



Program Your Way to a Great Future as a Computer Software Engineer!

Whether you are looking around for new opportunities or you are simply trying to find out what careers are going to be most well-suited to your abilities and inclinations, you might find that you are interested in the idea of computer programming jobs. Computer programming jobs are often touted as stable, challenging careers, but what do you need to know before you jump in? What should you think about and what kind of training do you need to consider? If you have ever had an interest in actuarial jobs, you will find that there are a few pieces of information that you should keep in mind. Take some time to consider what you need to know about computer programming before you take the plunge.



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Looking for the one of the fastest growing career areas today? Computer software engineers design the programs that run the modern worlds of finance, industry and even entertainment.

Programming for Profit

All computers and computer aided systems require complex software programs to direct their activities. The design and implementation of these programs is the job of computer software engineers. Computer software engineers employ various types of computer "languages" like C, C++, or Python script to write instructions for all types of computers. Because of the complexity of these instructions, computer software engineers need to be skilled in math, statistics, algebra and symbolic logic. They must also be good at problem solving, as the first step in designing a computer program is to determine the needs of the client and the best way to tell the computer to handle that need.

Because the work of programming computers is often so complex and time intensive, computer software engineers usually work in teams, with different parts of the team dealing with different aspect of the computer program, or "code." Each team usually has a computer software engineer who oversees the actions of the other members of the team to make sure that all the parts of the "code" match up with other elements of the overall program. As well as computer software engineers who write the code, there are other programmers who check the code for problems and correct errors that often crop up in these complex operations. This process of "debugging" is one of the other important tasks of a computer software engineer.

In addition to these important tasks, computer software engineers also maintain existing computer systems that

may have been programmed by others. Software engineers upkeep the software on company computer networks, making sure that the programs do their jobs in the correct fashion. Computer software engineers also set up internal networks that allow computers within a company or government operation to communicate with each other or share software between them. This is an especially important role in situations where large amounts of data or complex calculations are involved.

Computer software engineers are also a vital link to other team professionals. The software programs they write are used by business managers, actuaries and other key people who determine a company's operations. For example, without complex statistical modeling software, actuaries can't assess company risk or make important financial projections.

As a computer software engineer, you will be working in clean, well lit office spaces that must be kept scrupulously clean to protected delicate electronic hardware from damage. You will use the most advanced types of computers to construct programs, and must have a solid understanding of the many computer programming "languages" used on different types of computers. Although you will generally work standard 9-5 office hours, you will often be called upon to work long sessions that may cover several weeks or months—these "crunch" times are a part of making sure a project makes it to the final user on time. While these periods are sometimes grueling, the hard work is made up for by the enjoyment of working with other dedicated teammates who share your enthusiasm for writing "great code."

Employment Outlook

The role of computer engineers is one of the fastest expanding categories in employment today. Between the explosive growth of internet applications, computer games, industrial applications and financial management work, computer software engineers are expected to be well in demand through the coming decade. Jobs for college or technical school trained computer software engineers are readily



The most jobs— anywhere

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available, as are positions in related fields such as computer hardware engineers, computer support specialists, actuaries, statisticians and database management professionals.

Actuarial jobs are a particularly good cross training opportunity for computer programmers, since both jobs use a great deal of statistical modeling and have to be good with numbers.

Job growth is expected expand faster (17% per annum) than the national average through 2016, with competition for entry level positions being strongest in major metro areas. With greater consolidation of media markets and automated programming, there may be a corresponding slowdown in opportunities in radio markets; however, an overall growth rate for sound engineering technicians is forecast to be as high as 24%. And while there is a growing use of sound engineering technicians in video game and internet work, the glamorous nature of these jobs means the competition will be high.

Locating the Jobs

With the high demand for skilled computer software engineers, it's not surprising that many companies headhunt graduates right out of college, with job fairs in major cities across the US. Internships at technical schools and yearly national venues such as E3 in Los Angeles or Comdex in Las Vegas are another ways in which applicants can get meet prospective employers. While there are many listing on job boards and in newspapers, most computer software engineering jobs are offered via word of mouth or through professional networks, so it pays to meet and make contacts with other computer software engineers and keep your contacts list up to date.



Salaries

As of 2006, median yearly salaries for computer software engineers ranged from \$63,830 to \$98,470, with the high end around approximately \$120,000 per year. About 857,000 software

engineers were employed in a variety of positions, with about 30% employed directly in computer system design. Other popular and expanding growth areas are in internet and network support, network security, computer game design and personal electronics.

Qualifications

The baseline for a [computer](#) software engineer is a BS in computer [science](#) or a related field; these programs are readily available from technical schools or colleges starting at the community level. Practical and hands on experience are often a plus; especially when looking for work in the highly competitive areas of computer game design or video graphics applications; attending a game-design specific school is a definite plus. Knowledge of major programming languages such as C and C++ are a must, and a strong grounding in current productivity tools and hardware is also very important.

Conclusion

If you like working with computers, have strong team skills and a natural aptitude for problem solving, a career as a computer software engineer (or a related field such as computer hardware engineering, computer support, actuarial work, statistics or database management), may be just your ticket. As one of the fastest growing fields on the market, this is one job that can take you as far as you want to go.

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