Computer science

Technology, Computer

Blaine Pascal designed and constructed the first working mechanical calculator, Pascal's calculator, in 1642. [3] In 1673 Gottfried Leibniz demonstrated a digital mechanical calculator, called the 'Stepped Reckoned'. [4] He may be considered the first computer scientist and information theorist, for, among other reasons, documenting the binary number system.

In 1820, Thomas De Collar launched the mechanical calculator Industry[J when he released his simplified arithmetic, which was the first calculating machine strong enough and reliable enough to be used daily in an office environment. Charles Babbage started the design of the first automatic mechanical calculator, his difference engine, in 1822, which eventually gave him the idea of the first programmable mechanical calculator, his Analytical Engine. 6] He started developing this machine in 1834 and " In less than two years he had sketched out many of the salient features of the modern computer. A crucial step was the adoption of a punched card system derived from the Jacquard making it infinitely programmable. [8] In 1843, during the translation of a French article on the analytical engine, Dad Lovelace wrote, in one of the many notes she included, an algorithm to compute the Bernoulli numbers, which is considered to be the first computer program. 9] Around 1885, Herman Hollering invented the tabulator which used punched cards to process statistical Information; eventually his company became part of In 1937, one hundred years after Baggage's Impossible dream, Howard Keen convinced IBM, which was making all kinds of punched card equipment and was also in the calculator business[1 01 to develop his giant programmable calculator, the SACS/Harvard Mark l, based on Baggage's analytical engine, which itself used cards and a central computing unit.

When the machine was finished, some hailed It as " Baggage's dream come true". 11] the term computer came to refer to the machines rather than their human predecessors. [12] As it became clear that computers could be used for more than just mathematical calculations, the field of computer science broadened to study computation in general. Computer science began to be established as a distinct academic discipline in the sass and early The world's first computer science degree program, the Cambridge Diploma in Computer Science, began at the University of Cambridge Computer Laboratory in 1953.

The first computer science degree program in the United States was formed at Purdue University in 1962. [15] Since practical computers became available, many applications of computing have become distinct areas of study in their own right. Although many initially believed it was impossible that computers themselves could actually be a scientific field of study, in the late fifties it gradually became accepted among the greater academic population. [16] It is the now well-known IBM brand that formed part of the computer science revolution during this time. IBM (short for

International Business Machines) released the IBM 704[17] and later the IBM 709[18] computers, which were widely used during the exploration period of such devices. " Still, working with the IBM [computer] was frustrating... If you had misplaced as much as one letter in one instruction, the program would crash, and you would have to start the whole process over again". [16] During the late sass, the computer science discipline was very much in its developmental stages, and such issues were commonplace. Time has seen

significant improvements in the usability and effectiveness of imputing technology.

Modern society has seen a significant shift in the users of computer technology, from usage only by experts and professionals, to a near-ubiquitous user base. Initially, computers were quite costly, and some degree of human aid was needed for efficient use - in part from professional computer operators. As computer adoption became more widespread and affordable, less human assistance was needed for common usage. Major achievements[edit] The German military used the Enigma machine (shown here) during World War II for communication they thought to be secret.

The large-scale decryption of Enigma traffic at Blithely Park was an important factor that contributed to Allied victory in WI. [19] Despite its short history as a formal academic discipline, computer science has made a number of fundamental contributions to science and society - in fact, along with electronics, it is a founding science of the current epoch of human history called the Information Age and a driver of the Information Revolution, seen as the (1750-1850 CE) and the Agricultural Revolution (8000-5000 BCC).

These contributions include: The start of the " digital revolution", which includes the current Information Age and the Internet. [20] A formal definition of computation and computability, and proof that there are computationally unsolvable and intractable problems. [21] The concept of a programming language, a tool for the precise expression of methodological information at various levels of abstraction. [22] In cryptography, breaking the Enigma code was an important factor contributing to the Allied victory in

World War 11. 19] Scientific computing enabled practical evaluation of processes and situations of great implement, as well as experimentation entirely by software. It also enabled advanced study of the mind, and mapping of the human genome became possible with the Human Genome Project. [20] Distributed computing projects such asexplore protein folding. Algorithmic trading has increased the efficiency and liquidity of financial markets by using artificial intelligence, machine learning, and other statistical and numerical techniques on a large scale. [23] High frequency algorithmic trading can also exacerbate volatility. 24] Computer graphics and computer- enervated imagery have become ubiquitous in modern entertainment, particularly in television, cinema, advertising, animation and video games. Even films that feature no explicit CGI are usually " filmed" now on digital cameras, or edited or postprocessor using a digital video editor. [citation needed] Simulation of various processes, including computational fluid dynamics, physical, electrical, and electronic systems and circuits, as well as societies and social situations (notably war games) along with their habitats, among many others.

Modern computers enable optimization of such signs as complete aircraft. Notable in electrical and electronic circuit design are SPICE, as well as software for physical realization of new (or modified) designs. The latter includes essential design software for integrated circuits. [citation needed] Artificial intelligence is becoming increasingly important as it gets more efficient and complex. There are many applications of the AAA, some of which can be seen at home, such as robotic vacuum cleaners. It is also

present in video games and on the modern battlefield in drones, anti-missile

systems, and squad support robots.