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DE PROGRAMMATICA IPSUM

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# Issue 053: Gaming

February 6th, 2023

# Table of Contents

Issue 053: Gaming .....	5
Insert Coin .....	9
John Romero .....	17
Books About Game Design And Development .....	23



# Issue 053: Gaming



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Welcome to the fifty-third issue of *De Programmatica Ipsum*, about *Gaming*.

In this edition:

- We review the history of computer gaming and find out where the violence is<sup>1</sup>.
- In the Library section<sup>2</sup>, we review books about game design and development<sup>3</sup>.
- In our Vidéothèque section<sup>4</sup>, we listen to John Romero<sup>5</sup> tell us what happened in 1993.

## ISSUE 053: GAMING

We opened an account on Mastodon last year: follow us at <sup>6</sup> to be notified of new releases!

We would also like to thank our patrons who generously contribute every month (or have contributed in the past) to our work and help us run this magazine. Thank you so much! In alphabetical order: Adam Guest, Adrian Tineo Cabello, Benjamin Sheldon, Christopher Nascone, Jean-Paul de Vooght, Patryk Matuszewski, Paul Hudson, Roger Turner, and Szymon Licau.

Enjoy this issue! Please subscribe to our free newsletter<sup>7</sup> to stay updated about new releases, share the articles on social media, or contribute<sup>8</sup> if you would like to support our work.

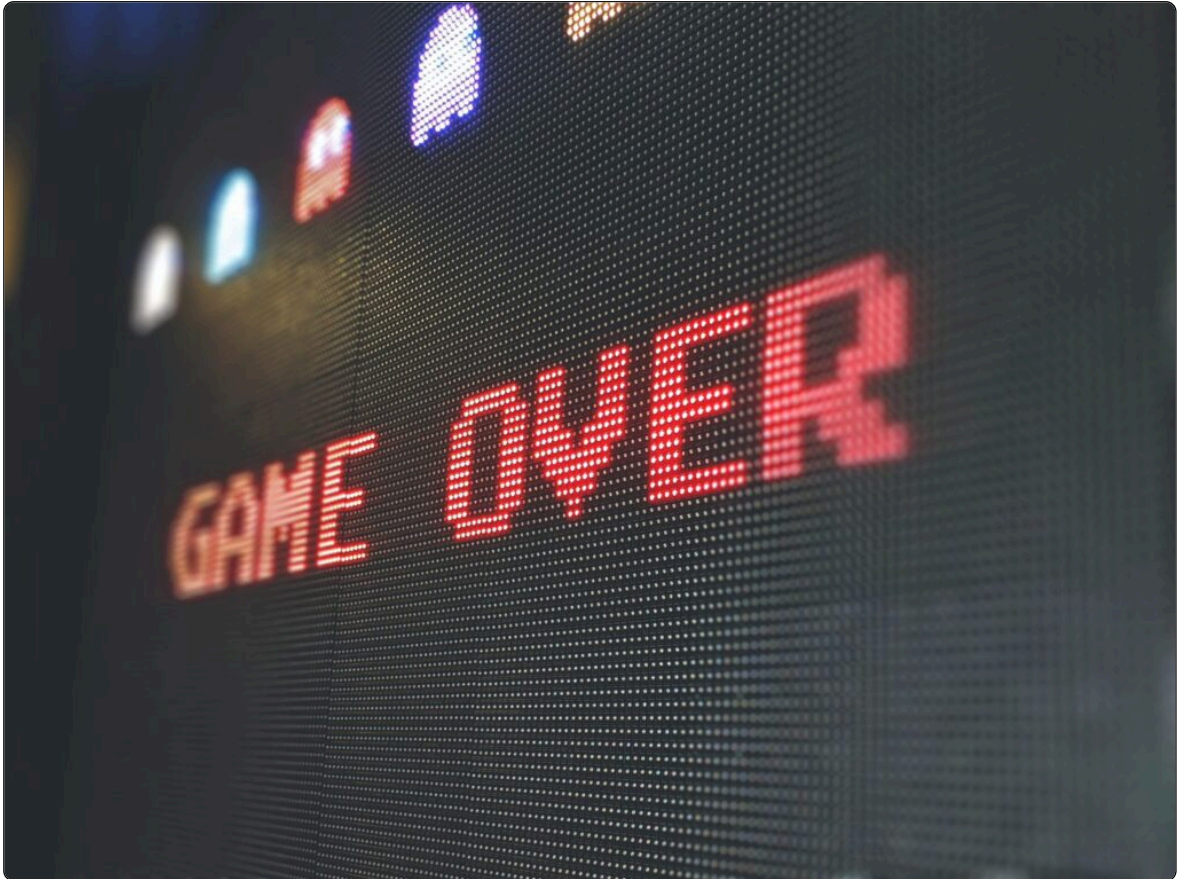
Cover photo by Thomas Despeyroux<sup>9</sup> on Unsplash<sup>10</sup>.

## REFERENCES

- <sup>1</sup> <https://deprogrammaticaipsum.com/insert-coin/>
- <sup>2</sup> <https://deprogrammaticaipsum.com/category/library/>
- <sup>3</sup> <https://deprogrammaticaipsum.com/books-about-game-design-and-development/>
- <sup>4</sup> <https://deprogrammaticaipsum.com/category/videotheque/>
- <sup>5</sup> <https://deprogrammaticaipsum.com/john-romero/>
- <sup>6</sup> <https://mas.to/@deprogrammaticaipsum>
- <sup>7</sup> <https://deprogrammaticaipsum.com/newsletter/>
- <sup>8</sup> <https://deprogrammaticaipsum.com/contribute/>
- <sup>9</sup> [https://unsplash.com/@thomasdes?utm\\_source=unsplash&utm\\_medium=referral&utm\\_content=creditCopyText](https://unsplash.com/@thomasdes?utm_source=unsplash&utm_medium=referral&utm_content=creditCopyText)
- <sup>10</sup> [https://unsplash.com/photos/i\\_qs6f6y8ag?utm\\_source=unsplash&utm\\_medium=referral&utm\\_content=creditCopyText](https://unsplash.com/photos/i_qs6f6y8ag?utm_source=unsplash&utm_medium=referral&utm_content=creditCopyText)



# Insert Coin



By Adrian Kosmaczewski

Even if you are not a hardcore gamer, it is hard to deny the influence of gaming in our modern culture. From Generation X (the one to which the author of these lines belongs) to Millennials, Generation Z, and now to the youngest (at the time of this writing) Generation Alpha, we have all grown using, watching, enjoying, and some, even writing games. This period coincides precisely with the rise of computers, first as a mass product and later as a mass media. Gaming grew to become one of the most visible offsprings of the computer industry and, to a large degree, one of the most violent.

This author grew up in a country (Argentina) where the affordability of computers was very low until the 1990s. My first contacts with computer gaming were scattered at best. It all started when a cousin of mine got an original Atari 2600<sup>1</sup>, with which I played Pong<sup>2</sup> around 1979. In 1982 I received a Nintendo Oil Panic<sup>3</sup> Game & Watch pocket video game for my 9th birthday; describing handheld computer games was so alien back then that I remember telling my friends that it was like “computerized Pocketeers<sup>4</sup>.” Those were our references.

December 1982’s edition of Byte Magazine<sup>5</sup> bore the title “Game Plan 1982” and started<sup>6</sup> with a groundbreaking observation:

*Video games are taking the country by storm.*

Video games were also starting to get associated with various evils; suffice to mention the “Polybius”<sup>7</sup> urban legend about a game that did not exist but that would generate addiction and other ailments. Video games have long been considered<sup>8</sup> a source of violence in society, mainly related to gun violence in the USA.

In 1982 video games were all over the TV set. “Shoot-Out at the OK Arcade,” the first episode of season 5 of Different Strokes<sup>9</sup> (a favorite TV show of this author, nowadays available on DailyMotion<sup>10</sup>), showed Arnold beating Willis (and missing school duties) in an arcade game challenge. During commercial breaks, Seven-Up featured Pac-Man<sup>11</sup> chasing ghosts and eating junk food with Kim Carnes singing “Bette Davis Eyes.”<sup>12</sup> And late at night, Raúl Portal<sup>13</sup> would make us wish we had a ColecoVision<sup>14</sup> or a Talent MSX<sup>15</sup> (one of the few 100% Argentine computers of the 1980s) during “La Hora de los Juegos”<sup>16</sup> (“The Hour of Gaming”) on Channel 11<sup>17</sup>. He would jokingly refer to characters in classic games such as Venture,<sup>18</sup> Bosconian,<sup>19</sup> Space Panic,<sup>20</sup> and Time Pilot,<sup>21</sup> with colorful names such as “corbachos,” “popómbalos,” “skrutenhaisens,” “crotófalos,” or “gróceres,” words that, of course, could only make Argentine kids laugh.

It was the age of innocence. We were unaware of the ongoing video game crash of 1983<sup>22</sup> nor the burial<sup>23</sup> of the ET video game by Atari, a story later told in a documentary<sup>24</sup> that (fittingly enough) premiered on the Xbox in 2014.

In 1984 Andrés Poletti, a friend from school got a Commodore 64<sup>25</sup> as a gift from his mother. That was the only home computer I saw in Buenos Aires during those years. We (Andrés and the whole class) spent countless hours playing Impossible Mission<sup>26</sup> every afternoon. I wrote some BASIC programs in it, but nothing could beat the graphics and sounds of professional games, so that was a marginal activity. Later that year, during a family holiday in Pinamar<sup>27</sup>, I went to an arcade and (finally) played Pac-Man<sup>28</sup> and Donkey Kong<sup>29</sup> for the first time; needless to say, both became instant favorites.

In 1991 I moved to Europe and bought my first MS-DOS PC the following year. My favorite games were Aces of the Pacific<sup>30</sup> and the original SimCity<sup>31</sup>. Well, until I purchased a copy of LucasArts' first masterpiece, Star Wars: X-Wing<sup>32</sup>. In the meantime, I got myself a Sega Game Gear<sup>33</sup>, not as popular as the Game Boy<sup>34</sup> but hey, with stereo sound and color graphics... and Sonic the Hedgehog<sup>35</sup>, of course. Speaking about handheld gaming, during my physics studies at the University of Geneva, I would load games on my Hewlett-Packard 48GX<sup>36</sup> graphing calculator... and fail exams, but that is another story.

By 1995 CD-ROMs were the next big thing, and one day I experienced Myst<sup>37</sup> on the Quadra 630<sup>38</sup> of a schoolmate. It challenged all preconceptions back in the day about what a game could be, and would offer something that games such as Monument Valley<sup>39</sup> or Alto's Adventure<sup>40</sup> would try to perpetuate years later. Other gamers were playing Doom<sup>41</sup>, a game distributed as shareware by id Software<sup>42</sup>; but honestly, first-person shooters were never my thing.

Around 2002, back in Europe after a short stint in Argentina, my colleagues played "Return to Castle Wolfenstein"<sup>43</sup> every Friday evening on our employer's LAN; that was my first exposure to networked multiplayer games. Still not my thing. It was more or less at that time when Microsoft released the Xbox, starting a long-running, historical rivalry with Sony's PlayStation. Watching that fight unfolding, later that decade I got myself a Nintendo Wii<sup>44</sup> instead, the only game console I ever bought.

Things have changed a lot since the 1970s. PACMAN has become the name of a security exploit<sup>45</sup>. Developers propose a new Open Gaming License<sup>46</sup>. Twitch<sup>47</sup>, started in 2011, quickly specialized in video game streaming and got snapped by

Amazon for a billion dollars. The Game Boy & Game Gear dichotomy lives on through the Playdate<sup>48</sup> and the Steam Deck<sup>49</sup>. The Swiss Video Game Archivists<sup>50</sup> try to keep all of these memories alive. Smartphones running iOS or Android became unexpected handheld gaming platforms in their own right, with major hits<sup>51</sup> such as Angry Birds<sup>52</sup>, Candy Crush Saga<sup>53</sup>, or Pokémon Go<sup>54</sup>. And Valve<sup>55</sup> makes and breaks the video game distribution market thanks to its Steam<sup>56</sup> platform.

Meanwhile, I went to the cinema to watch countless movies featuring Hollywood megastars impersonating those “corbachos,” “popómbalos,” and “skrutenhaisens” on the big screen; suffice to mention “Lara Croft: Tomb Raider”<sup>57</sup> with Angelina Jolie, “Final Fantasy: The Spirits Within”<sup>58</sup> with Ming-Na Wen, “Prince of Persia: The Sands of Time”<sup>59</sup> with Jake Gyllenhaal, or “The Angry Birds Movie”<sup>60</sup> with Jason Sudeikis. In our new world of streaming services, Henry Cavill, who personified “The Witcher”<sup>61</sup> for Netflix, is an outspoken fan of the videogame of the same name<sup>62</sup>. As this article hits the web, “The Last of Us,”<sup>63</sup> based on another critically-acclaimed video game<sup>64</sup>, is breaking records on HBO. And a documentary<sup>65</sup> about HQ<sup>66</sup> will hit CNN soon.

It has been 50 years since the Magnavox Odyssey<sup>67</sup>, and all innocence is lost. Following the Hollywood model, gaming has become a powerful mass medium, with colossal budgets and despicable methodologies, comparable to the movie studios in charge of the motion pictures enumerated above. Worker unions denounce<sup>68</sup> massive exploitation<sup>69</sup>, worker crunch<sup>70</sup>, sexual abuse<sup>71</sup> and assault<sup>72</sup>, and multiple discrimination<sup>73</sup> in companies such as Ubisoft, Blizzard, and Electronic Arts.

Whatever console you enjoy, whatever your preferred game might be, remember that the gamepad you hold implicitly validates such practices. If at all possible, support small game makers, particularly those publishing mobile games, who have to fight hard against the duopoly<sup>74</sup> of Apple and Google to be able to sell their games. Just like you would ensure your vegetables are sourced locally, organically, and ethically, make sure your games are developed with respect for the souls behind the machine.

The most significant source of violence in our society was not video games *per se* but the companies exploiting the workers making them. Not a big surprise; there are more important problems<sup>75</sup> to solve.

Cover photo by Sigmund<sup>76</sup> on Unsplash<sup>77</sup>.

REFERENCES

- <sup>1</sup> [https://en.wikipedia.org/wiki/Atari\\_2600](https://en.wikipedia.org/wiki/Atari_2600)
- <sup>2</sup> <https://en.wikipedia.org/wiki/Pong>
- <sup>3</sup> [https://nintendo.fandom.com/wiki/Oil\\_Panic](https://nintendo.fandom.com/wiki/Oil_Panic)
- <sup>4</sup> <http://masters.me.uk/pocketeers/completelist-pocketeers.htm>
- <sup>5</sup> <https://archive.org/details/byte-magazine-1982-12>
- <sup>6</sup> <https://archive.org/details/byte-magazine-1982-12/page/n5/mode/2up>
- <sup>7</sup> [https://en.wikipedia.org/wiki/Polybius\\_\(urban\\_legend\)](https://en.wikipedia.org/wiki/Polybius_(urban_legend))
- <sup>8</sup> <https://www.bbc.com/news/technology-33960075>
- <sup>9</sup> [https://en.wikipedia.org/wiki/List\\_of\\_Diff%27rent\\_Strokes\\_episodes#Season\\_5\\_\(1982%E2%80%931983\)](https://en.wikipedia.org/wiki/List_of_Diff%27rent_Strokes_episodes#Season_5_(1982%E2%80%931983))
- <sup>10</sup> <https://www.dailymotion.com/video/xbtcxt>
- <sup>11</sup> <https://www.youtube.com/watch?v=-ZXjkqjBHxk>
- <sup>12</sup> [https://en.wikipedia.org/wiki/Bette\\_Davis\\_Eyes](https://en.wikipedia.org/wiki/Bette_Davis_Eyes)
- <sup>13</sup> <https://es.wikipedia.org/wiki/Ra%C3%BA Portal>
- <sup>14</sup> <https://en.wikipedia.org/wiki/ColecoVision>
- <sup>15</sup> [https://www.msx.org/wiki/Talent\\_TPC-310](https://www.msx.org/wiki/Talent_TPC-310)
- <sup>16</sup> <https://www.youtube.com/watch?v=z3nGoELArIY>
- <sup>17</sup> [https://es.wikipedia.org/wiki/Telefe\\_\(Buenos\\_Aires\)](https://es.wikipedia.org/wiki/Telefe_(Buenos_Aires))
- <sup>18</sup> [https://en.wikipedia.org/wiki/Venture\\_\(video\\_game\)](https://en.wikipedia.org/wiki/Venture_(video_game))
- <sup>19</sup> <https://en.wikipedia.org/wiki/Bosconian>
- <sup>20</sup> [https://en.wikipedia.org/wiki/Space\\_Panic](https://en.wikipedia.org/wiki/Space_Panic)
- <sup>21</sup> [https://en.wikipedia.org/wiki/Time\\_Pilot](https://en.wikipedia.org/wiki/Time_Pilot)
- <sup>22</sup> [https://en.wikipedia.org/wiki/Video\\_game\\_crash\\_of\\_1983](https://en.wikipedia.org/wiki/Video_game_crash_of_1983)
- <sup>23</sup> [https://en.wikipedia.org/wiki/Atari\\_video\\_game\\_burial](https://en.wikipedia.org/wiki/Atari_video_game_burial)
- <sup>24</sup> [https://en.wikipedia.org/wiki/Atari:\\_Game\\_Over](https://en.wikipedia.org/wiki/Atari:_Game_Over)
- <sup>25</sup> [https://en.wikipedia.org/wiki/Commodore\\_64](https://en.wikipedia.org/wiki/Commodore_64)
- <sup>26</sup> [https://en.wikipedia.org/wiki/Impossible\\_Mission](https://en.wikipedia.org/wiki/Impossible_Mission)
- <sup>27</sup> <https://en.wikipedia.org/wiki/Pinamar>
- <sup>28</sup> <https://en.wikipedia.org/wiki/Pac-Man>
- <sup>29</sup> [https://en.wikipedia.org/wiki/Donkey\\_Kong](https://en.wikipedia.org/wiki/Donkey_Kong)
- <sup>30</sup> [https://en.wikipedia.org/wiki/Aces\\_of\\_the\\_Pacific](https://en.wikipedia.org/wiki/Aces_of_the_Pacific)
- <sup>31</sup> <https://en.wikipedia.org/wiki/SimCity>
- <sup>32</sup> [https://starwars.fandom.com/wiki/Star\\_Wars:\\_X-Wing](https://starwars.fandom.com/wiki/Star_Wars:_X-Wing)
- <sup>33</sup> [https://en.wikipedia.org/wiki/Game\\_Gear](https://en.wikipedia.org/wiki/Game_Gear)
- <sup>34</sup> [https://en.wikipedia.org/wiki/Game\\_Boy](https://en.wikipedia.org/wiki/Game_Boy)
- <sup>35</sup> [https://en.wikipedia.org/wiki/Sonic\\_the\\_Hedgehog](https://en.wikipedia.org/wiki/Sonic_the_Hedgehog)
- <sup>36</sup> <https://www.thecalculatorstore.com/HP-48GX-in-box/en>
- <sup>37</sup> <https://en.wikipedia.org/wiki/Myst>
- <sup>38</sup> [https://en.wikipedia.org/wiki/Macintosh\\_Quadra\\_630](https://en.wikipedia.org/wiki/Macintosh_Quadra_630)

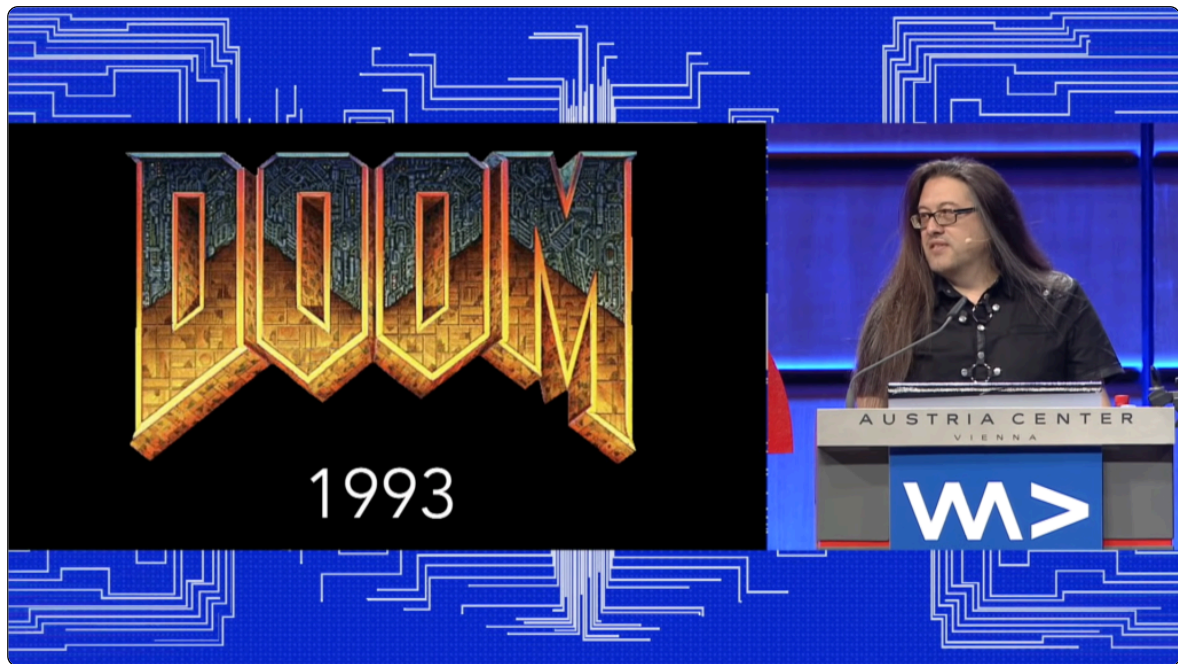
- <sup>39</sup> [https://en.wikipedia.org/wiki/Monument\\_Valley\\_\(video\\_game\)](https://en.wikipedia.org/wiki/Monument_Valley_(video_game))
- <sup>40</sup> [https://en.wikipedia.org/wiki/Alto%27s\\_Adventure](https://en.wikipedia.org/wiki/Alto%27s_Adventure)
- <sup>41</sup> <https://deprogrammaticaipsum.com/john-romero/>
- <sup>42</sup> [https://en.wikipedia.org/wiki/Id\\_Software](https://en.wikipedia.org/wiki/Id_Software)
- <sup>43</sup> [https://en.wikipedia.org/wiki/Return\\_to\\_Castle\\_Wolfenstein](https://en.wikipedia.org/wiki/Return_to_Castle_Wolfenstein)
- <sup>44</sup> <https://en.wikipedia.org/wiki/Wii>
- <sup>45</sup> <https://dl.acm.org/doi/10.1145/3470496.3527429>
- <sup>46</sup> <https://www.opendnd.games/>
- <sup>47</sup> [https://en.wikipedia.org/wiki/Twitch\\_\(service\)](https://en.wikipedia.org/wiki/Twitch_(service))
- <sup>48</sup> <https://play.date/>
- <sup>49</sup> <https://www.steamdeck.com/en/>
- <sup>50</sup> <https://svga.ch/>
- <sup>51</sup> <https://speakerdeck.com/akosma/12-anos-de-iphone-y-ipad-en-30-minutos?slide=302>
- <sup>52</sup> [https://en.wikipedia.org/wiki/Angry\\_Birds\\_\(video\\_game\)](https://en.wikipedia.org/wiki/Angry_Birds_(video_game))
- <sup>53</sup> [https://en.wikipedia.org/wiki/Candy\\_Crush\\_Saga](https://en.wikipedia.org/wiki/Candy_Crush_Saga)
- <sup>54</sup> [https://en.wikipedia.org/wiki/Pok%C3%A9mon\\_Go](https://en.wikipedia.org/wiki/Pok%C3%A9mon_Go)
- <sup>55</sup> <https://www.valvesoftware.com/en/>
- <sup>56</sup> <https://store.steampowered.com/>
- <sup>57</sup> <https://www.imdb.com/title/tt0146316/>
- <sup>58</sup> <https://www.imdb.com/title/tt0173840/>
- <sup>59</sup> <https://www.imdb.com/title/tt0473075/>
- <sup>60</sup> <https://www.imdb.com/title/tt1985949/>
- <sup>61</sup> <https://www.imdb.com/title/tt5180504/>
- <sup>62</sup> [https://en.wikipedia.org/wiki/The\\_Witcher\\_\(video\\_game\\_series\)](https://en.wikipedia.org/wiki/The_Witcher_(video_game_series))
- <sup>63</sup> <https://www.imdb.com/title/tt3581920/>
- <sup>64</sup> [https://en.wikipedia.org/wiki/The\\_Last\\_of\\_Us](https://en.wikipedia.org/wiki/The_Last_of_Us)
- <sup>65</sup> <https://www.youtube.com/watch?v=VWlJr2GRo5c>
- <sup>66</sup> [https://en.wikipedia.org/wiki/HQ\\_\(video\\_game\)](https://en.wikipedia.org/wiki/HQ_(video_game))
- <sup>67</sup> [https://en.wikipedia.org/wiki/Magnavox\\_Odyssey](https://en.wikipedia.org/wiki/Magnavox_Odyssey)
- <sup>68</sup> <https://www.thegamer.com/unions-blast-abusive-conditions-gaming-industry-activision-blizzard/>
- <sup>69</sup> <https://jacobin.com/2013/11/video-game-industry/>
- <sup>70</sup> <https://platinumparagon.info/crunch-and-abuse-in-gaming/>
- <sup>71</sup> <https://www.businessinsider.com/gaming-industry-high-profile-men-accused-sexual-abuse-harassment-abuse-2019-8?op=1&r=US&IR=T>
- <sup>72</sup> [https://medium.com/@survivors\\_streaming\\_industry/survivor-stories-of-harassment-assault-with-the-gaming-and-live-streaming-industry-11cb2fab96f0](https://medium.com/@survivors_streaming_industry/survivor-stories-of-harassment-assault-with-the-gaming-and-live-streaming-industry-11cb2fab96f0)
- <sup>73</sup> <https://intenta.digital/perspectives/gaming-gender-stereotypes-discrimination/>
- <sup>74</sup> <https://deprogrammaticaipsum.com/on-the-duopoly-of-mobile/>
- <sup>75</sup> <https://www.highlandernews.org/86148/blaming-video-games-detracts-from-the-actual-causes-of-gun-violence/>

## ISSUE 053: GAMING

<sup>76</sup> [https://unsplash.com/@sigmund?utm\\_source=unsplash&utm\\_medium=referral&utm\\_content=creditCopyText](https://unsplash.com/@sigmund?utm_source=unsplash&utm_medium=referral&utm_content=creditCopyText)

<sup>77</sup> [https://unsplash.com/photos/By-tZImt0Ms?utm\\_source=unsplash&utm\\_medium=referral&utm\\_content=creditCopyText](https://unsplash.com/photos/By-tZImt0Ms?utm_source=unsplash&utm_medium=referral&utm_content=creditCopyText)

# John Romero



By Adrian Kosmaczewski

What happened in the world in 1993? Czechoslovakia separated in a peaceful process into two countries. Bill Clinton became the 42nd president of the USA. A bomb detonated in the basement of the World Trade Center. Janet Reno became the first female Attorney General of the USA. Jiang Zemin became President of the People's Republic of China. The WHO declared tuberculosis a global emergency. A "fan" stabbed Monica Seles in the back. Crowds were protesting against Slobodan Milošević in Belgrade. Andrew Miles solved Fermat's Last Theorem. Miguel Indurain won the Tour de France. The Maastricht Treaty took effect, creating the European Union. And finally, the Hubble Space Telescope took pictures without suffering from myopia.

1993 was also the year when a small team<sup>1</sup> in a cube-shaped office in Mesquite, Texas, created one of the most influential games ever released: Doom<sup>2</sup>. They were

John<sup>3</sup> & Adrian Carmack, John Romero, Tom Hall, Kevin Cloud, Sandy Petersen, Shawn Green, Dave Taylor, Jay Wilbur, American McGee, and Donna Jackson. Of them, John Carmack was already a celebrity, having invented the “adaptive tile refresh”<sup>4</sup> algorithm that made scrolling platform games blazingly fast on old clunky IBM PCs, a trick that not even Nintendo had been able to pull out of their hat.

Fast forward 25 years, in the Vidéothèque movie of this month, John Romero told the story<sup>5</sup> of how Doom was made at the stage of the WeAreDevelopers conference.

This is a tale of a very cocky team that boasted and delivered outstandingly. You have been warned; do not try this on your team. They started in January of 1993 by sending a press release telling the world about the game, even though not a single line had been written yet. Talk about being ~~arrogant~~ confident.

They were not on their first try, by far; id Software had already released top-rated games and was very well-known in the gaming world. They had hits such as Commander Keen<sup>6</sup> (1990) and Wolfenstein 3D<sup>7</sup>, the latter inspired by a classic Apple II game from 1981<sup>8</sup>. They were so well-known that the 20th Century Fox movie studio contacted them to create a game for... the Aliens franchise. That is celebrity status.

The video tells the story of the game’s development, from its announcement in January to its final upload to the University of Wisconsin FTP server on December 10th, 1993. It starts with John Carmack buying an eleven-thousand (“cash on delivery”) dollar NeXT computer<sup>9</sup>, learning Objective-C, and using it to create parts of the game. This story would increase the legend around the magnesium cube-shaped computer through the years.

A cube-shaped computer in a cube-shaped building.

During his speech, John Romero provided helpful insight into their game development methodology. These are all important and valuable ideas that would benefit most teams today.

- Tom Hall wrote “The Doom Bible,” an entire book (essentially, a spec document) specifying every single detail of the game: character backgrounds, location, situations, etc.

- They bought guns... in a toy store... and scanned and incorporated them into the game. The chainsaw was a real one, although it leaked oil.
- After trying clay models, they hired a sculptor to create latex models of their main characters.
- Work on the game involved coding it... and lots of less glamorous tasks: logo and box cover design; menus; installation scripts; text files; serial code number generation; game maps; and much more.
- Inspired by a paper about Binary Space Partitioning<sup>10</sup>, John Carmack created an even better 3D engine. Said 3D engine would become another best-selling byproduct in its own right, bringing even more fame and cash to id Software.
- They released quite a few “alpha” and “beta” versions, gathering early feedback from users.
- When asked about the 2005 movie<sup>11</sup> inspired by the game (starring Rosamund Pike, Dwayne “The Rock” Johnson, and Karl Urban,) John Romero responds: “No.”
- And finally, what about version control? “Didn’t happen.”

Doom was released to the world on Friday, December 19th, 1993. The day before, the US Congress held a much-publicized debate about the morality of video games and their influence in the youth. The timing of the release could not have been more perfect. In his 2003 book<sup>12</sup> “Masters of Doom: How Two Guys Created an Empire and Transformed Pop Culture” (an ideal complement to this month’s video,) David Kushner<sup>13</sup> wrote about that day:

*Finally, the clock struck midnight. They would have to wait no more. Jay hit the button to upload it to the world. Everyone in the office cheered. But Jay was silent. He sat wrinkling his forehead and tapping his keyboard. There was a problem. The University of Wisconsin FTP site could accommodate only 125 people at any given moment. Apparently, 125 gamers were waiting online. Id couldn’t get on.*

Oh, and John Carmack solved one last deal-breaking bug in just five minutes shortly before the final uploading.

To say that Doom was a success is an understatement. As reported by NBC News<sup>14</sup>,

*“Doom” soon found its way onto record numbers of computers, and the company was raking in \$100,000 per day from \$9 shareware purchases — and the free first episode was installed on millions of computers. It was so popular that Microsoft commissioned a port of the game for Windows 95, with then-CEO Bill Gates even appearing in a video<sup>15</sup> promoting the game and Microsoft’s new operating system.*

Doom has since been ported<sup>16</sup> to almost every CPU architecture, operating system, and hardware combo released in the past 30 years, including WebAssembly<sup>17</sup> (which makes it possible to play the game on your browser<sup>18</sup>) and more. In the words of Romero, it pioneered all of the elements of modern video games: 3D, FPS or “first-person shooter,” modding<sup>19</sup>, multiplayer, and the shareware free-to-play business model. In particular, adding modding as a feature made Doom a complete platform<sup>20</sup> upon which generations of fans created and shared countless extensions.

Learn more about Doom and id Software by watching this month’s Vidéothèque movie, “DOOM’s Development: A Year of Madness”<sup>21</sup> on YouTube. And subscribe to the WeAreDevelopers channel<sup>22</sup>, which contains material of excellent quality.

Cover snapshot by the author.

## REFERENCES

- <sup>1</sup> [https://en.wikipedia.org/wiki/Id\\_Software](https://en.wikipedia.org/wiki/Id_Software)
- <sup>2</sup> [https://en.wikipedia.org/wiki/Doom\\_\(1993\\_video\\_game\)](https://en.wikipedia.org/wiki/Doom_(1993_video_game))
- <sup>3</sup> [https://en.wikipedia.org/wiki/John\\_Carmack](https://en.wikipedia.org/wiki/John_Carmack)
- <sup>4</sup> [https://en.wikipedia.org/wiki/Adaptive\\_tile\\_refresh](https://en.wikipedia.org/wiki/Adaptive_tile_refresh)
- <sup>5</sup> <https://www.youtube.com/watch?v=eBU34NZhW7I>
- <sup>6</sup> [https://en.wikipedia.org/wiki/Commander\\_Keen](https://en.wikipedia.org/wiki/Commander_Keen)
- <sup>7</sup> [https://en.wikipedia.org/wiki/Wolfenstein\\_3D](https://en.wikipedia.org/wiki/Wolfenstein_3D)
- <sup>8</sup> [https://en.wikipedia.org/wiki/Castle\\_Wolfenstein](https://en.wikipedia.org/wiki/Castle_Wolfenstein)
- <sup>9</sup> <https://deprogrammaticaipsum.com/steve-jobs/>
- <sup>10</sup> [https://en.wikipedia.org/wiki/Binary\\_space\\_partitioning](https://en.wikipedia.org/wiki/Binary_space_partitioning)
- <sup>11</sup> <https://www.imdb.com/title/tt0419706/>
- <sup>12</sup> [https://en.wikipedia.org/wiki/Masters\\_of\\_Doom](https://en.wikipedia.org/wiki/Masters_of_Doom)
- <sup>13</sup> [https://en.wikipedia.org/wiki/David\\_Kushner](https://en.wikipedia.org/wiki/David_Kushner)
- <sup>14</sup> <https://www.nbcnews.com/technolog/knee-deep-history-20-years-doom-2D11722313>
- <sup>15</sup> <http://www.youtube.com/watch?v=KN0K58EfJSg>
- <sup>16</sup> <https://www.doomworld.com/classicdoom/ports/>
- <sup>17</sup> <https://www.continuation-labs.com/projects/d3wasm/>
- <sup>18</sup> <https://wasm.continuation-labs.com/d3demo/>
- <sup>19</sup> <https://en.wikipedia.org/wiki/Modding>
- <sup>20</sup> <https://deprogrammaticaipsum.com/geoffrey-g-parker-marshall-w-van-alstyne-sangeet-paul-choudary/>
- <sup>21</sup> <https://www.youtube.com/watch?v=eBU34NZhW7I>
- <sup>22</sup> [https://www.youtube.com/@\\_wearedevs](https://www.youtube.com/@_wearedevs)



# Books About Game Design And Development



By Adrian Kosmaczewski

Arguably, one of the most common questions all gamers ask themselves at some point (usually in the middle of a space battle or while solving the most intricate of mysteries) is, how do people make games? Fortunately, several of the most fabulous game designers of the past 50 years have written books to enlighten us not only about the algorithms but also the storytelling, the team dynamics, and the economics required to build a ground-breaking game.

## Chris Crawford

According to Mark Wolf and Bernard Perron in their 2003 guide “The Video Game Theory Reader,”<sup>1</sup> the first author ever to publish a book about game design was Chris Crawford. His 1984 book, “The Art of Computer Game Design,”<sup>2</sup> is an expanded compilation of articles written for Byte Magazine in the early eighties; one of those is “Design Techniques and Ideals for Computer Games,” published on page 96 of the December 1982 issue of Byte and freely available online<sup>3</sup>.

As an anecdote, it is worth mentioning that Crawford was also a regular contributor to “De Re Atari,”<sup>4</sup> a book about 8-bit development on the Atari, whose title is one of the inspirations for the name of the magazine you are reading right now.

Crawford, prolific creator of early games such as Tanktics<sup>5</sup> (1976,) Easter Front<sup>6</sup> (1981,) and Excalibur<sup>7</sup> (1983,) provides a definition, a motivation, and a classification of computer games—at least for those existing in 1984, that is. His book starts with a vital objective:

*The central premise of this book is that computer games constitute a new and poorly developed art form that holds great promise for both designers and players.*

This is not a book about algorithms, techniques, or programming hacks to make games faster; it is about designing engaging, exciting games that will hook players until the end. The principles described here are timeless and relate to storytelling, sequencing of events, testing, pace, and structure. In conclusion, chapter 6 describes in detail the development of Excalibur, arguably one of the most popular games of that era, and referred to by Crawford himself as his “magnum opus.”

Crawford published a second book about game design<sup>8</sup> in 2003, providing opinions and advice about new categories of games that emerged during the nineties.

## Jordan Mechner

Jordan Mechner<sup>9</sup> is the designer and programmer of one of the most successful game franchises of all time: Prince of Persia<sup>10</sup>, initially released for the Apple II

computer. But a quick glance to his personal website<sup>11</sup> reveals that his programming skills (no matter how impressive) are second to his drawing and writing abilities.

Mechner writes and draws a lot and has kept reams of paper and dozens of notebooks. He compiled this information in an outstanding volume published in 2020, “The Making of Prince of Persia”<sup>12</sup>, telling a story that led to an eponymous 2010 motion picture<sup>13</sup> and an entire game franchise. Profusely and gorgeously illustrated by the author<sup>14</sup>, it perfectly complements the original source code (in Apple II 6502 assembly) available on GitHub<sup>15</sup>, and his timeless 20 tips on making games<sup>16</sup>.

## David Kushner

Doom is another one of the greatest games ever made. It was a genre-defining title that fundamentally disrupted the gaming industry (I hate to use the word “disruption,” but I have to admit that, in this case, that is what happened precisely.) The 2003 book<sup>17</sup> “Masters of Doom: How Two Guys Created an Empire and Transformed Pop Culture” by writer and journalist David Kushner<sup>18</sup> focuses on the human story behind Doom: the tension, drama, and conflict.

The result is a mesmerizing novel, an excellent read for those amateurs passionate about software history, like the author of these lines. As explained by the title, the focus is on the “two Johns” of id Software: John Romero<sup>19</sup> and John Carmack<sup>20</sup>.

In the Vidéothèque article of this month<sup>21</sup> we showcase John Romero precisely, in a conference talk that conspicuously leaves aside the tension, drama, and conflict felt during the development of Doom.

## Michael Abrash

Michael Abrash<sup>22</sup> was the undisputed assembly and performance optimization king from the late 80s to the early 2000s. His books “Graphics for the IBM PC” (1984) and “Zen of Assembly Language” (1990) and his articles in Programmer’s Journal or Dr. Dobb’s Journal showed a whole generation how to extract every inch of power from PCs running the 80386 or 80486 CPUs.

His 1997 opus “Graphics Programming Black Book,” available<sup>23</sup> online at the Internet Archive, focuses on the developer mindset and their tooling. It is a treasure trove of wild optimization techniques that made games outstandingly fast before GPUs existed and before the free lunch was over<sup>24</sup>.

Abrash’s experience in performance tuning and game development naturally opened the door to working with John Carmack at id Software, then Valve, and finally Oculus VR.

## Fabien Sanglard

Speaking about “black books” and game engines, we cannot forget about Fabien Sanglard<sup>25</sup>. A French-Canadian software engineer in San Francisco, he published two books<sup>26</sup> in 2018 describing the inner structure and algorithms of two iconic game engines: Wolfenstein 3D and Doom. They are available as free downloads (“gift what you want”) and also in printed form.

These books have an outstanding level of technical detail, diving into the internals of the 486 chip, the NeXT computer, the architecture of the code, the algorithms, and the various optimizations used when porting the game to other platforms.

## Bonus: The Video Game Library

One last thing before ending this month’s Library article: if you are into retro gaming, check out The Video Game Library<sup>27</sup> and its catalog of early game programming books.

Cover photo by the author.

## REFERENCES

- <sup>1</sup> <https://www.routledge.com/The-Video-Game-Theory-Reader/Wolf-Perron/p/book/9780415965798>
- <sup>2</sup> [https://en.wikipedia.org/wiki/The\\_Art\\_of\\_Computer\\_Game\\_Design](https://en.wikipedia.org/wiki/The_Art_of_Computer_Game_Design)
- <sup>3</sup> <https://archive.org/details/byte-magazine-1982-12/page/n97/mode/2up>
- <sup>4</sup> [https://en.wikipedia.org/wiki/De\\_Re\\_Atari](https://en.wikipedia.org/wiki/De_Re_Atari)
- <sup>5</sup> [https://en.wikipedia.org/wiki/Tanktics:\\_Computer\\_Game\\_of\\_Armored\\_Combat\\_on\\_the\\_Eastern\\_Front](https://en.wikipedia.org/wiki/Tanktics:_Computer_Game_of_Armored_Combat_on_the_Eastern_Front)
- <sup>6</sup> [https://en.wikipedia.org/wiki/Eastern\\_Front\\_\(1941\)](https://en.wikipedia.org/wiki/Eastern_Front_(1941))
- <sup>7</sup> [https://en.wikipedia.org/wiki/Excalibur\\_\(video\\_game\)](https://en.wikipedia.org/wiki/Excalibur_(video_game))
- <sup>8</sup> [https://en.wikipedia.org/wiki/Chris\\_Crawford\\_on\\_Game\\_Design](https://en.wikipedia.org/wiki/Chris_Crawford_on_Game_Design)
- <sup>9</sup> [https://en.wikipedia.org/wiki/Jordan\\_Mechner](https://en.wikipedia.org/wiki/Jordan_Mechner)
- <sup>10</sup> [https://en.wikipedia.org/wiki/Prince\\_of\\_Persia\\_\(1989\\_video\\_game\)](https://en.wikipedia.org/wiki/Prince_of_Persia_(1989_video_game))
- <sup>11</sup> <https://www.jordanmechner.com/>
- <sup>12</sup> <https://www.jordanmechner.com/books/journals/>
- <sup>13</sup> <https://www.imdb.com/title/tt0473075/>
- <sup>14</sup> <https://mastodon.art/@jmechner>
- <sup>15</sup> <https://github.com/jmechner/Prince-of-Persia-Apple-II>
- <sup>16</sup> [https://www.jordanmechner.com/downloads/20\\_tips.pdf](https://www.jordanmechner.com/downloads/20_tips.pdf)
- <sup>17</sup> [https://en.wikipedia.org/wiki/Masters\\_of\\_Doom](https://en.wikipedia.org/wiki/Masters_of_Doom)
- <sup>18</sup> [https://en.wikipedia.org/wiki/David\\_Kushner](https://en.wikipedia.org/wiki/David_Kushner)
- <sup>19</sup> [https://en.wikipedia.org/wiki/John\\_Romero](https://en.wikipedia.org/wiki/John_Romero)
- <sup>20</sup> [https://en.wikipedia.org/wiki/John\\_Carmack](https://en.wikipedia.org/wiki/John_Carmack)
- <sup>21</sup> <https://deprogrammaticaipsum.com/john-romero/>
- <sup>22</sup> [https://en.wikipedia.org/wiki/Michael\\_Abrash](https://en.wikipedia.org/wiki/Michael_Abrash)
- <sup>23</sup> <https://archive.org/details/michaelabrashsgr00abra>
- <sup>24</sup> <http://www.gotw.ca/publications/concurrency-ddj.htm>
- <sup>25</sup> <https://fabiansanglard.net/>
- <sup>26</sup> <https://fabiansanglard.net/gebb/index.html>
- <sup>27</sup> <https://www.thevideogamelibrary.org/>