

# Computer Science and Software Engineering

## WHAT IS COMPUTER SCIENCE AND SOFTWARE ENGINEERING?

Computer scientists and software engineers design and develop software for the 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 professionals who make the magic happen every day.

Auburn's Department of Computer Science and Software Engineering (CSSE) offers three undergraduate degrees to prepare students for success in the world of computing:

- Bachelor of Science in Computer Science
- Bachelor of Software Engineering
- Bachelor of Wireless Engineering

## NOTABLE

- 765 undergraduate students and 142 graduate students enrolled in fall 2016
- 20 full-time faculty members
- Providing the nation's first bachelor's degree in software engineering at a public institution
- Developing the first and only bachelor's degree in wireless engineering
- Serving as a National Security Agency Center of Academic Excellence, supporting work in information security and assurance
- Computer Science minor provides a background in computer science theory and practice, including programming in high-level language, algorithms and data structures
- Information Technology minor provides the skills necessary to administer computer and Internet technology, including Web page, applet and servlet development and maintenance, JavaScript, and object-oriented programming and system administration

## 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 theoretical computer science, software construction, operating systems and net-centric computing.

### **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](http://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.

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

**Master of Software Engineering (M.Sw.E.)** — requires the successful completion of a set of courses and research project approved by the advisory committee, and passing the final examination (project defense).

**Doctor of Philosophy (Ph.D.)** — 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:

- Cyber security
- Database systems
- Digital image processing
- Disk technology
- Embedded and real-time systems
- Energy efficient systems
- High performance computing
- Intelligent and interactive systems
- Mobile computing
- Network modeling and simulation
- Sensor networks
- Software analysis and transformation

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

- Auburn Cyber Research Center (ACRC)
- Graphical Representations of Algorithms, Structures and Processes (iGRASP)
- Intelligent and Interactive Systems
- Parallel Architecture and Systems Laboratory (PASL)
- Wireless Engineering Research and Education Center (WEREC)

# TEAMS AND ORGANIZATIONS

- Association of Computing Machinery (ACM)
- Upsilon Pi Epsilon, international honor society for computing sciences
- Institute of Electrical and Electronics Engineers Computer Society
- Cupola Engineering Ambassadors
- Engineering Student Council
- National Society of Black Engineers
- Society of Hispanic Engineers
- Society of Women Engineers
- Baja SAE
- Formula SAE

For more information, visit

[www.eng.auburn.edu/organizations](http://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 near \$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 the AUSOM system.

For information about engineering scholarships, visit [www.eng.auburn.edu/scholarships](http://www.eng.auburn.edu/scholarships)

# CONTACT US

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