

# Computer science: a skill of progress

“In its most general sense, **computer science (CS or compsci)** is the study of computation and information processing, both in hardware and in software”  
from Wikipedia, The free encyclopedia

Computer science is not a traditional science. It may better be considered as an art or craft. Computer scientists, geeks or hackers (it doesn't matter what label you take) are people who learn how to design, improve and use their tools – information processors. As information already is a new quantity of human existence, CS gets into all spheres of our life. The more society will appreciate information instead of labour the greater role it will have.

The early beginning:

It is only a matter of imagination, but in my opinion Roman Abacus is the first tool for processing information in history of humanity. Although being the pioneer, Abacus was as important that people were using it for about 2 thousands years. Small and light weighted Abacus has been winning competitions with greater and more powerful machines. However mathematicians, astronomers, physicians had a need for more powerful tools and they created them. For example, Wilhelm Schickard's calculating clock, Blaise Pascal's Pascaline and Wilhelm Gottfried Wilhelm von Leibniz machine. These people, known hardware creators, scientists were the hackers of their age – they leveraged their brains by creating new tools.

First breakthrough

It was a genius idea to create something that would help for a particular purpose, but that if we need a device for multitasking operations? It was the year of 1835 then Charles Babbage described his analytical engine. It was the plan of a general-purpose programmable computer, employing punch cards for input and a steam engine for power. One crucial invention was to use gears for the function served by the beads of an abacus. To abstract, the idea of a device was much more complex than any before and did same revolution for computer science as movable type for communication.

Computer science and ideological freedom

Gustav Meyrink's novel *Der Golem* based on the tales of the golem was created by the 16th century rabbi Judah Low ben Bezalel of Prague. Christianity, far more than Judaism, has long had a deep concern with humanity getting too close to God. The golem thus became a creation of overambitious and overreaching mystics, who would inevitably be punished for their blasphemy, very similar to Mary Shelley's Frankenstein. Novel itself is considered to be an early android and it likely had made a great influence on science fiction writers. People began to think that their creation possibilities are infinite and they are capable not only of reproduction but of living being creation. To conclude, this was the first easily seen influence of computer science to human thinking.

Echo of computer science

The era of modern computing began with a flurry of development before and during World War II, as electronic circuits, relays, capacitors and vacuum tubes replaced mechanical equivalents and digital calculations replaced analog calculations. The computers designed and constructed then have sometimes been called 'first generation' computers. First generation computers were usually built by hand using circuits containing relays or vacuum valves (tubes), and often used punched cards or punched paper tape for input and as the main (non-volatile) storage medium. Temporary, or working storage, was provided by acoustic delay lines (which use the propagation time of sound in a medium such as wire to store data) or by Williams tubes (which use the ability of a television

picture tube to store and retrieve data). By 1954, magnetic core memory was rapidly displacing most other forms of temporary storage, and dominated the field through the mid-1970s. As we know all the mentioned inventions that led to computer science development during the past century have been essential not only in computer science, but in electronics, physics, rocket science, space explorations and many others. All mentioned could not exist without scientific, social and economical breakthrough of 20<sup>th</sup> century and as in snow evaporation this side effect science led to a bigger progress and nicer life for our societies.

What do we have now?

Humanity has now all the possibilities to change, to grow and to expand. Our machines free us from our bodies' downs and let people to concern more about each other and themselves than ever before. Mobile phones, internet, medias give us possibilities to be closer and go further, to think smarter and notice problems that have never been visible to non-genius people living in another ages. Computer science as a tool for information is improving a sphere of knowledge in paradigm accessible to human from anywhere. Although many recognise it as bothersome, I find it marvellous as it is an opportunity to expand my mortal possibilities in this world.

To conclude, I am sure that Computer science today is one of the pressiest knowledges for humanity and one of the most important arts an individual can study.

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1. Wikipedia article "Computer science" ([http://en.wikipedia.org/wiki/Computer\\_Science](http://en.wikipedia.org/wiki/Computer_Science))
2. Wikipedia article "History of computing hardware" ([http://en.wikipedia.org/wiki/History\\_of\\_computing\\_hardware](http://en.wikipedia.org/wiki/History_of_computing_hardware))
3. Wikipedia article "Golem" (<http://en.wikipedia.org/wiki/Golem>)
4. Wikipedia article "Transhumanism" (<http://en.wikipedia.org/wiki/Transhumanism>)