set of courses including three required courses and an optional capstone engineering project.

Master of Cybersecurity Engineering (M.C.E.) — this program prepares students for analyzing, developing, investigating, protecting, and defending the cyber ecosystem of organizations by focusing on the engineering and technical aspects of cybersecurity. This program requires completion of a set of mandated and elective courses and a capstone engineering project.

Doctor of Philosophy (Ph.D.) — this program requires successful passing of qualifying examination covering graduate materials and general examination covering the major and minor fields, the preparation of an acceptable dissertation reflecting high achievement in scholarship and independent investigation, and the passing of a final examination on the dissertation and related subjects.



RESEARCH, LABORATORIES AND CENTERS

Research areas include:

- Artificial intelligence and machine learning
- Big data, databases and data mining
- Computer games
- Computer science education
- Computer, sensor and wireless networks
- Cybersecurity
- Distributed, embedded, energy-efficient, high performance and parallel computing
- Human-computer interaction
- Internet of things
- Mobile computing
- Modeling and simulation
- Software analytics and engineering

The department is affiliated with the following research labs and centers:

- Auburn Cyber Research Center (ACRC)
- Wireless Engineering Research and Education Center (WEREC)

TEAMS AND ORGANIZATIONS

Computer Science and Software engineering students are encouraged to participate in various campus and departmental organizations, including:

- Association of Computing Machinery (ACM)
- Auburn University Small Satellite Program
- Upsilon Pi Epsilon, international honor society for computing sciences

For more information, visit

www.eng.auburn.edu/organizations

LIFE AFTER GRADUATION

Students in computer science and software engineering enjoy high demand for their expertise, with average starting salaries above \$70,000 for bachelors-level graduates. Recent employers include Amazon, Apple, AT&T, Department of Defense, ExxonMobil, Google, Harris, IBM, Intel, Intergraph, Lockheed Martin, McKesson, Metova, Microsoft, MITRE, Northrop Grumman, Verizon, and many more.

SCHOLARSHIPS

The College of Engineering and the Department of Computer Science and Software Engineering provide scholarship opportunities to students at every stage of their academic career. To be eligible for scholarships at Auburn University, all students must apply through AUSOM.

For information about engineering scholarships, visit

www.eng.auburn.edu/scholarships



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