THE PROGRAM
The School of Engineering and Applied Science offers a Bachelor of Science (B.S.) in Computer Science. Computer science is the study of computing in all of its forms. It has led to the development of the software that runs on our computers. Software makes much of a computer’s everyday functionality possible. Web browsing, downloading music and videos, and even the very existence of digital music and videos are all made possible by software.

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Built on a foundation of courses in science, mathematics, intensive programming, software development and engineering, and computer architecture, the computer science major at Gonzaga offers a broad range of advanced computer science topics. These include artificial intelligence, computer graphics, robotics, computer networks, database management systems, cryptography, computer security, and computational linguistics. All students study software engineering in their senior year, working in groups to develop a substantial system under the guidance of a computer industry engineer. In addition, promising undergraduates have the opportunity to assist faculty in their research.

THE EQUIPMENT
The Department of Computer Science operates the following labs:

- The Intel Corporation Computational Science Laboratory consists of a computing cluster that provides the computational presence for both faculty and undergraduate students to use in classes and for research.
- The Advanced Computing Laboratory is available for research in sensors, NLP, data management, and robotics.
- The General Computing Lab contains 30 machines running both Linux and Windows.
- The Senior Lab has 12 networked computers running a mix of Windows and Linux, which is used for senior software engineering projects.

THE POTENTIAL
Graduates of computer science programs typically work as software engineers, computer scientists, and computational scientists, though many go on to careers in business and law as well.

Software engineers are responsible for the design, development, and maintenance of the software that makes computing possible. It was a team of software engineers who designed and developed:

- the operating system on your computer
- the many applications stored on your cell phone
- the air traffic control systems that coordinate air travel around the world
- the software that lets you buy books and music online

It is no exaggeration, therefore, to say that without the contributions of software engineers, our contemporary way of life would not exist. The bachelor’s degree in computer science can lead you into a software engineering career.

Computer scientists are responsible for the theoretical breakthroughs that make modern computing possible. You find computer scientists in academic, government, and private sector research labs developing new techniques for speech recognition programs, machine learning, networks of sensor devices, cryptographic algorithms, and programming languages, among many others.

Computational scientists bring the richness of computational power to the complex problems that arise in science, engineering, and the social sciences. According to a recent report from the President’s Information Technology Advisory Committee, “computational science is now indispensable to the solution of complex problems in every sector, from traditional science and engineering domains to such key areas as national security, public health, and economic innovation.” The most spectacular recent example is the decoding of the human
genome, an enterprise unthinkable without computers, software, and the computational scientists who harnessed them. Computational scientists usually have training both in computer science and in an application discipline like biology, chemistry, climate science, or physics.

Graduates in computer science may go directly to the computer industry or to further study in business, law, another scientific discipline, or computer science itself. Those going on to graduate programs in computer science are usually fully supported. Sources like Money Magazine, Fast Company, and the U.S. Bureau of Labor Statistics consistently rank software engineering as one of the best jobs in America, based on salary and growth potential.

THE PEOPLE

The computer science faculty is committed both to teaching and to advancing the state of the discipline. All faculty members teach a full-range of courses, from freshman to senior level. All maintain posted office hours, advising sessions, and a commitment to student success.

Several of the faculty have years of industry experience with some of the best-known firms in computing. Several others have research programs in speech recognition, genetic algorithms, database management systems, computer networks, and computer modeling that employ students as research assistants.

The Department of Computer Science is a joint participant, along with Mathematics and Civil Engineering, in the Gonzaga University Center for Evolutionary Algorithms (GUCEA). GUCEA has presented student-assisted research at international conferences in Europe and the United States.

Faculty Contacts and Specialties

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