

Computer Science Descriptions

Grace Hopper:

Grace Hopper (1906 – 1992) is known as an American computer scientist and United States Navy rear admiral. Her education consisted of a bachelor's degree in mathematics and physics from Vassar college, and a Ph.D. in mathematics from Yale. She served in the navy reserve on the Bureau of Ships Computation Project at Harvard University, where she served as part of the programming staff for the Mark 1 computer. Later, Hopper joined the team developing UNIVAC 1, the first general-purpose electronic digital computer design. This machine was used for business applications.

Hopper used her experience with the UNIVAC 1 to begin programming a compiler, known as A-0. This was because she wanted to make programming more accessible, since a compiler could take high level code like English words and convert it into lower-level code. After some time, she developed this language into COBOL, the major language that is still used today in data processing.

https://en.wikipedia.org/wiki/Grace_Hopper

Ada Lovelace:

Ada Lovelace (1815 – 1852) was an English mathematician and writer. She is also debated to be the first computer programmer. She was commissioned to translate Charles Babbage's lecture about his Analytical Machine into English, and added some of her own notes. She wrote an algorithm to be used in Charles Babbage's Analytical Engine to compute Bernoulli numbers. Her program was never tested as the Analytical Machine was never built.

https://en.wikipedia.org/wiki/Ada_Lovelace#Childhood

Frances Allen:

Frances Allen (1932 – 2020) was an American computer scientist who pioneered the field of optimizing compilers. She joined the IBM Research division of IBM in 1957, originally teaching new employees the basic of Fortran (a general-purpose compiled programming language.) After some time teaching, she was assigned to a new programming language called Alpha. She also worked on the programming for the IBM 7030 (stretch), which was the first transistorized supercomputer. She worked to improve the efficiency of compilers. She was awarded as the first IBM Fellow, the highest honor a scientist, engineer, or programmer at IBM can achieve.

https://en.wikipedia.org/wiki/Frances_Allen

Anita Borg:

Anita Borg (1949 – 2003) was an American computer scientist, known for founding the Institute for Women and Technology and the Grace Hopper Celebration of Women in Computing. After receiving her PhD, she spent four years developing a fault tolerant Unix based operating system. She also founded the Systems mailing list, an email network for women in technology.

https://en.wikipedia.org/wiki/Anita_Borg

Katherine Johnson:

Katherine Johnson (1918 – 2020) was an American mathematician who was known for providing calculations of orbital mechanics at NASA, allowing for the first and subsequent U.S. crewed spaceflights. She was also known as one of the first African-American women to work as a NASA scientist. Her early work at NASA was as a “computer”, responsible for analyzing topics such as gust alleviation for aircraft. She was then moved to the Spacecraft Controls Branch until she retired, calculating trajectories and launch windows as well as navigation charts for astronauts.

https://en.wikipedia.org/wiki/Katherine_Johnson

Annie Easley:

Annie Easley (1933 – 2011) was an American computer scientist, mathematician, and rocket scientist. She was known for working on the Centaur high-energy upper rocket stage, and implementing computer code that analyzed alternative power technologies. She began her career as a “computer” at NASA, calculating needed trajectories and energy conservation methods. Once electronic computers began to take her place, she acquired a Bachelor’s degree in Mathematics, and received further training from NASA to be considered a “professional.”

https://en.wikipedia.org/wiki/Annie_Easley

Alan Turing:

Alan Turing (1912 – 1954) was an English mathematician and computer scientist. He obtained a PhD mathematics from Princeton University, and began work during the Second World War as a codebreaker. After the war, Turing worked at the National Physical Laboratory, where he designed the Automatic Computing Engine. This was one of the first stored-program computer designs. He also helped develop the Manchester computers.

Turing is also responsible for the Turing test, an attempt to define the standard for machine intelligence. This idea stated that a computer could be said to “think” if a human interrogator could not tell it apart from a human being.

https://en.wikipedia.org/wiki/Alan_Turing#Cryptanalysis

Edsger Dijkstra:

Edsger Dijkstra (1930 – 2002) was a Dutch computer scientist. He was known for fundamental contributions to computer science. These include areas such as: compiler construction, operating systems, distributed systems, sequential and concurrent programming. Many of his papers were sources of new research areas. He was also one of the driving forces behind the acceptance of computer programming as a scientific movement. His ideas led to a movement known as structured programming, which advocates for a systematic and rational approach to program construction.

https://en.wikipedia.org/wiki/Edsger_W._Dijkstra

Claude Shannon:

Claude Shannon (1916 – 2001) was an American mathematician and cryptographer, known as “the father of information theory.” He is also well known for founding digital circuit design theory. His claim to fame is his article titled “A Mathematical Theory of Communication”, known for focusing on the problem of how best to encode the information a sender wants to transmit.

https://en.wikipedia.org/wiki/Claude_Shannon#Teaching_at_MIT

John Von Neumann:

John Von Neumann (1903 – 1957) was a Hungarian-American computer scientist and mathematician. He is credited as the inventor of the merge sort algorithm, which sorts the first and second halves of an array recursively and then merges them. He also developed a self-replicating automaton using pencil and paper. He developed cellular automata, as well as did research in the field of weather systems and global warming.

https://en.wikipedia.org/wiki/John_von_Neumann#Computing

Donald Knuth:

Donald Knuth (1938 – today) is an American computer scientist and mathematician. He is the 1974 recipient of the ACM Turing award, given for his multi-volume work titled “The Art of Computer Programming.” He contributed to the development of the rigorous analysis of the computational complexity of algorithms and systematized formal mathematical techniques for it. Knuth is also the creator of the TeX typesetting system, the related METAFONT font definition language, and the Computer Modern family of typefaces.

https://en.wikipedia.org/wiki/Donald_Knuth

Charles Babbage:

Charles Babbage (1791 – 1871) was an English mathematician and mechanical engineer. He is credited with originating the concept of a digital programmable computer. He also credited with inventing the first mechanical computer, known as the Difference Engine. None of his designs were ever completed during his time, but a functioning difference engine was constructed in 1991 using his plans. His ideas are still relevant to this day, shaping the way we program and build computers.

https://en.wikipedia.org/wiki/Charles_Babbage

Marvin Minsky:

Marvin Minsky (1927 – 2016) was an American cognitive and computer scientist. He is well renowned for his research into artificial intelligence. He is also the cofounder of the Massachusetts Institute of Technology’s (MIT) AI laboratory. Some of his inventions include the first head-mounted graphical display, and the confocal microscope. He wrote multiple books on the topic of AI, shaping the theory and practices towards it today.

https://en.wikipedia.org/wiki/Marvin_Minsky#Contributions_in_computer_science

George Boole:

George Boole (1815 – 1864) was an English mathematician. He worked in the fields of differential equations and algebraic logic. He is best known as the author of “The Laws of Thought” which contains Boolean algebra. Boolean logic is credited with laying the foundations for the information age.

https://en.wikipedia.org/wiki/George_Boole