

CS3012 - Software Engineering

Prof. Stephen Barrett

Biography of an Influential Software Engineer:

Alexey Pajitnov

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Overview

Alexey Pajitnov is a Russian software engineer and video game designer. He is most well-known for developing the video game *Tetris* which took the leap from the Soviet Union in 1984 and became one of the most universal video games. His work on *Tetris* is credited for its big influence on today's video game market and the game's spatial processing which is beneficial for the human brain.



Biography

He was born Alexey Leonidovich Pajitnov on the 14th of March 1956 in Moscow, USSR. He went on to study applied mathematics at the Moscow Aviation Institute and then eventually land a job at the state-run Dorodnitsyn Computing centre of the Soviet Academy of Sciences in Moscow.

Pajitnov would go into his office every morning at 10am where he worked in an extremely crowded environment in a room built for five people however crammed with fifteen researchers. He had a tiny assigned desk which he would share with three other people. Alexey would wait until the late hours of the night when his desk would be vacated so he could finally get to work developing artificial intelligence and automatic speech recognition, a field which was still very primitive at this time.

Whilst developing automatic speech recognition, Pajitnov was unaware of what his work would be used for, however there were rumours present in the office that it was military-based. He compared his work to a “proto-Siri” and he believed it would be applied to fighter jets operating in high Gs. In such a situation where operating the aircraft by hand proved impossible, the pilot would be able to control the vehicle by voice. However, there was a real application of Pajitnov's work by the KGB (the Russian committee for state security). Although the KGB was never keen to eavesdrop on people for information, it was difficult to be continuously recording, given the state of technology at the time. They were heavily interested in applying Pajitnov's speech recognition research to an audio system that would begin recording whenever certain keywords, suspected as dangerous to the state or

incriminating to the speaker, were spoken. Pajitnov has stated that him and his fellow researchers tried to avoid such controversial work.

During his employment at the Academy of Sciences, Pajitnov was eventually presented with his own personal computer. Whilst carrying out his artificial intelligence and speech recognition research, Alexey had to somehow perform tests to ensure his code was working. He would employ the use of video games for this. He experimented on and tested his new computer by developing games in the Pascal programming language. These test video games that Pajitnov developed would later go on to be published as *Microsoft Entertainment Pack: The Puzzle Collection*. From this video game testing, with help of a friend Vladimir Pokhilko, a Russian clinical psychologist greatly interested in human-computer interaction, and Vadim Gerasimov, an engineer, that Pajitnov ultimately created the most successful video game in history.

Tetris became popular among academics and the computer literate and was played using copied floppy disks. The game was formally released to the public on June 16th 1984 by the Academy of Sciences. It became a sensation in the USSR and was inevitably released to the United States two years later. The game was discovered by Henk Rogers in 1988 at the Consumer Electronics Show in Las Vegas. Rogers was the founder of Bullet-Proof Software. Bullet-Proof released *Tetris* in America in 1989 and was, of course, a sensation in the states. It's popularity took off largely to the inclusion of the game with Nintendo's new hand-held console, "Gameboy".

In 1989, Pajitnov created a sequel to *Tetris*, *Welltris*. This three dimensional game similar to *Tetris* received subpar reviews and became a failure. However, *Tetris* was still spreading like wild fire.

Unfortunately, because Pajitnov was employed by the Soviet government at the time of creating *Tetris*, they claimed all rights to the game and the untold millions in royalties so he did not receive any of the riches.

In 1991, Alexey emigrated to Bellevue, Washington, United States with his wife, Nina, and sons, Dmitri and Peter. In 1996, the rights to the game returned to Pajitnov and so he then founded the *Tetris* Company with Henk Rogers. He took out trademark registrations for *Tetris* in almost every country in the world.

The influence of Tetris

After 25 years of *Tetris*, the chart-topping title has sold a total of 170 million copies – an outrageous average of 6.8 million copies annually. The game still continues to trump other popular games, standing at second place on the list of best-selling video games (only beaten by Mojang's Minecraft). It also holds the Guinness World Record for the most ported piece of software in history.

Tetris kicked off the beginning of a gaming revolution where video games would inevitably take over the majority of the entertainment market. It inspired many companies to pump out video games to compete for a share of the market. The game is still played to this day, with new versions being released regularly for various consoles and devices. Furthermore, there is not only a *Tetris* movie in the works, but a *Tetris* trilogy with a \$80 million budget!

The influence of *Tetris* can be clearly seen in current mobile games. The game was designed by Pajitnov to be as addicting as possible and to provide players with over 100 hours of gameplay. The formula for games that employs a simple concept but addictive gameplay roots from *Tetris* and can be seen in today's games such as "Candy Crush Saga".

Tetris has also had an immense influence on the human psyche by the condition known famously as the "Tetris effect". This syndrome occurs when people devote so much time to an activity that it begins to pattern their thoughts, mental images, and dreams. From playing the game for prolonged periods of time, people become inspired and begin to see shapes in the physical world fitting together or imagining shapes falling on to place in an invisible layout.

The award-winning title has also been used to treat post-traumatic stress disorder. Following a trauma, your brain can start to loop the event in your mind, visualizing it until the memory becomes crystal clear. Studies have shown that playing *Tetris* creates a competing image, giving your brain something else to focus on and stopping the memory from clarifying.

Lastly, Alexey Pajitnov has influenced me as a computer scientist. I aspire to be as innovative and ahead of my time as he was. I aspire to not only develop software that entertains millions, but is also great use to millions, helping people get through their everyday lives.