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VM302 History of Video Games
Sep 24, 2025

Reflection on “Racing the Beam”

Watching the “Racing the Beam” video was an in-depth look into just how complex Atari games were before they had video memory. It is hard to imagine nowadays just how much work had to go into creating just a single horizontal line on the playfield, not even counting any sprites or colors. This video had me wondering whether game development is easier or harder today by comparison. I believe that certain aspects, such as graphics and direct coding, are much simpler than they used to be, while the CPU and central systems on consoles are more complex. Because of this, new opportunities in game development have opened, while simultaneously creating a unique set of obstacles in 21st-century gaming.

To preface, I have minimal experience with computer programming. “Racing the Beam” was difficult to watch as many of the processes and terminology were relatively unfamiliar to me. I got completely lost after the 20-minute mark, but still watched to the end. The main takeaways I will be describing are more related to the broader implications of the technology used then and now, rather than the specifics of the CPU and scanning beam.

One of the biggest challenges in game development nowadays is the ever-increasing rate of technological advancement. Of course, gaming consoles were evolving throughout the 70s and 80s, but in the past few decades, professional-quality software has become much more accessible to the general public. New technologies have sprung up across the board that the average person can download to their home computer. It’s no longer required to have extensive coding experience–most rendering software has functions that do all of the heavy lifting on their own. In Blender, for instance, you don’t need to individually add additional copies of the same object using the same code over and over; you can use Geometry Nodes and select from a dropdown menu to achieve your desired result in a fraction of the time. This user-friendly interface makes game design much more accessible to anyone interested.

While more people than ever are developing their own games, the drawback to widespread access to game development is that *anyone* can make their own game. Like the film industry, the video game industry is incredibly competitive for this reason. Developers are not secure in their jobs because at any moment, a new and improved gaming software could be released and take over their job for them. (The use of tools like AI in the media raises a similar concern.) The complex processing that has to go into every single scan of the beam in the Atari 2600 can be done much faster with technology that requires fewer workers. Studios can pull funding whenever they choose if they see better potential in a new technology. The career path for a game developer can be very unpredictable as they are expected to instantly adapt to new advancements in software.

Because of rapidly changing software and programming methods, developers and producers often have to start from scratch with each new project. In the introduction to the bestselling *Blood, Sweat, and Pixels: The Triumphant, Turbulent Stories Behind How Video Games Are Made*, Jason Schrier paraphrases Obsidian CEO Feargus Urquhart's claim that "making games is sort of like shooting movies, if you had to build an entirely new camera every time you started" (Schrier xvii). In this way, game development has always had this difficulty; the early years of video games were filled with uncertainty due to their novelty. Nowadays, development can be smoother, but with the same uncharted waters in the potential of new developments in the creation of games.

Schrier goes on to list common rendering programs such as Adobe Photoshop and Autodesk Maya, as well as studio proprietary software as the primary technologies used in modern day game production. However, even since then, more programs have been created and become more commonly used. Here at Emerson, our interactive media classes focus on Unreal Engine, Blender, Unity, and VR technologies in addition to the aforementioned programs. Going forward, it is difficult to predict what types of technologies will be most commonly used in the next five, ten, or twenty years. Each of these products facilitates the production of each screen and sprite in the game, rather than having to code for every single bit on the screen.

However, many developers prefer to make games through independent studios to avoid the risk of financial challenges. Web engineer Ociel Gonzalez writes that professional game development is highly stressful since "the game's success will directly impact my livelihood" (Gonzalez). Creating games as a hobby, on the other hand, is more enjoyable to her because "there is no financial obligation tied to its success." While pressure and financing have been a fairly consistent concern throughout the industry's history, it is much more intense nowadays due to the much higher demand and presence of competitors. Schrier writes that a developer told him some team members had to work up to one hundred hours per week and even sleep in the office to finish a game on time (xiv). Both Gonzalez and Schrier agree that being a game developer is highly intense and there is always a chance of one's primary income being pulled away at any moment by a larger overarching company. In that regard, the profession is certainly much more difficult today than it was in the time of television scanning beams.

It is likely that in the near future, these relative eases and challenges will be exacerbated, especially due to the use of AI in mainstream media. Sanhita Mukherjee at TalentDesk claims that some of the benefits to incorporating AI include interactable NPCs, auto-generated assets, generative insights on player data, and even automated playtesting. Some software, such as Adobe Premiere Pro and Photoshop, have already been implementing generative fill to supposedly ease the process of editing photos and videos. Mukherjee quotes freelance designer Gary Barber's hope that AI will "enhance the creativity potential of designers and not necessarily replace them" (Mukherjee). While this sounds like a step forward in theory, there are very real risks that come with implementing such programs. Especially under large corporations, many gaming companies will do whatever it takes to make more profit. That may mean firing developers and replacing their entire jobs with AI, or relying too heavily on AI to the point that

any originality will be lost. We already see this in television, movies, and online content; many film and TV studios have garnered criticism for their reliance on AI. Game production with AI may be easier for the company overall, but at the same time, it will be much harder for developers, regardless of experience, to find and keep their jobs.

Game development in the 21st century can be a double-edged sword. The leaps and bounds made in recent years in the creation of 3D modeling software has given significantly more people an opportunity to create games with relative ease. By the same token, however, it is much harder to become successful due to fierce competition and uncertainty over technological developments. The next few years will be a crucial turning point to see how AI and generative technologies will affect the game development world and who will benefit or suffer from it. Regardless, it is clear that game creation has come a long way since the days of racing the beam.

Works Cited

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