

The Future of Computer Engineering

Author: Rohith Perumalla

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Research:

Computer Engineering is a discipline of engineering that combines electrical engineering and computer science. Professionals in this field are often tasked with building networks to transfer data, embedding computers in other technologies and systems, developing software to efficiently complete tasks, and making computers faster, smaller, efficient, and more powerful. Computer Engineering leads to a variety of jobs some being more software oriented and others more hardware oriented; each job having differing salaries, educational requirements, and work environments.

Computer Engineering has a variety of attainable degrees and certifications available. At a collegiate level, students can major in computer science, and electrical engineering; many schools offer a combination of computer science or engineering with other fields (i.e. Computer Science and Electrical Engineering, Computer Science and Molecular biology, Mathematics and Computer Science, Biomedical Engineering). Most employers require prospective employees to hold a bachelor's degree in Computer Science, Computer Engineering, Computer Information Systems,

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Electrical Engineering or other computer related field. Professionals may pursue a voluntary certification after attaining a degree; the Institute of Electrical and Electronics Engineers (IEEE) offers certifications including: Certified Software Development Associate (CSDA), Certified Software Development Professional (CSDP), Wireless Communication Engineering Technologies (WCET), and more. Depending on what programming language a professional plans to develop, there are certifications available; for Java, Oracle offers the Oracle Certified Programmer certifications for proficiency in Java; Apple and Microsoft offer their respective certifications for their productivity software (iWork, MS Office) and operating systems. Depending on the specialization there are a variety of degrees and certifications available.

Computer Engineering can lead to a variety of jobs with different expected growth, salary, duties, and qualifications required. Some jobs include Computer and Information Research Scientists, Computer Network Architects, Software Developers, Computer Hardware Engineers. Computer and Information Research Scientists have an expected 11% growth which is faster than the national average for all jobs; they also received a median pay of \$110,620 per year. Computer and Information Research Scientists are tasked with inventing new ways to compute technology, and solve complex problems in computing in various fields; most Computer and Information Research Scientists have a doctoral or professional degree. Computer Network Architects have an expected 9% growth which is faster than the national average for all jobs; they also received a median pay of \$100,240 per year. Computer Network Architects are tasked with designing networks, including but not limited to LANs, WANs, Intranets and Extranets, to transfer data efficiently; most Computer Network Architects have a bachelor's degree. Cisco offers certifications to Computer Network Architects including the CCENT, CCNA, CCNP, CCIE, and CCAr. Software Developers have an expected 17% growth which is much faster than the national average for all jobs; they also received a median pay of \$100,690 per year. Software Developers are tasked with developing computer programs to automate tasks and to improve existing software to become more efficient; most Software Developers have a bachelor's degree. Various companies offer certifications to Software Developers depending on their specialization. Computer Hardware Engineers have an expected 3% growth which is slower than the national average for all jobs; they also received a median pay of \$111,730 per year. Computer Hardware Engineers are tasked with

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developing and improving hardware to work with new software and run more efficiently; most Computer Hardware Engineers have a bachelor's degree. Computer Engineering can lead to a variety of professions.

Some related fields include Biomedical Engineering, Aerospace Engineering, and Mathematics. Biomedical Engineers work on computers with the hardware to measure vitals and complete molecular tasks. Aerospace Engineering focuses on the physical science with air resistance designing aircrafts, spaceships, and satellites. Mathematicians conduct research to understand mathematical principles which can be used in computers. These related fields either affect or are affected by Computer Engineering.

Computer Engineering can lead to many different doors. Depending on a professional's specialization there are different degrees and certifications available. Computer Engineering jobs that are software related are growing faster than hardware related ones, most likely due to technology's innovation depending on software developments. Most Computer Engineering professions have a median salary higher than the national median (\$36,200). In conclusion, Computer Engineering is a versatile growing field indicating a promising career.