

The realm of computers requires a lot of interchanging parts. Three disciplines in this multi-disciplinary field are computer science, software engineering, and information technology. Computer scientists focus more on the theory, research, algorithms, and science that make up the design and application of computers. Computer scientists might work in software, or they may be more interested in the research and theory of the computers. Software engineers look at the design and development of computer software. Software engineers focus more on real life application and a hands-on approach to their software. They are the ones developing the software and platforms necessary for computer use. Information technology specialists maintain systems, normally for one particular business. Information technology relies on software engineering and computer science knowledge in order to optimize a given system. There are major distinguishing factors among the three disciplines, but they are related and rely on each other.

There are many fields of computer science. A few of these fields are computer science theory, computer networking, and artificial intelligence. Computer science theory is the math and logic behind computers. Those who are interested in theory use computers to understand limits in mathematical computation and might develop algorithms to solve real life problems. Computer networking focuses on connection between devices. Those who go into networking want to find the most efficient way to connect one system to another. This could be for a home network or for a large-scale military operation. Networking also can delve into the security of data as it gets passed from one device to another. Artificial intelligence has less to do with recreating consciousness and more to do with machine learning in order to solve problems faster and more efficiently. Artificial intelligence can be seen an extension of theory, as it requires heavy and complex algorithms to function. An example of artificial intelligence might be software that learns to recognize patterns or a game of chess on the computer.

I am most interested in the theory and math that we can do with computers, especially in the context of biology. I want to go on and study bioinformatics in graduate school. Bioinformatic scientists focus on using statistics and other mathematical principles in conjunction with computer science in order to solve biological problems and analyze data. The field grew exponentially following the human genome project and the

availability of sequencing machines. Computer theory is about the math and developing code so computers can solve mathematical problems. Biology gives us a lot of data we can't analyze solely because we don't have the resources or time, but now with computers and modern day technology we are able to understand life more than ever before.