

The Evaluation of New Modern Technology Based on Computer Engineering

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Perspective

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DESCRIPTION

A branch of electrical engineering is called Computer Engineering (CoE or CpE) combines a number of computer science and electronic engineering fields required to create information technology systems. As opposed to software engineering or electrical engineering, computer engineers typically have training in hardware-software integration, software design, and electronic engineering. The design of individual microcontrollers, microprocessors, personal computers, and supercomputers, as well as circuit design, are all tasks performed by computer engineers in both the hardware and software. This area of engineering focuses on how computer systems function both independently and in relation to other systems. One of the examples for computer engineering is robotics.

Computer engineers create operating systems, VLSI chips, analog sensors, mixed signal circuit boards, software and hardware for embedded microcontrollers. Computer engineers are well suited for robotics research, which mainly relies on employing digital systems to operate and monitor electrical systems including motors, communications, and sensors. Even though the whole depth of information utilized in the design and implementation of computers is beyond the scope of an undergraduate degree, many institutions of higher education allow computer engineering students to choose areas of in-depth study in their junior and senior year. When John Vincent Atanasoff and Clifford Berry started designing the first electronic digital computer in 1939 using physics, arithmetic, and electrical engineering, computer engineering was developed.

Evolution of computer engineering education

At Case Western Reserve University in Cleveland, Ohio, the first degree program in computer engineering was created in the US in 1971. Different organizations that are a part of the EQANIE network accredit computer engineering schools throughout Europe. The need for engineers who can simultaneously design hardware, software, firmware, and manage all types of computer systems used in industry has led to certain educational schools offering a bachelor's degree in computer engineering. An analog and digital circuit designer is trained in both computer engineering and electronic engineering schools. As with most engineering fields, having a better understanding of physics and mathematics is important.

Education

Some universities classify computer engineering under the category of computer science and engineering. A bachelor's degree in computer engineering is usually required for entry-level job position in this field (or computer science and engineering). Generally, one needs to start taking certain computer science subjects in addition to a variety of mathematics classes like calculus, algebra, and trigonometry. Because the two professions are so similar, degrees in electronic or electric engineering are also acceptable. A solid foundation in computer programming is required for hardware engineers because they frequently collaborate with software-based computer systems. A computer engineering is comparable to electrical engineering, but with the addition of some computer science courses to the curriculum, according to the Bureau of Labor Statistics (BLS). A master's degree is needed for certain large companies or specialized professions.

Hardware engineering for computers

According to the BLS's Job Outlook report, employment for computer hardware engineers was expected to expand by 2% over the ten-year period from 2019 to 2029, adding a total of 71,100 jobs. (In their own terms, "slower than normal" in comparison to other jobs). This is a decline from the BLS's 2014 to 2024 forecast of 3% and 77,700 jobs, which was also down from its estimates from 2012 to 2022 and 2010 to 2020. Computer hardware is now a branch of Electrical and Computer Engineering (ECE), with embedded system design being the most important.

Software engineering for computers

The U.S. According to the Bureau of Labor Statistics (BLS), "computer applications of software engineers are projected to be among the faster than average growing occupations." The expected ten-year growth for computer software engineering was estimated at 17% as of 2014, and there were a total of 1,114,000 jobs in that year. This is down from the BLS estimate of 22% for software developers from 2012 to 2022. Further reducing the 30% BLS prediction for the period between 2010 and 2020, increased cyber security concerns, and other factors raise computer software engineering well over the average growth rate for all disciplines. However, part of the job will be outsourced to foreign nations.

CONCLUSION

Computer engineers concentrate on research projects that provide dependable, secure, and high-performance computers. In this field, one of the objectives is to develop multi-threading and parallel programming computers. The creation of original ideas, algorithms, and other tools that improve the performance of computer systems are examples of research field. Load balancing, memory organization, CPU placement, and cache hierarchy design are

all elements of computer architecture. Electronic and Computer Engineering (ECE) is now classified into a number of subcategories, and computer hardware is compared to it in multiple ways. The BLS states that a degree in computer engineering is similar to electrical engineering but also includes a few computer science courses. A master's degree is necessary for several important businesses or high-level positions.