Career Paths
COMPUTER SCIENCE

The field of computer science is dynamic and features great opportunity.

A bachelor's degree in computer science will provide the opportunity to work in many areas including industry, business, and government. Computer science is heavily math-based, so students should consider adding math, another major/minor, or specific certifications to their education and training to gain specialty skills and knowledge. Technology advances quickly, particularly as it related to AI (Artificial Intelligence) and Machine Learning, and individuals in this field should be prepared to learn new information on a regular basis throughout their careers, follow trends, and stay abreast of developments. It is critical to gain practical experience in the field while in college through internships, part-time or summer jobs, or volunteer experience. This will allow you to apply academic knowledge and skill to a professional setting, plus you will build your professional network.

Proficiency of technical skills and programs relevant to your specific interest areas is critical in this field. In addition to technical skills, it's important to develop interpersonal, communication, and teamwork skills. Other helpful traits include creativity, problem solving, logical analysis, intellectual curiosity, and perseverance.

A major in computer science may lead to being a designer, creator, and inventor of new technology. Examples of such areas include computer hardware architecture, software design, virtual reality, and robotics. In some areas of computer science, professionals should expect to work extended and/or irregular hours and expect to be on-call. To learn more about the field, connect with professionals, engage in additional training opportunities, work on self-directed projects, embrace new technologies, and join professional associations and organizations related to computer science.

Programming and Software

Example Career Paths: Programming | Coding | Development | Theory | Analysis | Design | Efficiency | Implementation | Application | Artificial Intelligence | Machine Learning

Potential Employers: Computer systems design firms | Software developers | Data processing/Management firms | Contract and temporary employers | Most areas of business, government and non-governmental organizations:

Financial institutions | Insurance companies | Consulting firms | Manufacturers | Computer companies | Telecommunications companies | Retailers | Healthcare organizations | Hotels and restaurants | Entertainment companies | Video Game Development companies | Environmental management firms | Transportation companies | Education institutions | Research institutions | City, state, and federal government

Professional Associations: Association for the Advancement of Artificial Intelligence | Association for Computing Machinery (ACM) | IEEE Computer Society

Related Occupations: Computer Programmer | Computer Systems Analyst | Software Developer | Software Quality Assurance Analyst and Tester | Web Developer | Video Game Designer | Machine Learning Engineer | Full Stack Developer | Front End Developer

Systems Development

Example Career Paths: Planning/Analysis | Design | Building/Coding | Integration/Testing | Operations/Maintenance | Project management

Potential Employers: Most areas of business, government and non-governmental organizations:

Financial institutions | Insurance companies | Consulting firms | Manufacturers | Computer companies | Telecommunications companies | Retailers | Healthcare organizations | Hotels and restaurants | Entertainment companies | Environmental management firms | Transportation companies | Education institutions | Research institutions | City, state, and federal government

Professional Associations: Association for Computing Machinery (ACM) | Institute for Electrical and Electronics Engineers Computer Society

Related Occupations: Computer Systems Analyst | Computer Network Architect | Network and Computer Systems Administrator | Computer Network Support Specialist |

Computer Hardware and Intranet

Example Career Paths: Intranet: Development, installation, testing, monitoring, maintenance, security, support | Hardware and software design

Potential Employers: Most areas of business, government and non-governmental organizations:

Financial institutions | Insurance companies | Consulting firms | Manufacturers | Computer companies | Telecommunications companies | Retailers | Healthcare organizations | Hotels and restaurants | Entertainment companies | Environmental management firms | Transportation companies | Education institutions | Research institutions | City, state, and federal government

Professional Associations: Software and Information Industry Association | Information Systems Audit and Control Association | IEEE Computer Society | Society of Women Engineers

Related Occupations: Computer Hardware Engineer | Network and Computer Systems Administrator | Computer Systems Engineer/Architect | Computer and Information Research Scientist

Database Administration

Example Career Paths: Development | Installation | Testing | Maintenance/Support | Archiving/Security | Upgrading | Systems integration | Management

Potential Employers: Most areas of business, government and non-governmental organizations:

Financial institutions | Insurance companies | Consulting firms | Manufacturers | Computer companies | Telecommunications companies | Retailers | Healthcare organizations | Hotels and restaurants | Entertainment companies | Environmental management firms | Transportation companies | Education institutions | Research institutions | City, state, and federal government | Biotechnology firms | Pharmaceutical companies

Professional Associations: Data Management Association International (DAMA) | Oracle User Group | IEEE Computer Society - Technical Committee on Data Engineering (TCDE)

Related Occupations: Database Architect | Database Administrator | Bioinformatics Technician | Data Warehousing Specialist

Cybersecurity

Example Career Paths: Security Analytics and Engineering | Digital Forensics | Programming | Software design | Computer Forensics | Penetration Testing | Threat Intelligence Analysis | Chief Information Security Office (CISO) | Risk and Compliance Analysis | Cloud Security Engineering

Potential Employers: Government agencies and defense | Technology companies | Financial institutions | Healthcare and biotech firms | Education and research institutions | E-commerce and retail companies | Energy and utility companies | Consulting firms

Professional Associations: Computing Technology Industry Association (CompTIA) | Information Systems Security Association (ISSA) | IEEE Cybersecurity Initiative | International Information System Security Certification Consortium $(ISC)^2$ | Information Systems Audit and Control Association (ISACA)

Related Occupations: Digital Forensics Analyst | Information Security Engineer | Blockchain Engineer | Penetration Tester | Information Security Analyst | Security Management Specialist | Forensic Science Technician | Cybersecurity Analyst

Internet & Web Development

Example Career Paths: Programming | Software design | Systems development | Web design/maintenance

Potential Employers: Internet exchange points (IXPs) | Internet service providers | Software vendors | Internet-related companies: Browsers, search engines, web design services business, government and nongovernmental organizations | Retail and ecommerce companies | Consulting firms | Self-employed

Professional Associations: International Webmasters Association | Internet Society | Internet Society

Related Occupations: Web Administrator | Web Developer | Search Marketing Strategist | Search Marketing Strategist | Web and Digital Interface Designer | Desktop Publisher

Education

Example Career Paths: Teaching | Instructional technology

Potential Employers: Colleges and universities | Proprietary (for profit) schools | Public and private schools, K-12 | Corporations | Nonprofit organizations

Professional Associations: Computing Research Association | Computer Science Teachers Association

Related Occupations: Computer Science Teacher, Post Secondary | Instructional Design Coordinator | Career/Technical Education Teacher, Secondary School

Technical Support

Example Career Paths: Customer/Product | Support | Sales marketing | Technical writing | Retail and sales

Potential Employers: Software/hardware manufacturers | Systems developers | Technical service providers | Retail stores | Education institutions

Professional Associations: Association of Information Technology Professionals | CompTIA | Help Desk Institute

Related Occupations: Computer User Support Specialist | Information Technology Project Manager | Project Management Specialist | Logistics Analyst | AI Product Manager | Information Technologist

Preparing for your Career

- Obtain relevant technical experience through internships, part-time work, and projects.
- Learn new and emerging programs/technologies and understand their application to your career area of interest.
- Develop effective analytical, problem solving, and strong interpersonal skills for effective communication with technical and non-technical colleagues and clients.
- Learn to work well on a team and develop leadership skills.
- Complete a minor to gain specialized knowledge related to your field of interest.
- Anticipate specializing in technologies and products related to your target discipline.
- Explore resources such as LinkedIn to connect with computer science professionals and learn about companies, industries, skills needed to succeed in the field.
- Join student and professional organizations learn valuable skills and build relationships.
- Create a resume that highlights your skills and experience related to engineering, your specific technical skills, project work, and your unique qualifications.
- Engage in projects to apply skills and knowledge to a practical setting.

This resource was adapted from What Can I Do With My Major.
For more, visit https://web.uri.edu/career/wcidwmm/