

DPI

De Programmatica *Ipsium*

DE PROGRAMMATICA IPSUM

Issue 091: Entertainment

April 6th, 2026

Table of Contents

Issue 091: Entertainment	5
Pushing the Envelope	9
Panem Et Circenses	13
L33T GUY	19
Loren Carpenter	23
Jamie Woodcock	31
Keza MacDonald	35

Issue 091: Entertainment



April 6th, 2026

Welcome to the 91st issue of *De Programmatica Ipsum*, about *Entertainment*.

In this edition:

- Graham reviews the beautiful art taking place in the demoscene¹.
- Adrian argues that we are just blinded by entertainment².
- In our Vidéothèque section³, we learn about the demoscene thanks to L33T GUY⁴, and then we watch the first computer-generated movie ever released, made by Loren Carpenter⁵.
- In the Library section⁶, we review “Marx at the Arcade” by Jamie Woodcock⁷, and “Super Nintendo” by Keza MacDonald⁸.

Download this issue in DRM-free PDF⁹ or EPUB¹⁰ format, and read it on your preferred device. You can also subscribe to our RSS feed¹¹, featuring the full content of our articles.

We would 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, Colin Powell, Franz Lucien Moersdorf, Guillermo Ramos Álvarez, Jean-Paul de Vooght, Dr. Juande Santander-Vela, Patryk Matuszewski, Paul Hudson, Quico Moya, Roger Turner, Szymon Licau, and countless more leaving anonymous tips every month.

Enjoy this issue! Please share our articles on social media, or contribute¹² if you would like to support our work with a donation via Liberapay¹³.

Cover photo by Tijs van Leur¹⁴ on Unsplash¹⁵.

REFERENCES

- ¹ <https://deprogrammaticaipsum.com/pushing-the-envelope/>
- ² <https://deprogrammaticaipsum.com/panem-et-circenses/>
- ³ <https://deprogrammaticaipsum.com/category/videotheque/>
- ⁴ <https://deprogrammaticaipsum.com/133t-guy/>
- ⁵ <https://deprogrammaticaipsum.com/loren-carpenter/>
- ⁶ <https://deprogrammaticaipsum.com/category/library/>
- ⁷ <https://deprogrammaticaipsum.com/jamie-woodcock/>
- ⁸ <https://deprogrammaticaipsum.com/keza-macdonald/>
- ⁹ <https://deprogrammaticaipsum.com/pdf/issue-091-entertainment.pdf>
- ¹⁰ <https://deprogrammaticaipsum.com/epub/issue-091-entertainment.epub>
- ¹¹ <https://deprogrammaticaipsum.com/index.xml>
- ¹² <https://deprogrammaticaipsum.com/contribute/>
- ¹³ <https://liberapay.com/akosma/donate>
- ¹⁴ https://unsplash.com/@tjjsvl?utm_source=unsplash&utm_medium=referral&utm_content=creditCopyText
- ¹⁵ https://unsplash.com/photos/people-raising-their-hands-on-concert-Qnlp3FCO2vc?utm_source=unsplash&utm_medium=referral&utm_content=creditCopyText

Pushing the Envelope



By Graham Lee

You are deep into fixing a bug where the customer wants to view entries in a report in a different order, but calling the method to sort the array turns on the sprinkler system in your on-premise server room for reasons that nobody can recall (or diagnose). It is at this moment that it is hardest to remember that programming can be *fun*.

We are looking at entertainment in this issue, and obviously there are examples of computing being used to generate entertainment for *consumption*. In my Library article¹, I go in depth into the state of the computer games industry. We see film, music, and television creators regularly using computers in their work, from the earliest examples on the silver screen (the computer-generated opening credits

sequence in Alfred Hitchcock's 1958 movie *Vertigo*), through consumerisation of the tools (Nine Inch Nails frontman Trent Reznor released one of their songs² as a GarageBand project in 2005), to today's creative processes where everything between the camera lens and the screen goes through a digital pipeline. Even if you buy a vinyl record, it was probably mastered in Logic or Pro Tools and the digital bits sent to an analog decoder to create the die that presses the grooves into the semi-molten PVC.

This article leaves all of that aside. Instead, let us take a look at an area where programming itself is the entertainment (this publication being *The Programming Itself*, after all): the demoscene³.

If you are anything like me (basically, if you are about my age) then your idea of the demoscene is people dressed like characters from the Matrix or Hackers, with appropriately cyberpunk nicknames: PSI, Abyss, Purple Motion (all members of the Future Crew demogroup). They gather around their computer of choice (maybe a Commodore 64⁴ or Amiga⁵, or a Sinclair Spectrum⁶), equipped only with a couple of cold pizzas and a crate of Club Maté⁷, and they create digital art.

In fact that did happen and does still happen, but it is only a part of the demo scene. Many of these people who were kids or teenagers when they started are adults now, and have families and jobs. A large number of those jobs are of course in the IT industry, because the enjoyment and community they found by creating demos enthused them to work on computers as much as they could. Still others are in related fields: digital graphics and music, for example.

A large part of the scene was about free access to the computer's capabilities, so some scenesters became Free Software advocates and Open Source developers—Daniel Stenberg⁸, the creator of `curl`, is C64 demoscene creator “bagder”. Others even became lawyers campaigning for an open internet and supporting organisations including the Electronic Frontier Foundation. The cyberpunk and cypherpunk ethos of information wanting to be free still has resonance among its members.

So what is a demo? On the one hand, it is a program that shows off the capabilities of the computer it runs on. Commodore scored a huge marketing

coup with their “Boing!” demo⁹, which not only animated a rotating 3D polygon following a bouncing parabolic path, but *also* synchronized it with sound effects, *and* multitasked with whatever else you ran on the Amiga. Other demos notable for their technological wizardry include “Chaos Theory”¹⁰ by Conspiracy, a 4-minute exploration of a 3D universe with music and a plot packed into a 64k PC executable, and “Echologia”¹¹ by Busysoft, which packs over 28 minutes of music and graphics onto a ZX Spectrum.

On the other hand, it is a program that shows off the capabilities of the programmer(s) who created the demo. It is not merely impressive that the computer can do this stuff, it is impressive that somebody can *get* the computer to do it. Creators like Fairlight and Virtual Dreams¹² are famous not only through the scene, but through the communities of public domain library users who get their software through public domain disk releases, bulletin board systems, and share parties.

Remembering the community ethos of freedom, there is a big overlap between the world of demos, and the world of software cracking—defeating copy-protection mechanisms in proprietary software to make it easier to distribute (and, coincidentally, easier for the people who paid for the software to use it once they lose the manual, sheet, or dongle with the copy-protection codes). Cracktros¹³ provide a place for crackers to gain credit for their work, give shout-outs to their friends, and demonstrate their own coding skills: all within the constraints of the bootloader that launches the cracked software. For some people, the Lemmings cracktro by Skid Row¹⁴ is as much of an earworm as the actual in-game music. ESI’s cracktro for Maniac Mansion on the C64¹⁵ is probably more advanced use of the computer’s hardware than the game itself.

Contemporary computing platforms need to enable the demoscene’s level of exploration, discovery, sharing, and *fun* to build an enthusiastic and creative community of implementors and evangelists who will use their platforms to the utmost, and create things that enable others to do the same. If people cannot see a whole universe of possibilities with your AI-enabled pin badge or rinkydink 3D glasses, they are not going to buy them.

Cover image credit: screenshot from “Starstruck”¹⁶ by the Black Lotus.

REFERENCES

- ¹ <https://deprogrammaticaipsum.com/jamie-woodcock/>
- ² <https://www.engadget.com/2005-06-27-nine-inch-nails-releases-only-for-garageband-more.html>
- ³ <https://en.wikipedia.org/wiki/Demoscene>
- ⁴ https://en.wikipedia.org/wiki/Commodore_64
- ⁵ <https://en.wikipedia.org/wiki/Amiga>
- ⁶ https://en.wikipedia.org/wiki/ZX_Spectrum
- ⁷ <https://en.wikipedia.org/wiki/Club-Mate>
- ⁸ https://en.wikipedia.org/wiki/Daniel_Stenberg
- ⁹ <https://www.youtube.com/watch?v=UyNr3yaUQA8>
- ¹⁰ <https://www.youtube.com/watch?v=MAhncUNHRW0>
- ¹¹ https://www.youtube.com/watch?v=mkMwVEkyQYo&list=PLcM1XR3zzLGLLwv15_7DqyDIaB8PjCqfH&index=19
- ¹² <https://www.youtube.com/watch?v=CZRGIBcxphs>
- ¹³ https://en.wikipedia.org/wiki/Crack_intro
- ¹⁴ https://www.youtube.com/watch?v=k9aRZ_tGDJQ
- ¹⁵ <https://www.youtube.com/watch?v=stfkI6dnq80>
- ¹⁶ https://www.youtube.com/watch?v=RPdB_zdyMbM

Panem Et Circenses



By Adrian Kosmaczewski

The first issue ever published of Byte Magazine, visible and available on the Internet Archive¹ at the time of this publication, features a bold claim on the cover: “Computers—the World’s Greatest Toy!” Said issue also dealt with the more mundane issues of choosing the best microprocessor for your home kit, building your own assembler, or using a surplus keyboard. But the core idea behind home computing was definitely hedonistic from day one.

Just like with any other human-made instrument, there are two ways to frame entertainment around computers: either as a creator or, more commonly, as a

consumer. The mass-market explosion of home computers in the 1970s and 80s brought wave upon wave of creativity, driven often by programmers fascinated with the emergence of a new medium of expression.

I could have chosen to dive into the history of computer-based entertainment; I could have written about Giorgio Moroder²'s first forays³ into electronic music; about the Utah teapot⁴ model of 1975; about Andy Warhol's portrait of Debbie Harry made on an Amiga computer⁵ in 1985; about the first computerized movies, like "Vol Libre"⁶ (1980), Tron⁷ (1982), "Star Trek II: The Wrath of Khan"⁸ (also from 1982), "Rendez-vous à Montreal"⁹ (1987), or "Tin Toy"¹⁰ (1988). Closer to us, we could talk about "405"¹¹, the first "viral" and homemade short movie featuring heavy CGI, released in June 2000, or "Final Fantasy: The Spirits Within"¹² released in 2001, the first photorealistic computer-generated feature film.

We could, in a more somber tone, discuss how Robin Wright's character sells all rights to her own digital likeness to a Hollywood studio in the 2013 film "The Congress"¹³, and from that point on, elaborate on the perversity of a society where the boundaries between virtuality and reality are blurred forever. Speaking about Hollywood, we could have mentioned the various (and sometimes frankly hilarious) versions¹⁴ of the Hollywood Operating System¹⁵. And finally, we should not forget about Bjork's album-plus-app "Biophilia"¹⁶, released in 2011 for iOS and on Android in 2013 (back in those days, Android apps took longer to make than their iOS counterparts, you know). And let us not even get started with all the "art" generated through LLMs.

But as interesting as the history of computer-generated entertainment is, none of that is the point of this article. This author would like to start from a different point of view: the fact that he is certainly thankful that you, dear reader, have chosen to read this article (and maybe this whole issue) in its entirety, instead of switching to a more dopamine-inducing trip in your favorite smartphone application.

So yeah, thanks for that.

Now the question is, why are we collectively choosing to drown our brains in such content? Are we being entertained? First, I would like to mention that I am not

judging; I am the first to indulge in such vices myself, and with atrocious intensity sometimes.

The answer is simple: we are trying to dive into numbness. We are collectively overwhelmed, and we look for an exit door that does not exist.

Hence, Netflix & chill, TikTok & Instagram, and PlayStation & Xbox; and in between those sessions, we can delegate our email writing and reading to a nearby LLM, which will gladly spit out the same corporate kludge expected by your also-burned-out co-workers.

Gone are the days of reading a good book under the sun or meeting with friends to play a board or a card game all together; our brains have (d)evolved towards a dramatically shorter attention span.

(Speaking about which, we have already discussed chess¹⁷ in this magazine, and attentive readers already know that it was the first game to fall victim to computerization, and in a quite early way for that matter. And since we are on the subject of self-promotion, we have also discussed gaming¹⁸, another important sub-category of computerized entertainment, and even computer museums¹⁹, which are other interesting forms of entertainment; you might want to save all those articles for later reading. But, as usual, I digress.)

The problem is not just that entertainment is produced²⁰ in sweatshop-like conditions, exacerbated by the anti-union²¹ feelings that permeate throughout the collective mind of the common programming folk; we also consume entertainment to escape the world around us, filled as it is with uncertainty and despair.

The (let us be honest, mostly right-wing) ruling elites, aware of the state of destruction they are consciously bringing to the world, perennially invite us to shiny new virtual Colosseums²² where bread and circuses²³ are the norm, to keep us in peace, numb, and quiet... and we accept said invitations, once and again, as an eternal lesson that we avoid learning from, that we repeat *ad nauseam*.

In a 2023 interview²⁴, arguably one of Argentina's greatest rock stars of all time, Carlos "El Indio" Solari²⁵, stated some deep and wonderful ideas about the impact of arts and entertainment in our so-called modern society. In a particular segment,

speaking about the 1960s counterculture and rock and roll, the interviewer, Julio Leiva, asks:

Hoy hay lugar para eso desde la música, o la industria copó todo ya?

Yo creo que sí. Yo creo que deberemos aceptar que debe haber algún género que vuelva a reencauzar un pensamiento, porque la música es un gran difusor de ideas, también, no? Y de ideas lo suficientemente ambiguas para que uno no se transforme en un tirano de uno mismo y de los demás, no? Yo creo, sí, que la música hay que usarla para eso. Yo he tenido bandas de combate, no he tenido bandas de entretenimiento. No me parece bueno tener entretenida a la gente mientras le están metiendo la mano en el bolsillo.

(Minute 00:11:10²⁶)

This deserves a translation into English:

Is there still room for that in music today, or has the industry already taken over everything?

I think so. I think we have to accept that there needs to be a genre that can redirect our thinking, because music is also a great vehicle for ideas, isn't it? And ideas that are ambiguous enough so that we don't become tyrants over ourselves and others, right? I do believe, yes, that music should be used for that. I've had protest bands; I haven't had entertainment bands. I don't think it's right to keep people entertained while somebody is reaching into their pockets.

So what can we do? This magazine is filled with ideas. Raise your eyes from the computer or smartphone or TV screen; stop arguing whether Rust or Go or whether Emacs or Vim or whether Mac or Windows. We urge you, reader of these lines, to rediscover the arts; to visit a nearby museum (even if not related to computers); to read a full book of your choice; to care for your burned-out colleague; to sit in front of a cup of coffee with that good old friend you have not met in ages; to spend more “quality time” (what an atrocious moniker, really) with your close family members.

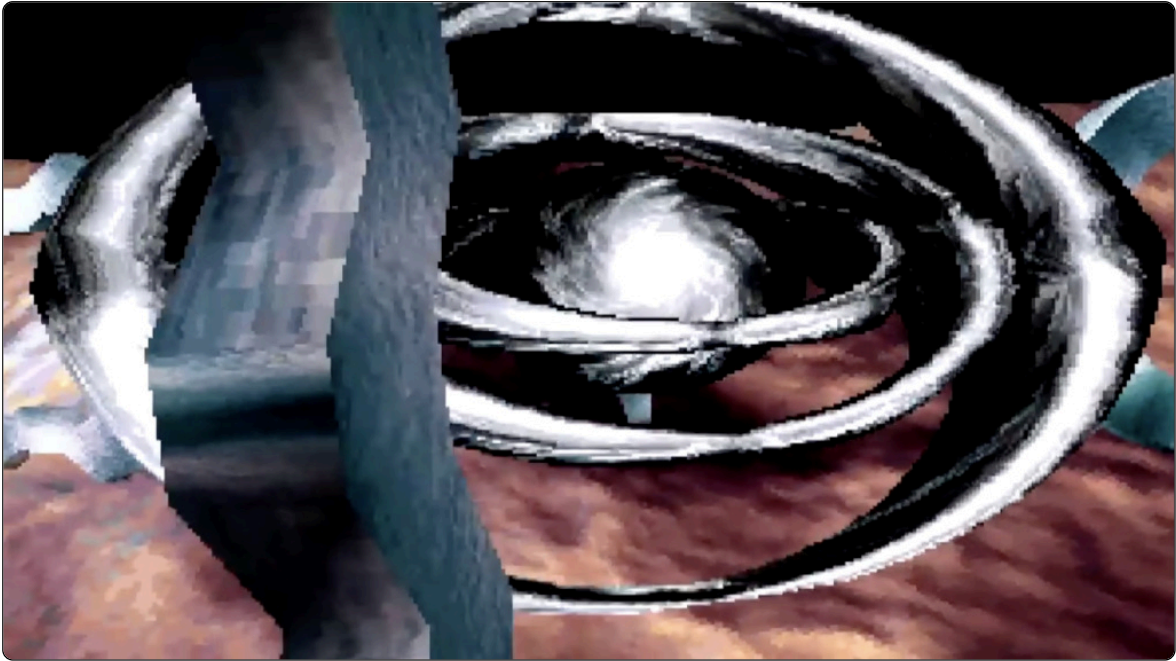
The challenge of entertainment (and, particularly, of the computer-driven kind thereof) is precisely the discovery that we have everything we need in front of us, in the shape of other human beings. Not without irony, we can safely say that the digital world is an invitation to become more analog. Think about that.

Cover photo by Thibault Penin²⁷ on Unsplash²⁸.

REFERENCES

- ¹ <https://archive.org/details/byte-magazine-1975-09>
- ² https://en.wikipedia.org/wiki/Giorgio_Moroder
- ³ https://en.wikipedia.org/wiki/I_Feel_Love
- ⁴ https://en.wikipedia.org/wiki/Utah_teapot
- ⁵ <https://faroutmagazine.co.uk/andy-warhol-debbie-harry-blondie-commodore-amiga-1985/>
- ⁶ <https://deprogrammaticaipsum.com/loren-carpenter/>
- ⁷ <https://en.wikipedia.org/wiki/Tron>
- ⁸ https://en.wikipedia.org/wiki/Star_Trek_II:_The_Wrath_of_Khan
- ⁹ <https://youtu.be/stQ3uWBF-DY>
- ¹⁰ <https://www.youtube.com/watch?v=DWi2WTqD59A>
- ¹¹ [https://en.wikipedia.org/wiki/405_\(film\)](https://en.wikipedia.org/wiki/405_(film))
- ¹² https://en.wikipedia.org/wiki/Final_Fantasy:_The_Spirits_Within
- ¹³ [https://en.wikipedia.org/wiki/The_Congress_\(2013_film\)](https://en.wikipedia.org/wiki/The_Congress_(2013_film))
- ¹⁴ <https://jurassicystems.com/>
- ¹⁵ <https://wiki.c2.com/?HollywoodOs>
- ¹⁶ [https://en.wikipedia.org/wiki/Biophilia_\(album\)](https://en.wikipedia.org/wiki/Biophilia_(album))
- ¹⁷ <https://deprogrammaticaipsum.com/issue/issue-076-chess/>
- ¹⁸ <https://deprogrammaticaipsum.com/issue/issue-053-gaming/>
- ¹⁹ <https://deprogrammaticaipsum.com/issue/issue-046-computer-museums/>
- ²⁰ <https://deprogrammaticaipsum.com/jamie-woodcock/>
- ²¹ <https://deprogrammaticaipsum.com/issue/issue-042-trade-unions/>
- ²² <https://en.wikipedia.org/wiki/Colosseum>
- ²³ https://en.wikipedia.org/wiki/Bread_and_circuses
- ²⁴ <https://www.youtube.com/watch?v=gM3WsJeJWmk>
- ²⁵ https://en.wikipedia.org/wiki/Indio_Solari
- ²⁶ <https://youtu.be/gM3WsJeJWmk?t=670>
- ²⁷ https://unsplash.com/@thibaultpenin?utm_source=unsplash&utm_medium=referral&utm_content=creditCopyText
- ²⁸ https://unsplash.com/photos/person-holding-black-laptop-computer-sanZj62Mf-A?utm_source=unsplash&utm_medium=referral&utm_content=creditCopyText

L33T GUY



By Graham Lee

The opening frames of “The Art of the Algorithms”¹ sets the scene perfectly: a chip tune plays as greeting text scrolls in a waving motion across the screen, reminiscent of a 1980s cracktro². Then, we get a proper title sequence, as electronic music supports a fast-moving tour through the graphics from classic demos.

This documentary is a labour of love, made by a scener to explain the demoscene to enthusiasts and interested outsiders alike. Through clips, commentary, event footage, and interviews, L33T GUY³ shows that the demoscene exists at “the intersection of technology and the liberal arts” claimed by certain large technology companies. These demo creators are artists: graphics artists, musicians, and computer programmers, creating messages for society through their artwork.

The scene draws inspiration from urban art forms. Part music video, part computer game, part digital graffiti, part computer science research (demos have even appeared at SIGGRAPH⁴ conferences where computer graphics researchers try to work out the techniques behind them), demos allow their creators to express themselves and their beliefs in inspiring and surprising ways, just like other art forms. It allows them to socialise with each other, share their tricks, show off their creations, and learn from their peers, through demoparties.

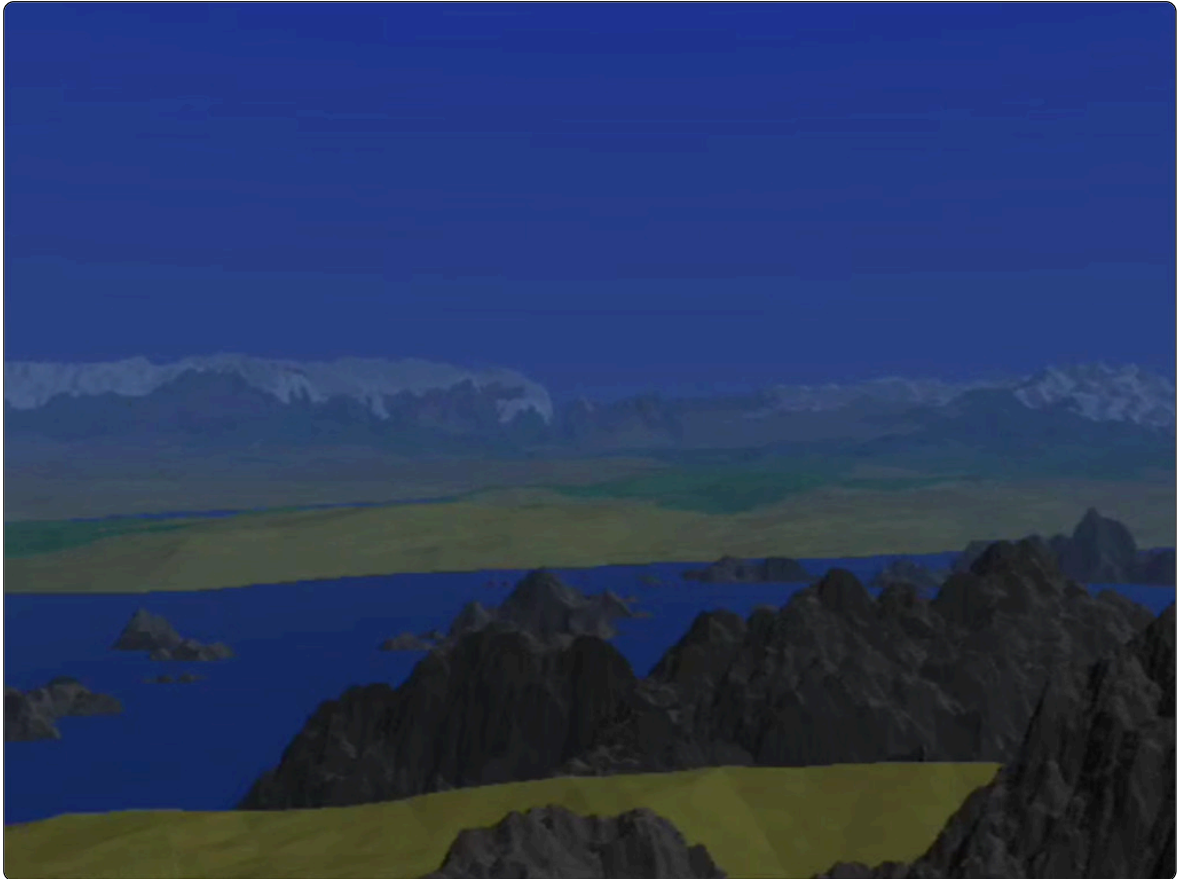
I need not say more: the video⁵ spends an hour and a half showing you what I mean.

Cover snapshot chosen by the author.

REFERENCES

- ¹ https://www.youtube.com/watch?v=5MexnBunH_g
- ² https://en.wikipedia.org/wiki/Crack_intro
- ³ <https://www.youtube.com/@L33TGUY>
- ⁴ <https://en.wikipedia.org/wiki/SIGGRAPH>
- ⁵ https://www.youtube.com/watch?v=5MexnBunH_g

Loren Carpenter



By Adrian Kosmaczewski

The year is 2026, and we take computer-generated movies for granted: Pixar, Illumination, DreamWorks, and a myriad of smaller studios delight us every year with more and more technical and storytelling prowess. Heck, we even have “artificial intelligence” systems that can generate whole movies out of a single “prompt” consisting of a certain amount of words that make a certain sense in a particular context. 50 years ago, however, the prospect of a computer generating images was the subject of intense scientific research.

The challenge was not small; the computers of that age were vastly underpowered compared to those of today, and the kind of images we could dream of required unknown algorithms and data structures, not to mention a non-existent, monumental amount of computing power. The latter problem would eventually and gradually be solved by Moore's Law; for the former part of the equation, that is, the algorithms and the data structures, we can thank the early research of this month's Vidéothèque subject, Loren Carpenter¹.

Not to be confused with his namesake and contemporary director extraordinaire, John Carpenter² (nor, for that matter, with Karen and Richard Carpenter³, also active in the same era), the recently deceased Loren Carpenter⁴ (he passed away last December 21st) paved the way for computer-generated movies as we know them today.

On July 14, 1980, at the SIGGRAPH⁵ conference (a legendary focal point of research in the field of CGI), attendees became the privileged spectators of the first computer-generated movie of all time, "Vol Libre"⁶, a French title that translates as "Free Flight". This movie was a demonstration of the content of a paper titled "Computer rendering of fractal curves and surfaces"⁷, presented by Loren Carpenter at the same occasion.

It is important to set some context first, particularly for younger members of the audience: by the time Carpenter came into the scene, the "Star Wars" (1977) Death Star and trench run sequence⁸ made by Larry Cuba⁹ on a Digital Equipment Corporation PDP-11¹⁰, was considered the pinnacle of computer animation¹¹.

The description of "Vol Libre" on Vimeo¹², written by the author himself, says it all:

I made this film in 1979-80 to accompany a SIGGRAPH paper on how to synthesize fractal geometry with a computer. It is the world's first fractal movie. It utilizes 8-10 different fractal generating algorithms. I used an antialiased version of this software to create the fractal planet in the Genesis Sequence of Star Trek 2, the Wrath of Khan. These frames were computed on a VAX-11/780 at about 20-40 minutes each.

20 to 40 minutes per frame. Let that sink in. Do you know how fast your iPhone renders a full 4K movie on iMovie¹³ these days?

In all honesty, “Vol Libre” looks dated to our modern eyes, slow, and clumsy. It lacks the polish and the finesse of a recent Pixar movie. But to the SIGGRAPH audience of 1980, after picking up their jaws from the floor, this short film represented actual proof that computer-generated movies were not only a theory but a reality (albeit a rudimentary one at the time). History¹⁴ in the making; it is both wonderful and humbling to realize that a whole new industry debuted in a humble conference hall, not even 46 years ago.

The audience erupted. The entire hall was on their feet and hollering. They wanted to see it again. “There had never been anything like it,” recalled Ed Catmull. Loren was beaming.

(Quote from “Droidmaker” on “Vol Libre, an amazing CG film from 1980”¹⁵ by Jason Kottke.)

Loren Carpenter was almost immediately hired by the aforementioned Ed Catmull¹⁶ (recipient of the ACM Turing Award 2019¹⁷) to join an experimental unit of Lucasfilm called “Graphics Group”, dedicated to exploring the use of computers in moviemaking.

“There was strategy in this,” said Loren, “because I knew that Ed and Alvy were going to be in the front row of the room when I was giving this talk.” Everyone at Siggraph knew about Ed and Alvy and the aggregation at Lucasfilm. They were already rock stars. Ed and Alvy walked up to Loren Carpenter after the film and asked if he could start in October.

(Another quote from “Droidmaker” relayed on the same Jason Kottke blog post.)

George Lucas, probably rather skeptical of the whole concept or blissfully unaware of Moore’s Law, would later decide to spin off this unit a few years later, selling it to a certain Steve Jobs¹⁸ (who had just been sidelined at Apple), becoming Pixar¹⁹ in the process.

(Ironically enough, and following the steps of Larry Cuba, the “Star Wars” prequels and sequels would include an insane amount of computer-generated imagery, including a creepy recreation of a young Carrie Fisher²⁰ in the otherwise magnificent “Rogue One”²¹, to the outcry and indignation of most of its fanbase and critics alike. The fact that BB-8²² and Baby Yoda²³ were instead filmed as physical props on set says a lot about how the audiences reacted to CGI. But I digress, again.)

The rest, as they say, is history. As he explained above, Loren Carpenter would reuse the same engine created for “Vol Libre” in the final terraforming scene of “Star Trek II: The Wrath of Khan”²⁴ released in 1982 and arguably the best movie in the Star Trek franchise. Later would come “The Adventures of André & Wally B.”²⁵ in 1984, “Luxo Jr.”²⁶ in 1986, “Red’s Dream”²⁷ in 1987, and finally “Tin Toy”²⁸ in 1988. This last one would become the first computer-generated movie to win the Academy Award for the “Most Disturbing”²⁹ Baby Ever Shown in a Movie Picture” category, and it foreshadowed a fully-fledged franchise known as “Toy Story”³⁰ since 1995.

Meanwhile, the work of Loren Carpenter set the basis not only for the algorithms and data structures required to create a movie inside the memory chips of a computer but also to streamline the industrial processes used by Pixar, and later by all of its competitors, to produce movies. Among the research papers³¹ authored or co-authored by Carpenter, we must mention “Computer Rendering of Stochastic Models”³², “Volume rendering”³³, “The Reyes image rendering architecture”³⁴, “Distributed ray tracing”³⁵, and “The A -buffer, an antialiased hidden surface method”³⁶.

Next time you go to a theater to watch a computer-generated movie, pay attention: we not only have standard-length feature films released simultaneously in various locales, but the characters are actually moving their lips as if they spoke those words in those other languages than English. The labels on things and locations reflect local cultural brands and expressions, different for each region of the world. The animation is buttery smooth, well over the standard 24 frames per second of celluloid film stock productions. And they can even be rendered in 3-D, if needed.

The magic is complete, down to the smallest details, and Loren Carpenter had a lot to do with that.

Watch the second of this month's Vidéothèque movies, "Vol Libre" by Loren Carpenter, on Vimeo³⁷ or on YouTube³⁸. After watching this, do not miss this gem: "Loren Carpenter Experiment at SIGGRAPH '91"³⁹. You will thank me later.

Cover snapshot chosen by the author.

REFERENCES

- ¹ https://en.wikipedia.org/wiki/Loren_Carpenter
- ² https://en.wikipedia.org/wiki/John_Carpenter
- ³ https://en.wikipedia.org/wiki/The_Carpenters
- ⁴ <https://history.siggraph.org/person/loren-c-carpenter/>
- ⁵ <https://en.wikipedia.org/wiki/SIGGRAPH>
- ⁶ <https://vimeo.com/5810737>
- ⁷ <https://dl.acm.org/doi/10.1145/965105.807478>
- ⁸ <https://www.youtube.com/watch?v=m8aYL2l5quU>
- ⁹ <https://www.evl.uic.edu/events/2093>
- ¹⁰ <https://en.wikipedia.org/wiki/PDP-11>
- ¹¹ https://en.wikipedia.org/wiki/Timeline_of_computer_animation
- ¹² <https://vimeo.com/5810737>
- ¹³ <https://apps.apple.com/us/app/imovie/id377298193>
- ¹⁴ <https://www.historyofcg.com/pages/vol-libre/>
- ¹⁵ <https://kottke.org/09/07/vol-libre-an-amazing-cg-film-from-1980>
- ¹⁶ https://en.wikipedia.org/wiki/Edwin_Catmull
- ¹⁷ <https://awards.acm.org/about/2019-turing>
- ¹⁸ <https://deprogrammaticaipsum.com/steve-jobs/>
- ¹⁹ <https://en.wikipedia.org/wiki/Pixar>
- ²⁰ https://en.wikipedia.org/wiki/Carrie_Fisher
- ²¹ https://en.wikipedia.org/wiki/Rogue_One
- ²² <https://en.wikipedia.org/wiki/BB-8>
- ²³ <https://en.wikipedia.org/wiki/Grogu>
- ²⁴ https://en.wikipedia.org/wiki/Star_Trek_II:_The_Wrath_of_Khan
- ²⁵ https://en.wikipedia.org/wiki/The_Adventures_of_Andr%C3%A9_%26_Wally_B.
- ²⁶ https://en.wikipedia.org/wiki/Luxo_Jr.
- ²⁷ https://en.wikipedia.org/wiki/Red%27s_Dream
- ²⁸ <https://www.youtube.com/watch?v=DWi2WTqD59A>
- ²⁹ <https://www.youtube.com/watch?v=DWi2WTqD59A>
- ³⁰ https://en.wikipedia.org/wiki/Toy_Story
- ³¹ https://web.archive.org/web/20161204140529/https://graphics.pixar.com/library/indexAuthorLoren_Carpenter.html
- ³² <https://dl.acm.org/doi/10.1145/358523.358553>
- ³³ <https://dl.acm.org/doi/10.1145/54852.378484>
- ³⁴ <https://dl.acm.org/doi/10.1145/37401.37414>
- ³⁵ <https://dl.acm.org/doi/10.1145/800031.808590>
- ³⁶ <https://dl.acm.org/doi/10.1145/800031.808585>
- ³⁷ <https://vimeo.com/5810737>
- ³⁸ <https://www.youtube.com/watch?v=eSC5-rWKvEY>

³⁹ <https://vimeo.com/78043173>

Jamie Woodcock



By Graham Lee

A superficial view of the videogames sector gives the impression that its employees and customers—the players of the games—are treated much better than at any time in history. Physical media, including EPROMs in cartridges, CD-ROMs, and Blu-Ray discs, have not been the primary method to distribute games since the Xbox 360, PlayStation 3, and Nintendo Wii.

With the end of physical media comes the end of the “death crunch”, that period of development towards the end of the project (but honestly often starting quite near the beginning) where the only way to meet the RTM date (Release to Master,

the time when the final software needs to be sent to the duplication plant to make the media that players buy) is to work longer days and weekends, cancel holidays, and generally cause immiseration among your staff. Once the software is on the cartridge or disk, there is no changing it: any bugs in the code are there for eternity. A famous example is the Donkey Kong Kill Screen¹, where an integer overflow error makes the game unplayable past the 22nd stage.

In the new age of digital storefronts, you release a game before it is ready (maybe the developers of “Duke Nukem Forever”² should read this), as a playable early access preview. You get feedback from players, refine your concepts, and launch when you have got a great product. Not a perfect product—because you can still create hotfixes, updates, and DLC (Downloadable Content) to ship fixes after release and create new mini-release buzzes and sales boosts. In fact, using always-connected gameplay, you can even make tweaks to the game silently, while people are playing it.

Sociologist (and former colleague of this author, at Oxford University) Dr. Jamie Woodcock³ takes a deeper view of the political economics of the videogames industry in his book, “Marx at the Arcade”⁴. We did previously mention this book before, in the “Workers of the Digital World”⁵ bookshelf, and even again, when we focused on the history of BASIC⁶. It is time for a deeper read. Woodcock finds that all is not green fields, golden rings, and performance-enhancing mushrooms over in the videogames field.

The availability of perpetual releases actually leads to perpetual death crunches, where there is always an important marketing launch around the corner and always a deadline for developers to meet. Videogame development has become increasingly atomised, so that while a roomful of people might have worked on an important release in the past (Donkey Kong itself was the work of three Nintendo employees⁷, and era-defining platformer “Sonic the Hedgehog” lists 6 people in the credits), a modern triple-A title might have a longer credits sequence than a Marvel movie. This division, along with the general misconception among knowledge workers that “professional” salaried staff do not need trade unions⁸, leads to a lack of organisation among workers that makes them vulnerable to changes in

working conditions—including the round of redundancies we have been seeing across software in the last few years.

And it is not only the workers being exploited. The shift to online marketplaces has allowed new opportunities for inhumane sales practices, including interrupting gameplay at exciting or critical moments to engage in microtransactions—turning in-game needs for resources into real-world purchases of coins, stars, loot boxes, and other MacGuffins. Mobile gaming developers have taken the playbooks of gambling companies and turned them against people trying to unwind on their commute, or in their living room at the end of a long day.

Woodcock also researches the culture of videogames, taking in such highlights as #GamerGate⁹ (the online harrasment of female participants in the industry under the guise of “ethics in journalism”) and the involvement of the military in normalising (and funding the development of) representations of combat and militarism in videogames, such as the prevalence of first-person shooter (FPS) games. He notes that games that try to present alternative political viewpoints get banned from the distribution platforms, highlighting “Phone Story”¹⁰. In this game, the player forces children to mine coltan to make phones, prevents worker suicides at a FoxConn factory, forces customers to upgrade their phones through planned obsolescence, and creates mountains of e-waste that pollutes environments in Pakistan.

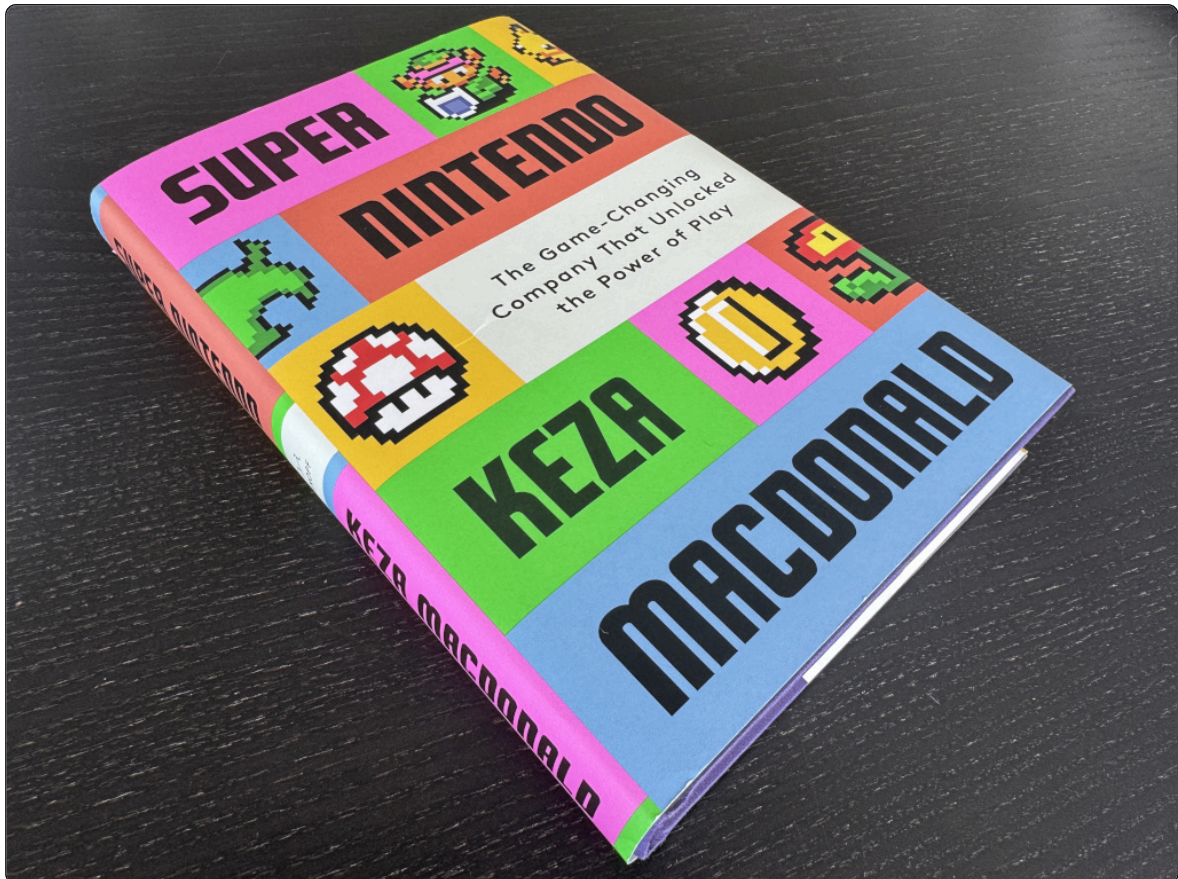
It is a short, but important book, that shows that this corner of the online entertainment industry is sometimes anything but fun and games.

Cover photo by the author.

REFERENCES

- ¹ https://errors.fandom.com/wiki/DK_kill_screen
- ² <https://2k.com/games/duke-nukem/forever/>
- ³ <https://www.jamiewoodcock.com>
- ⁴ <https://www.jamiewoodcock.com/publications/books/marx-at-the-arcade>
- ⁵ <https://deprogrammaticaipsum.com/workers-of-the-digital-world/>
- ⁶ <https://deprogrammaticaipsum.com/mark-jones-lorenzo/>
- ⁷ <https://deprogrammaticaipsum.com/keza-macdonald/>
- ⁸ <https://deprogrammaticaipsum.com/issue-42-trade-unions/>
- ⁹ <https://en.wikipedia.org/wiki/Gamergate>
- ¹⁰ <https://phonestory.org/index.html>

Keza MacDonald



By Adrian Kosmaczewski

Precisely as this issue lands on your browser or e-book reader, “The Super Mario Galaxy Movie”¹ is hitting theaters and receiving (at the time of this article) a rather tepid reception from audiences and critics. A feature film inspired by one of the most popular game franchises of all time, itself the brainchild of a company² that loves secrecy, rarely revealing anything about itself, with a zeal that would make Apple jealous. The second of this month’s Library entries hits with particularly good timing.

Keza MacDonald, the author of “Super Nintendo: The Game-Changing Company That Unlocked the Power of Play”³ (2026), is no stranger to video games; quite the opposite, as she is probably one of the most knowledgeable experts in the field. A passionate gamer since childhood, she is now the video games editor at The Guardian⁴, reviewing releases from all editors and covering major gaming events all over the world.

Such credentials must have obviously played in her favor the day she went knocking on Nintendo’s doors with the subversive idea of writing this book. According to her, the management opened up archives and provided material in such a way that surprised even the author.

The final result is a delightful book, filled with anecdotes about the story of the company, from the late nineteenth century until today, and the various transformations it endured through the ages. (Spoiler alert: no, they did not make video games at the beginning.)

And the focus of her narrative is, unsurprisingly, games. Each chapter is named after a famous Nintendo title, but she uses them as a basis for the “behind the scenes” story: the developers, the marketing strategies, and finally, the management choices that shaped each of those works.

On September 8th, 1993, Nathan Myhrvold of Microsoft shared a memo with his colleagues titled “Road Kill on the Information Highway”⁵. This document contains rather prescient claims:

As the information highway and the growth in computing price/performance progress, new narrative and entertainment formats will develop. Computer games will increase in production values until you won't be able to tell the difference between the game and a movie - they will be equally realistic.

I am pretty sure that the gamers of 2026 among you are nodding frantically. But wait, there is more: Myhrvold somehow also foresaw those “Pokémon GO”⁶ players risking their lives to chase beloved characters in the most bizarre locations a decade ago:

High bandwidth communications over the highway will enable multiple people to come together and share the same experience - real or simulated.

Nintendo has had an oversized impact on the game industry, and it is the only big company that has survived in the market from the early 1980s to today (Sega⁷, at a time one of Nintendo's biggest competitors, partially gave up at the end of the 1990s). Their hardware is regularly derided as less powerful options than that of their competitors, yet they achieve uncanny experiences around them, universally praised as the pinnacle of gaming, decade after decade.

We briefly mentioned Apple in the first paragraph of this article; the comparison is not anodyne, as one of the deciding success factors of Nintendo is the joint design of both hardware and software in a simultaneous dance. One of the most successful examples of this approach is "Wii Sports"⁸, one of the best-selling games of all time, released together with their groundbreaking Wii⁹ console.

Let us push the analogy with Apple a bit further. Shall we compare Satoru Iwata¹⁰, Nintendo's CEO from 2002 to 2015, with Steve Jobs¹¹? There are a few parallels running between them, indeed, the most tragic of which being their premature deaths at almost the same age and for similar reasons. They both excelled at introducing products at legendary events and had an uncanny eye to understand market dynamics. They both understood that weird, unfathomable connection between arts and technology, and both knew how to make an insanely large monetary profit out of it. But only one of them got a biography authored by Walter Isaacson, at least at the time of this publication.

There is a deeper and more interesting theme spread through the pages of Keza MacDonald's book. In an industry that prides itself on burning developers out to churn multi-billion-dollar franchises, Nintendo has an unprecedentedly low level of employee turnover. It is not unheard of for programmers and designers to stay literal decades at their jobs; would not that be a healthy goal for any of us? What kind of Peopleware¹²-worthy management ideas would we need to apply to reach those levels? I doubt that many of my readers work in the human resources department, but still, I hope some of us programmers can point them to revolutionary ideas such as *not having to burn out*. I know, crazy, right?

Through this people-centric culture, Nintendo has become a weird kind of generational business in which the software developers of today creating the games of tomorrow are effectively the same kids who were playing the Nintendo games of yesteryear. This phenomenon is a core feature of how the company works: Keza MacDonald reports on transgenerational teams, consisting of veterans and younger team members, all working together to craft new experiences.

Keza MacDonald also highlights the remarkable work done by Nintendo to foster the presence of women, and rightfully so; not only through immensely popular female characters in their games, but also by literally having all-women teams in their engineering and design departments, building the next blockbuster hand in hand with their male counterparts. In an exhaustingly male-dominated industry, such commitment deserves praise and imitation.

Quoted by Keza MacDonald, and quite honestly summarizing the legacy of Nintendo in our world (beyond the astronomic numbers of game sales and other numerical paraphernalia), French writer Roger Caillois¹³ explored and expanded Johan Huizinga¹⁴'s ideas of "Homo Ludens"¹⁵ in a 1961 essay called "Man, Play and Games"¹⁶.

In it, Caillois established games as a human activity happening on a spectrum between spontaneous whim (known as "Paidia") and disciplined calculation (referred to as "Ludus"): the former representing the primitive joy of movement, improvisation, and joy, while the latter represents the desire to triumph over difficulty with effort, patience, skill, or ingenuity. Both Paidia and Ludus are the psychological fuel that drives the countless nights we spend in front of our game consoles, very often bearing the Nintendo moniker on them.

Cover photo by the author.

REFERENCES

- ¹ https://en.wikipedia.org/wiki/The_Super_Mario_Galaxy_Movie
- ² <https://en.wikipedia.org/wiki/Nintendo>
- ³ <https://www.penguinrandomhouse.com/books/753986/super-nintendo-by-keza-macdonald/>
- ⁴ <https://www.theguardian.com/profile/keza-macdonald>
- ⁵ <https://nsarchive.gwu.edu/document/22837-document-03-nathan-p-myhrvold-microsoft>
- ⁶ https://en.wikipedia.org/wiki/Pok%C3%A9mon_Go
- ⁷ <https://en.wikipedia.org/wiki/Sega>
- ⁸ https://en.wikipedia.org/wiki/Wii_Sports
- ⁹ <https://en.wikipedia.org/wiki/Wii>
- ¹⁰ https://en.wikipedia.org/wiki/Satoru_Iwata
- ¹¹ <https://deprogrammaticaipsum.com/steve-jobs/>
- ¹² <https://deprogrammaticaipsum.com/tom-demarco-timothy-lister/>
- ¹³ https://en.wikipedia.org/wiki/Roger_Caillois
- ¹⁴ https://en.wikipedia.org/wiki/Johan_Huizinga
- ¹⁵ https://en.wikipedia.org/wiki/Homo_Ludens
- ¹⁶ https://en.wikipedia.org/wiki/Man,_Play_and_Games