People who have shaped modern computing

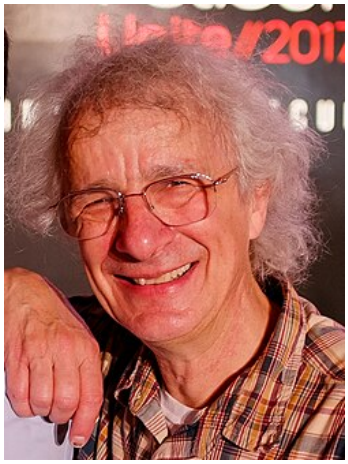
source: Wikimedia.org

This article is my subjective listing of people who are little talked about when teaching the history of computing, or little heard of in the media. This compilation is a collection of interesting people who, in my opinion, had a greater impact on computing than we all think. I have chosen people here who I have read a lot about in my time and was interested in their history or achievements in the world of computing. Quite a few of these people are listed here because of their influence on the hacking community, I myself am a supporter of hacking culture and principles as you can read about on the main page of this wiki. The collection is in no particular order, it is divided into thematic categories that describe what sphere of computing the people listed in them have influenced.

The world of hacker culture and cyber security

Clifford Stoll

He is a unique person from a computer science point of view, as he is not a computer scientist, the reader may now ask the question is what is he even doing here then, I will describe everything in a moment. Let's start with Clifford's interests. He is an Astronomer by training, I am currently working on topics related to old mechanical and electromechanical calculators, mathematical topology issues for a channel Numberphile on Youtube, while in 1986 he worked at Lawrence Berkeley National Laboratory where he was a systems administrator, and this is where our story begins.


Source: Wikimedia.org

One day in 1986, a supervisor asked Clifford to check and diagnose a problem that was causing an error in the accounting system's posting of 75 cents. Clifford traced the error to a location where he found log-in entries for an unauthorised user who had logged into and used the lab's computers for nine seconds and had not paid for that time. Clifford after further analysis found that this unauthorised user was someone with super user privileges on a unix system (the equivalent of administrator on Windows systems), after in-depth analysis it was possible to deduce that he had gained access to such privileges by exploiting a vulnerability in the movemail system of the GNU Emacs package.

In 1986, there were no intrusion detection systems or even firewalls, the computer system at LBSL was based on a large mainframe machine with multiple serial lines going from modems that users dialed into to use the computer. Clifford came up with the idea of collecting from around the lab all the dalekopisy and connect them to all the incoming serial lines to the computer. Clifford took a trolley and on Friday evening 'borrowed' from all the staff their teletypewriters, sequentially connecting them to each of the 50 serial lines. He prepared himself a sleeping bag, sandwiches and a thermos and then went to bed. Suddenly, during the night, he was awakened by the distinctive sound of a printer printing out the user's operations. As you can guess, his colleagues on Monday morning were not happy about the situation. Clifford then analysed which supplier this line was coming from, he managed to find that this supplier was Tymnet with the help of Tymnet specialists he managed to narrow down the search to the call centre at MITRE. For the next ten months, Clifford analysed everything possible with little result, he could not find who the intruder was. What Clifford did find was that the connection through which our „hero" connects has a speed of 1200 baud, which means that it is probably the telephone line through which the intruder calls.

On Monday morning, Clifford gave everyone their teletypewriters but left one connected to the line the hacker was using so that he could watch all the actions he was taking. Clifford noticed that an unauthorised user was trying to connect through the LBSL system to military databases in the United States, and was searching for the phrase „nuclear" or „SDI". The criminal was also taking users' passwords (presumably to create dictionary attacks) and leaving Trojans to steal passwords. Clifford was amazed that it was so easy for this criminal to get into all the systems, this was because quite a few of the system administrators did not change the standard passwords in the software. More surprisingly, the cracker could sometimes connect as a guest user without a password to military bases.

This was one of the first – if not the first – case of unauthorised hacking of computer systems in history. In a nutshell, the story ends with Clifford setting the first ever honeypot (trap) for a cracker. The trap consists of entries stating that a new department had been set up at LBSL because of the SDI contract (all fictitious). This made it possible to find out who the hacker was and where he was connecting from, it turned out that he had a fictitious account s on the German postal systems from where he was connecting, and that he lived in Hannover.

His name was Markus Hess, and subsequent investigation revealed that he had been involved in selling the results of his cracking to the USSR for several years. Clifford flew to West Germany and gave evidence in the trial of Markus Hess

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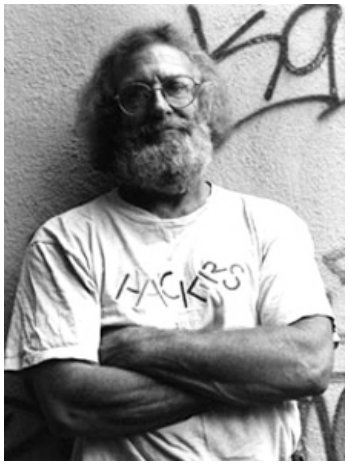
← technical details of burglary

John Draper


Source: Wikimedia.org

He is a unique person from a computer science perspective because he was one of the first hackers in history, before the word was even coined in the context of computers. The reader may now ask: what did he do that we are writing about him? The case starts very unusually - with... a whistle from a breakfast cereal box.

John Draper, also known by his nickname Captain Crunch, was one of the most colourful figures of the early 1970s in the world of so-called phreaking - or the hacking of telephone systems. Draper discovered that the plastic whistle attached to boxes of Cap'n Crunch cereal made a sound at exactly 2600 Hz. And now the magic begins: this is exactly the signal that US telephone exchanges used to indicate a free channel. Thus, by blowing this whistle through the handset, you could take control of the telephone system and call anywhere in the world for free.

Sound absurd? Perhaps, but that's exactly what it was. Draper began experimenting with so-called blue boxes - electronic devices that generated DTMF tones that allowed you to manipulate telephone exchanges. In practice, this allowed you to make free international calls, connect to business numbers and even take over a police line. This was a time when telephone systems were not at all secure against this kind of tampering - analogue networks relied entirely on trusting tones and pulses that could be imitated.

Draper not only used blue boxes himself, but also taught others how to build them. It is worth mentioning at this point that among his students were the then young Steve Jobs and Steve Wozniak - the founders of Apple. Wozniak was so fascinated by the possibility of building a blue box that he and Steve Jobs created several such devices and sold them to fellow students. Jobs later admitted that had it not been for the blue box adventure, Apple might never have been created.

Draper was a controversial figure - on the one hand treated as a genius and pioneer, on the other as a criminal and rebel against the system. He was arrested several times and spent time in prison, but never stopped being active in the world of technology. In the 1980s, he worked on software, including for Apple, and later worked on system security and VoIP telephony.

Interestingly, John Draper has had hearing problems all his life, and yet his career has revolved around... sound and telephony. He was also a radio operator, electronics designer and later - an active participant in hacking conferences such as DEF CON and HOPE, where he is still a legend today.

Draper was not an engineer in the traditional sense. He was a tinkerer, self-taught and experimental type. He worked outside the box, often balancing on the edge of the law. But it was people like him - along with Clifford Stoll and John Carmack - who showed just how much impact individuals with

unusual interests and the courage to break the rules could have on technology.

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Kevin Mitnick

Source: Wikimedia.org

He is a unique person from an IT perspective because for years he was considered the world's most wanted hacker and his story reads like a thriller movie script. The reader may now ask: what did he do to become a cybercrime icon? It all started quite innocently - with buses in Los Angeles.

A young Kevin Mitnick learned in his teens how the ticketing system of the local public transport works. Using ticket cartons, a ticket punching machine and a few conversations with drivers, he created his own system for travelling for free. Later, he switched from buses to telephone lines - he was fascinated by phreaking and soundbites in telecommunications networks. He quickly discovered that he could persuade people to give him information they shouldn't normally share. Thus began his foray into so-called social engineering, for which he became world-famous.

Kevin hacked into the systems of companies such as Nokia, Motorola, Sun Microsystems, Fujitsu and even Pacific Bell in the 1980s and 1990s. He did not use sophisticated exploits to do this - his main weapon was the telephone and... polite conversation. He could pretend to be an IT administrator, service engineer or employee of a telecoms company and then extract passwords, ID numbers and accesses from unsuspecting employees. He later used this information to get into the companies' systems, download their source code and study how their technology worked.

In 1995, after a pursuit lasting several years, the FBI finally caught him. Mitnick had been hiding under a false name, changing residences and leaving virtually no trace. Interestingly, he was apprehended on the basis of an investigation by another hacker, Tsutomu Shimomura, who personally decided to track down Mitnick after he hacked into his computer. After his arrest, Mitnick was charged with a number of computer crimes and spent more than five years in prison, eight months of which in solitary confinement, because - as legend has it - the authorities feared he could „launch a nuclear weapon if he called from a slug phone”.

After his release from prison, Kevin underwent a remarkable transformation - becoming a security specialist, consultant, public speaker and best-selling author. He founded his own company, Mitnick Security, which advised major corporations and government agencies on how to protect themselves from attacks. He has also written several books, including The Art of Deception and The Art of Intrusion, in which he described social engineering techniques and taught how to defend against them.

Mitnick was one of the first to show the world that the biggest threat to computer security is not code, but... humans. Thanks to his story, today cyber security is not just about firewalls and antiviruses, but also about employee training and better awareness of threats.

Kevin Mitnick died in 2023 after a battle with cancer, but his legend lives on. He is remembered not only as a criminal, but also as a teacher and a pioneer in thinking about information security.

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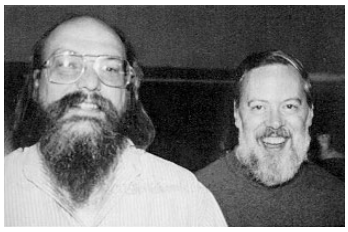
The World of Operating Systems and Personal Computers

Ken Thompson and Denis Ritchie


Source: Wikimedia.org

This is a duo that is unique from a computer science point of view, because without their work it is hard to imagine the world of computers, operating systems or the Internet today. Although they didn't wear black turtlenecks, take to the stage with spotlights flashing and shout „one more thing", their impact on technology was... greater than that of anyone from the big Silicon Valley companies. And yet, when Dennis Ritchie died in October 2011 - the same month as Steve Jobs - the world hardly noticed. The media was silent. Twitter was not flooded with memories. Perhaps because Ritchie and Thompson's genius was more quiet, unassuming and... ubiquitous.

Ken Thompson and Dennis Ritchie worked together at Bell Labs, where, in the 1960s and 1970s, the most advanced computer technology of their time was being developed. Their shared history begins with Multics, which was to be a state-of-the-art operating system, but due to over-ambition the project stalled. When the project was shut down, Thompson decided to write his own system from scratch - something simpler, elegant and flexible. Thus UNIX was born.

UNIX, originally written by Ken Thompson, was later rewritten into a new programming language, C, which was created by Dennis Ritchie. This meant that UNIX was no longer dependent on a single machine - it could be ported to different hardware architectures, which was an absolute breakthrough. And so UNIX began to spread: to universities, businesses, the military, until it eventually became the foundation of today's operating systems.

It was on the basis of UNIX that systems such as Linux, macOS, Android and even systems for routers, web servers and embedded devices were later developed. The C language itself, designed by Ritchie, remains to this day one of the most important and influential programming languages - the foundation of operating systems, drivers, databases and games.

Despite all this, Dennis Ritchie remained in the shadows. He was not a celebrity. He didn't start companies. He didn't sell computers. He created tools that others then used, often without knowing who built them. When he died in October 2011, shortly after the death of Steve Jobs, the tech world leaned on the Apple icon, and Ritchie was only mentioned in a few niche articles. It was like losing the foundation of a house that no one noticed until the house shook.

Ken Thompson, on the other hand, although less active today, also played a colossal role - he was the creator not only of UNIX, but also of the first version of the grep editor, the B language (precursor to C), and co-creator of the Plan 9 system and the Go language (in collaboration with Google). Thompson

was always fascinated by minimalism and simplicity of code - his 'small is beautiful' philosophy is still present in system design today.

Both Thompson and Ritchie have received numerous awards, including the Turing Prize (the highest accolade in computer science), the National Medal of Technology, and recognition from academia and engineering communities around the world. But their greatest reward is that almost every smartphone, computer or server running on Earth today carries traces of their code, their thoughts, their way of solving problems.

Their story shows that sometimes the greatest heroes of technology are the ones you don't see on the covers, but whose work is present everywhere.

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Susan Kare

Source: Wikimedia.org

She is unique from a computer science perspective in that she was not a programmer, engineer or operating system designer, yet she has forever changed the way people interact with computers. The reader may ask: then what is she doing here? I already explain. Susan Kare was the artist who drew the soul of Apple computers.

Susan was an art historian and graphic designer by training. In the 1980s, she joined the team working on Apple's Macintosh project, a computer that would popularise the graphical interface (GUI) and mouse. At the time, computers were mostly black terminals with green text - no icons, no windows, no emotion. Kare was supposed to make this new computer human.

Working with the limitation of a 32×32 pixel grid and black and white, Susan created the first set of icons for the Macintosh: scissors, folders, a dustbin, a clock, a smiling 'Happy Mac' face greeting the user when the computer started up. These pixelated drawings, despite their simplicity, were intuitive, aesthetically pleasing and full of character. They didn't need captions - everyone knew what they meant.

But Kare didn't just create icons. She also designed the first screen fonts, such as Chicago, Geneva, Monaco and New York, which were used in both the graphical interface and in documents. Her approach combined functionality with elegance - the letters had to be legible even on a very low-resolution screen.

Interestingly, she drew her first icon designs… on millimetre paper, before she even had access to a computer, because the engineering team was too busy programming the system. Kare translated her knowledge of composition, proportions and graphic symbolism into the language of computers - and did so with incredible flair.

After leaving Apple, Susan worked for, among others, NeXT (the company founded by Steve Jobs after he first left Apple) and then Microsoft, where she created graphics and fonts for Windows 3.0. She also worked for Facebook, IBM, PayPal and many other technology companies.

Although her work was often 'invisible' in a media sense, everyone knows her - because anyone who used a computer in the 1980s, 1990s and even today has seen her icons, clicked her buttons, read the letters of her fonts. You could say that Susan Kare gave computers a face - literally.

In 2015, her work was included in the permanent collection at the Museum of Modern Art in New York. She has turned small pixels into art and computers into friendly everyday tools.

Sources:

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John Carmack

Source: Wikimedia.org

He is a unique person from a computer science point of view, because although he did not create any operating system or network protocol, without his work the world of computer games today would look very different. The reader may now ask: so what did he do? I already explain. Carmack's interests from an early age revolved around electronics, computers and... hacking. Yes, as a teenager he tried to get into the school's computer systems and even ended up in juvie because of it. However, this was not the end of his story - it was just the beginning.

As an adult, Carmack used his programming skills to do absolutely groundbreaking things - he co-founded the legendary studio id Software, where he and John Romero created titles such as Wolfenstein 3D, DOOM, Quake and many others. It was Carmack who was responsible for the graphics engines of these games - i.e. what makes a game 'work', displaying the 3D world, lights, shadows and allowing the player to move around in it.

At a time when personal computers were about as powerful as today's calculators, Carmack performed miracles. For example: Wolfenstein 3D was created before 3D graphics cards were even popular - the entire game engine is a clever simulation of three-dimensionality using two-dimensional mathematics. In DOOM, he went even further, adding textures, lighting effects and complex maps, which gave rise to a new genre - the so-called FPS (First Person Shooter).

It was DOOM that was the first game to be so 'moddable' that players could create their own levels and modifications, which created a huge community of indie developers. Few people know that Carmack later released the source code of the DOOM engine under a free licence, which was quite an event - a gesture that inspired a multitude of young developers.

In 1996 Carmack created Quake, the first fully 3D action game, whose engine was later used by the likes of Half-Life and Call of Duty. Many companies bought licences for Carmack's engines, resulting in a whole ecosystem of games built on his foundations.

Interestingly, John Carmack did not limit himself to games. From 2000 onwards, he was interested in

spaceflight and founded the company Armadillo Aerospace, which built rockets and participated in NASA competitions. Over the years, Carmack also became interested in virtual reality - he became CTO (Chief Technology Officer) at Oculus VR, where he was responsible for the development of the Oculus Rift goggles. So it can be said that Carmack not only created modern computer games, but was also involved in the creation of modern virtual reality.

In 2019, Carmack announced that he was leaving his full-time job at Oculus to pursue the development of general artificial intelligence. Today, he runs his own company Keen Technologies and is working on building AGI - artificial intelligence with general cognitive abilities. What does the future hold? We don't know, but knowing Carmack, it is likely to push the boundaries of what is possible again.

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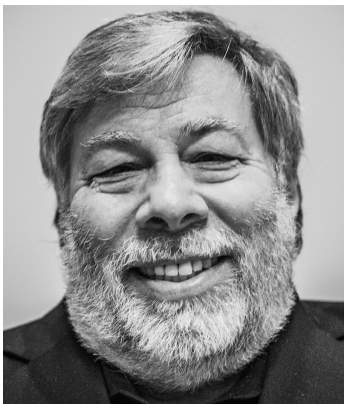
Steve Wozniak


Source: Wikimedia.org

He is a unique person from an IT perspective, as he was not only the co-founder of Apple, but also the creator of some of the most important personal computers in history. The reader may ask: wasn't Steve Jobs the genius? Jobs had the vision - Wozniak had the soldering iron. And it is with this soldering iron that our story begins.

Steve Wozniak was interested in electronics from a young age. As a teenager, he designed his own calculators, constructed logic games and - importantly - read hardware documentation for fun. At a time when access to computers was a luxury for academic institutions and corporations, Woz was able to recreate their operation from memory and run his own versions on a prototype board.

In the early 1970s, he met Steve Jobs - a younger high school classmate and technology enthusiast. Their adventure together began as a joke. They built a 'blue box', a device that generated DTMF signals that allowed phone calls to be made for free. Wozniak designed the circuits, Jobs found the customers - and so they started selling the illegal devices. This joint 'mishap' was the first demonstration of their complementary talents.

The real revolution began in 1976, when Wozniak built the Apple I computer - the first personal computer with a full keyboard and the ability to connect to a regular TV as a monitor. Significantly, Woz did it himself: he designed the motherboard, built the prototype and programmed the system. Jobs, seeing the potential, proposed selling the computers as ready-made kits. This is how Apple Computer was founded, and their first customer was the Byte Shop, which ordered 50 units.

But it was the Apple II, also designed by Wozniak, that was the real breakthrough. The computer had colour graphics, sound and expandability - it was every home user's dream of the 1970s and 1980s. Wozniak had once again done something amazing: he had created an entire computer system that could be mass-produced and was cheap, stable and powerful.

Unlike Steve Jobs, who later became a business and marketing icon, Woz remained a flesh-and-blood engineer. He wasn't interested in boards and conferences; he was more entertained by hobbyist

rallies, robot demonstrations and children's technology education. In the 1980s, after a serious airplane accident, he slowly withdrew from Apple, but never stopped being technologically active. He set up his own projects, taught computer science in schools and supported maker communities.

Wozniak was also known for not treating money as a goal, unlike many other Silicon Valley leaders. During Apple's IPO, he gave away thousands of shares to his colleagues who were not included in the employee stock option scheme, because he believed „it was just fair”.

To this day, Steve Wozniak is a living legend of computer science and a symbol of the fact that true innovation is often born out of passion, not profit. It was thanks to him that one of the first personal computers was created that truly everyone could have at home. And it all started with a soldering iron, cheap RAM and... a huge love of electronics.

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