



# Computer Science

*Gonzaga's Computer Science students gain the skills to work with innovative technology, while expanding their capacities for critical thinking and ethical reflection in the Jesuit tradition.*

## THE PROGRAMS

The School of Engineering & Applied Science offers two different degree paths in Computer Science:

**Bachelor of Science in Computer Science (BSCS): Focus on computing.** Students pursuing the B.S. degree study mathematics, science, and computer science, including computer architecture, operating systems, programming language design, computer security, and theoretical computer science.

**Bachelor of Arts in Computer Science and Computational Thinking (BACSCT): Computing combined with humanities, social and natural sciences.** Students pursuing the B.A. degree take many of the same computer science courses, while studying one additional discipline: Art, Biology, Communication Studies, Economics, English, Environmental Studies, Philosophy, Sociology, or Theatre Arts.

## CURRICULUM

Both degrees are built on a foundation of courses in mathematics, computer programming, data structures and algorithms, and software design and development. Both degrees also offer students a broad range of courses in advanced computer science topics, including the following:

- Machine learning and artificial intelligence
- Human-computer interaction
- Computer networks
- Computer graphics
- Database management systems
- Speech and natural language processing
- Data science
- Computer security

# 90%

SUCCESS RATE  
COMPUTER SCIENCE

*5-year average of Computer Science BS and BA recipients employed or pursuing a graduate degree six months after graduation.*

## RESEARCH OPPORTUNITIES

Undergraduates can assist in faculty research as early as their first year. Many professors have guided students through the process of presenting their results at regional, national, and international conferences.

Students interested in research frequently receive funding to attend Research Experience for Undergraduates, the program sponsored by the National Science Foundation at labs around the country.

## CO-CURRICULAR CLUBS

Clubs and professional organizations offer support and hands-on projects that reinforce classroom learning. These include:

- Association for Computing Machinery (ACM)
- Women in Computing
- GU Robotics
- Institute of Electrical and Electronics Engineers (IEEE)

# JOHN & JOAN BOLLIER INTEGRATED SCIENCE & ENGINEERING FACILITY

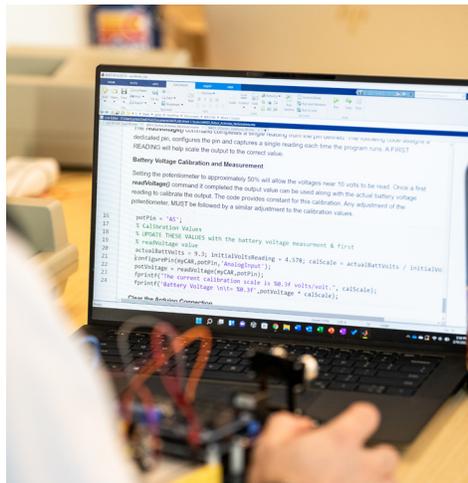
The recently-opened John & Joan Bollier Center for Integrated Science & Engineering provides several new Computer Science facilities, including the Group Design and Research Lab and the Cybersecurity and Advanced Computing Lab.



## CONCENTRATIONS

The department offers three minors and concentrations; minors are for students pursuing non-computer science majors and concentrations are for students in the department's B.S. or B.A. programs:

- **Software Application Development:** How to design and develop large-scale software
- **Data Science:** How to use machine learning and other advanced techniques to develop predictive models that support decision-making in business, government, medicine, engineering, and science
- **Software Security:** How to secure computers and computer networks from attack



## AFTER COLLEGE

The Bureau of Labor Statistics predicts that the need for software developers and computer scientists will grow “much faster than the average of all other occupations” (BLS, Occupational Outlook Handbook: Software Developers; Computer and Information Research Scientists, 7/21). Graduates of computer science programs work as software developers and computer scientists in the computer industry, universities, and research labs. Many go on to careers in business, law, and healthcare. Advanced degrees are necessary for careers in research. Some graduates go on to Ph.D. programs which cover tuition and living expenses. Others pursue part-time M.S. degrees while working in the computer industry.

## CS STUDENT LABS

The **Project Lab** is a student-centered space outfitted with a collection of workstations and other equipment used entirely by students and student clubs.

Two **Instructional Labs**—one equipped with machines running Linux, the other Windows—are open 24/7 for teaching, tutoring, or student work.

The **Cybersecurity and Advanced Computing Lab** holds high-end workstations and a dedicated server for investigations into cybersecurity and other areas requiring significant or specialized computing power.

The **Group Design and Research Lab** supports collaborative software design and research through a high-speed server—24 core processor and GPU support—along with group pods equipped with TV displays.

The Department also provides an assortment of hardware for students to check out during the academic year for independent study projects.

## SENIOR DESIGN CAPSTONE

All seniors participate in a two-semester software development project with guidance from a faculty advisor and a project sponsor, often from the computer industry.

### FACULTY CONTACT

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FOR MORE INFORMATION:  
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