A Broad Assessment of Contemporary Video Game Preservation

By Cole Kronman

On November 20th, 2020, Nintendo cracked down on two instances of video game piracy.

The first was a standard lawsuit against an online storefront selling modification hardware that allowed Switch users to run software not typically available for the system. Notable, though, was this sweeping claim appended to the official court documents: "[Video game piracy] is a serious, worsening international problem."[1]

The second received widespread attention and backlash. In response to competitive *Super Smash Bros. Melee* players using unofficial emulation software to play their game online in a major tournament - a decision made in lieu of in-person events - Nintendo issued a cease and desist, leading to the tournament's cancellation.[2] This was a stinging inflection point in the company's long-running relationship (or maybe "standoff" would be more apt) with the *Melee* community, a relationship that is indifferent at best and spiteful at worst.

*Super Smash Bros. Melee,* nor the only console it runs on, have been sold commercially in over thirteen years.

**Part 1: Official Video Game Preservation, Past and Present**

For the entirety of its history, games preservation efforts have been split among two distinct groups: official, and unofficial. That is to say, there exists a sizable gap between the

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[1] https://www.ign.com/articles/nintendo-says-game-piracy-is-a-worsening-problem

[2] https://www.theverge.com/2020/11/20/21579392/nintendo-big-house-super-smash-bros-melee-tournament-slippi-cease-desist

work being done by professional archival organizations and video game companies, and the work being done by hobbyists, pirates, and guerilla historians.

Official preservation efforts have a largely nebulous history until the 2010s, though we can glean as much from preservation failures as we can from successes: for instance, it was reported in 2019 that Square Enix, one of the most prominent developers in the industry, had lost a great deal of source code for its older games,[3] either recovering it by chance or - as is infamously the case with the HD remaster of *Kingdom Hearts* - recreating it from scratch.[4] Given that *Kingdom Hearts* was released in 2003, we can assume that Square lacked proper archival infrastructure in the early 2000s, decades after its initial founding.

There are other, similarly-dated notable examples. When the *Silent Hill HD Collection* was released in 2012 for the PlayStation 3 and Xbox 360, developer Konami revealed that the remasters were built from "incomplete" source code.[5] More recently in 2017, a man who made a bulk eBay purchase of "Blizzard stuff" found, by chance, a disc containing the source code for the original *StarCraft*, dated 1998 and long since thought to have been lost. For bringing it forward, he was awarded $250 in Blizzard store credit.[6]

In 2011, when *Gamasutra* conducted an extensive, three-part study-cum-survey on the past and then-current state of video game preservation, a clearer picture of company archives began emerging. For this study, titled "Where Games Go to Sleep," video game historian John Andersen reached out to 61 video game developers worldwide with queries about their archival efforts, receiving 14 responses. Sure enough, the aforementioned incidents are not isolated, and are in fact reflective of industry-wide preservation issues going all the way back to the early

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[3] https://www.rockpapershotgun.com/2019/06/13/square-enix-digital-preservation-plans-slowed-by-lost-code/
[4] https://www.siliconera.com/kingdom-hearts-1-data-is-lost-square-had-to-recreate-everything-for-hd/
[5] https://www.eurogamer.net/articles/2012-05-29-silent-hill-hd-collection-ported-from-unfinished-code
[6] https://kotaku.com/guy-finds-starcraft-source-code-and-returns-it-to-blizz-1794897125

1980s. Many anecdotes relayed to Andersen were predictably grim: representatives from Taito and Capcom - two progenitors of the early arcade boom - admitted that no preservation policies existed in their companies' early history, and that recovering old software and hardware frequently proved difficult.[7] Atari Corporation was responsible for unloading filing cabinets filled with video game source code, artwork, and marketing materials in the mid-80s, either selling them to unsuspecting, bewildered buyers, storing them in warehouses, or throwing them in the garbage.[8]

Though the days of leaving old hard drives to collect dust in developers' garages are largely behind us, the modern state of corporate games preservation is still rather perilous. I reached out to Andersen to gauge how much the industry's approach has changed since his 2011 study, and he told me that most major game development companies still lack active archiving and preservation standards. In his words: "They may not have an official archivist or 'vault.' They may unofficially give that responsibility to someone in marketing, PR, or someone in the IT department." Furthermore, the pace of modern game development is so rapid, and employment is so mercurial, that locking down a preservation sector is exceedingly difficult in modern corporate structures. According to Andersen, "Game developers and publishers need to stop thinking of themselves as short-term entertainment. It's going to take a catastrophic event (like the Universal Studios fire) for major companies to invest in actual vaults or off-site archival solutions that are away from dangerous elements. They have the money but they don't have the initiative."

Structured, large-scale corporate archives are altogether rare enough that, according to multiple archivists I spoke with, the only major companies that currently have them are

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[7] https://www.gamasutra.com/view/feature/6301/where_games_go_to_sleep_the_game_.php?print=1
[8] https://www.gamasutra.com/view/feature/134641/where_games_go_to_sleep_the_game_.php?print=1

Nintendo, Blizzard, and EA. The majority of (legal) major archival work in the 2010s has been undertaken by third-party institutions not directly affiliated with any one video game company - two prominent, U.S.-based examples are the Strong National Museum of Play in Rochester, NY and the Video Game History Foundation in Oakland, CA. The latter, helmed by archivist Frank Cifaldi, is a nonprofit archive with a vast repository of digital and physical media. The former serves the same function, with the added benefit of being a publicly-accessible museum with interactive exhibits for guests. Both institutions work to recover and preserve data and material thought to be lost; the Video Game History Foundation, for example, has an ongoing project to preserve the raw source code of older games, and is in the process of building a research library for video game historians. The Strong Museum, meanwhile, is currently working with multiple outlets to preserve as many Adobe Flash-based games as possible before the program becomes obsolete. They also recently finished digitizing thousands of floppy disks. Both institutions also do significant work to preserve media *surrounding* games, like strategy guides, promotional materials, artwork, and design documents - all crucial parts of gaming history.

I was unable to get in touch with Cifaldi, but had a lengthy conversation with Andrew Borman, an archivist at the Strong Museum whose official job title is "curator of digital games." Borman was overall more optimistic about the present state of institutional archiving than Andersen, primarily because he's seen firsthand what's possible when an organized, specialized team is given the resources and time to work toward a common preservation goal. Crucially, though, their capability only goes as far as the developers' willingness to cooperate, and this is what sets them apart from the hobbyists: the work of archives and museums is officially sanctioned, and without direct contact with and approval from developers, they have no right to work with copyrighted material. It all comes down to what corporations feel comfortable sharing

their history, and this in turn poses a risk of narrowing the scope of gaming history to only that which the top brass deem worthwhile.

And there's the issue of accessibility, too. The vast majority of the physical media and data stored in institutions like these, while playable, is not available to the general public, and legally can't be: making it universally accessible via file sharing or browser-based methods would be infringing on copyright under DMCA laws. One runs aground of the playability question: is games preservation worth it if a great deal of these efforts don't result in playable experiences? Games are unique in the sense that they can't be fully appreciated from a distance; while these official archives do a commendable deal of heavy lifting with regards to storage, the lack of playability significantly inhibits their cultural impact and presence in the zeitgeist. Why preserve a video game that hardly anyone can play? (There are many reasons, of course, but none can adequately dismiss this fundamental hole in the play experience.)

**Part 2: The History and Benefits of Video Game Piracy**

Which is where piracy comes in. Piracy is the quiet whisper accompanying nearly every discussion of video games preservation, and depending on one's position in the industry, it's either a saving grace, a necessary evil, or just plain evil. Every archivist I've spoken with is, if not wholly supportive, recognizant of piracy's value. I wasn't able to speak with any representatives from larger companies, but there's little need - through words and especially actions, they speak for themselves.

I opened this piece with two recent anecdotes about Nintendo for a reason. Historically, the company has been extremely stringent about its anti-piracy measures, and was directly responsible for shutting down multiple high-profile (but still illegal) ROM sites in 2018.[9] It's no surprise, given the history of video game emulation: a Nintendo 64 emulator, UltraHLE, is

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[9] https://www.polygon.com/2018/7/22/17600008/nintendo-roms-lawsuit-cease-desist

commonly regarded as the first major leap forward in emulation software, since it was capable of running current-generation games at stable framerates without the need for native hardware.[10] It was released on January 28, 1999, and Nintendo filed a lawsuit against its creators less than a week later.[11] This marked one of the first times a major developer interfered with freeware emulation, and the rapidity with which they did so sent a clear message to other would-be pirates: "what you're doing is illegal, and we'll be on your ass in a second."

Nevertheless, piracy persisted, and still does. Downloading an emulator and any number of preferred ROM files is a couple quick Google searches away. Even with the continuing crackdown on these websites, more spring up in their place, and lesser-known back channels continue to thrive. They're largely run by hobbyists with enough passion and free time to build emulators (which remains a difficult, cumbersome, imperfect process) and dump files from their personal libraries. Whether they're doing so as a legitimate archival act or to simply avoid paying for a video game is largely irrelevant. The end result is a massive online library of out-of-print games that would, otherwise, be largely inaccessible, for either financial or hardware-related reasons (or both).

I got in touch with an ex-video game archivist (who wishes to remain anonymous) whose personal experiences in the industry have led them to the conclusion that piracy plays a necessary role in preservation. During their time trying to establish an ordered, efficiently-run archive at a major studio, they received continuous pushback from upper management, who were interested primarily in turning a profit with new material and saw preservation largely as a waste of time. Their sentiments echoed Andersen's: the pace of modern game development is much too fast for most companies to invest time and money in complex preservation strategies.

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[10] https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1022&context=njtip
[11] https://web.archive.org/web/19990502230434/http://www.techweb.com/wire/story/TWB19990202S0009

And when they *do* invest time and money in preservation, it's often with intent to reap profit from nostalgia. Almost every generation of game consoles has received a steady trickle of ports (straightforward re-releases with no significant changes) and remasters (re-releases with tuned-up graphics and quality of life changes) of older games that, for one reason or another, are "unplayable" or "outdated." Within the past ten years, though, that trickle has turned into a deluge, as the rise of digital video game marketplaces has mitigated the inherent costs of storing and producing relatively low-budget re-releases on physical media. (Andersen told me that, broadly, games companies didn't start taking preservation seriously until the rise of online games and storefronts in the mid-to-late 2000s.) The games that are ported, remastered, and remade are generally those seen as culturally significant and held dear by a large swath of the gaming populace, and charging customers for the ability to play them on modern systems presents a lucrative business opportunity. (Nintendo, which sells one-generation-old Switch ports of Wii U games for a full $60, is a particularly egregious example of this.)

Perhaps this assessment is unfairly cynical. The preservation efforts of porting companies like D3T and Bluepoint are legitimate, and the price points affixed to ports are, strictly speaking, necessary for recouping budgets. For example, the modern-gen D3T-developed ports of *Shenmue I* and *II* required a herculean amount of development effort considering the Dreamcast's unique architecture, and were helmed by a team passionate about both games (certain elements were still lost in transition: the real-world product placement present in the original releases was replaced with generic branding due to expired contracts). It's not my goal to devalue accomplishments like this, nor to understate the crucial role they play in accessibility. Even if one owns the hardware needed to run these older games, the games themselves, if they hold any cultural value,

are often prohibitively expensive (a cursory Google search yielded no results for copies of the original *Shenmue* for less than seventy dollars).

We hit an inevitable snag with the notion of "cultural value," though. As appreciated as individual re-releases are, retaining a certain degree of skepticism regarding officially-sanctioned ports and remasters is healthy: should we really entrust capital-driven corporations with deciding what is and isn't worth preserving? Piracy, here, is the answer to multiple dilemmas - the accessibility dilemma posed by official archival institutions, and the availability dilemma posed by the catalogues of older games companies present us with. Though piracy of specific, more sought-after games may be prioritized over that of others, the field is inherently indiscriminate. Unbound from the demands of marketing, profitability, and mass appeal, video game pirates are free to catalogue whatever they want, in whatever volume they want, and as quickly as they can. There would be virtually no audience for a remaster of *March of the Penguins* for the Game Boy Advance, but on the infinitesimally small chance a desire or need to play it arises and one lacks the necessary means, an illegal ROM will always be there. (To verify this specific example, I located, downloaded, and tested a ROM for *March of the Penguins* on an unofficial GBA emulator. The whole process took about five minutes.)

We've seen this ethos operate in more structured archival environments, too: in 2015, archivist Jason Scott led a project to catalogue thousands of MS-DOS games, making them publicly accessible and fully playable through the Internet Archive. Scott's approach made no distinction between "popular," "culturally significant" or "good." As he wrote on the Internet Archive blog, the team targeted everything "from the earliest simple games in the first couple years of the IBM PC to recently created independent productions that still work in the MS-DOS environment." The legality of the whole project is somewhat gray, operating, as with much of the

Internet Archive's material, under DMCA haziness. But it's reflective of what can be accomplished when unshackled from corporate control.

My anonymous contact was particularly outspoken about en-masse preservation. "We need to save as much as we possibly can," they said, "or else corporate hawks will limit history forever." They stressed the importance of accessibility, stating that "a game that isn't playable is not a game." Most harrowingly, they brought up the fact that only 10% of films from the silent era survive today, either because of natural disasters or general negligence. "We'll be lucky to save even that much," they said. Knowing what I know now, I'm inclined to agree.

**Part 3: Preservation Difficulties, and Possible Paths Forward**

Both branches of preservation I've outlined here face numerous challenges going forward, and their success depends on a number of factors, some inherent to the medium, others not.

Video game hardware and software development moves at a far brisker pace than that of film and music. The latter two mediums have changed physical formats several times since their inception, but between the current console developers - Nintendo, Sony, and Microsoft - video games effectively gain *three* new formats once every 5-7 years, and the previous three become obsolete unless backwards compatibility (the ability to play older physical media on a newer console) is made available. There is a constant need to re-evaluate how we're preserving our media.

Suggesting digital storage as the alternative is tempting, but brings its own share of problems. Because of how quickly games hardware changes, and how uniquely tied to individual consoles certain games are, digital preservation and emulation can never fully duplicate original console play experiences - only approximate them. (I think of a game like *The World Ends with*

*You*, which utilized both the top and bottom screens of the DS simultaneously, while also incorporating touch screen and microphone mechanics. Accurately recapturing such an experience on a standard computer would be impossible.) And the more recent industry-wide push toward digital-only formats hasn't done archivists any favors - to quote my anonymous source, "If you own a disc, it's yours. But if you own a string of ones and zeroes beholden to software licenses, you don't actually own anything. It could disappear at any time, for any number of reasons."

All forms of preservation reckon with ephemerality. Video games just need to reckon with it faster. The overwhelming consensus from my sources was that companies need to drastically overhaul how they handle older material, and that video game archiving, as a practice, needs to be taught and practiced on a much greater scale. The field is currently quite niche, and the breakneck pace and uneven structure of modern video game development is a major obstacle to its growth. This necessitates discussion of other widespread issues that lie beyond the scope of this piece, like crunch, workplace harassment, and a lack of unionization (all three of which my anonymous source dealt with).

Until this overhaul takes place - and after it, too - piracy remains necessary. It's the primary conduit through which the casual hobbyist or historian can play, research, and even modify older games that they would otherwise not have access to. Speaking from personal experience, I was only able to play the sequel to *Earthbound*, *Mother 3*, because of emulation: widely hailed as a masterpiece, it was never released outside of Japan, until a passionate team of fans banded together to release an unofficial translation patch for the ROM. As a direct result of piracy, the game has achieved significant recognition and critical scrutiny in the West. It's one of

my personal favorite games, and jump-started my own interest in guerilla archiving and distribution.

Emulation's importance even in legal institutions can't be understated. In my discussions with Andrew Borman, it became clear that the Strong Museum was only able to conduct a great deal of research and testing due to advancements in emulation, as the original hardware may be damaged or unavailable. "Piracy isn't within our purview," Borman said, "but I can't deny its importance. The paths of official and unofficial preservation often intersect in unexpected ways." He went on to tell me that many of their exhibits were made possible through emulator-based hardware like Retrocade and Raspberry Pi. Though consoles like these are legal, the emulation software they utilize has its roots in piracy.

Video game piracy is only a "problem" inasmuch as a lack of a concentrated, rigorous, top-down archival infrastructure from major manufacturers is a problem; as long as the latter persists, so will the former. I have no interest in debating piracy's legality or figuring out how to exploit loopholes. Most of this work is very transparently illegal, and will remain that way. But, given the current state of the field, it's a necessity. There is important work being done within legal bounds - I believe Borman when he tells me that the big companies are starting to take preservation more seriously. But just as they have their focus, pirates have theirs: complete, unmitigated access to as much video game history as possible. With any luck, more than 10%.