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Platform Studies' Epistemic Threshold

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Abstract

In recent methodological scholarship on digital games, a strong connection is noted between "platform studies" and media archaeology. While platform studies has its critics, who primarily lament the limitations of the project, a recent spate of publications in the field suggests considerable dynamism in platform studies as the concept is further developed. This article argues that by examining platform studies from the perspective of media archaeology, it becomes apparent that platform studies establishes an "epistemic threshold". Additionally, platform studies is a historical method which both establish continuities and mark breaks with previous platforms and technologies. From the perspective of this threshold, this article explores epistemic questions that arise from how platform studies forms an archive, and how media archaeology can enrich the method's explicit concerns and engagements with technology and culture.

Keywords

platform studies, media archaeology, game studies, archive, Zielinski, critical practice

Racing the Beam, published in 2009 by MIT Press, was the first in the "Platform Studies" book series. The authors, Nick Montfort and Ian Bogost, were to become the editors of the series as well as the chief instigators of this new mode of analysis. Drawn from Montfort's earlier work (2003, 2006) as well as Bogost's (2006) work on technical limits, innovation, and creativity, *Racing the Beam* was a claim to a new

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methodological approach. Yet, the claim remained simply a claim that demonstrated rather than explicated the qualities of platform studies. Aside from a series foreword (which has been included in all the books on the series to date), a short coda, and a short conference paper refuting common misconceptions about platform studies (Bogost & Montfort, 2009), Montfort and Bogost primarily *performed* platform studies rather than explicate its method.

The methodology of platform studies was deliberately left open. Montfort and Bogost only defined it by positioning the central concern of the book series as considering platforms "seriously" and understanding "their relationship to culture and creativity" (2009, p. vii). This core concern was embedded by three features that each book on the series would share:

> A focus on a single platform or a closely related family of platforms.
>
> Technical rigor and in-depth investigation of how computing technologies work.
>
> An awareness of and discussion of how computing platforms exist in a context of culture and society .... (Montfort & Bogost, 2009, pp. vii–viii)

This intervention is important, primarily for bringing "a new medium-specificity to the analysis of digital media" (Parikka, 2012, p. 87). In this article, we will expand on the significance of platform studies by mapping how it resonates with a range of other theoretical and practical concerns that have emerged in media studies over recent years. In particular, we aim to illustrate how key themes that have surfaced in the area of media archaeology offer strategies that may enrich and highlight platform studies as a historical and material methodology for investigating the significance of digital games, and indeed other media, in technical media culture. Of course, there might be other discussions to be had—such as platform studies' relation to other historical methods or science and technology studies, for example, but our focus in this text is on media archaeology and related practice-based methodologies.

Platform studies is not without its critics. Dale Leorke (2012) suggests that platform studies is simply a "brand." Leorke's critique has implications on two levels. First, he perceives the series as a franchise that is constrained and contained by Montfort and Bogost's (2009) briefly outlined framework. Second, Leorke suggests a certain discomfort about the way that the ownership of platform studies is asserted—the allusion here being to the practice of branding free-roaming cattle to prove ownership. While many scholars have studied platforms using other methods—for example, Burgess and Green's (2009) study of YouTube or Tobin's (2013) study of the Nintendo DS—Monfort and Bogost have identified platform studies as an area of research. Indeed, several critiques of the implied stability of the platform have recently emerged (e.g., Dyer-Witheford, 2013; Hands, 2013). Other work traces the discursive use of the word platform, both in the discourse of the contemporary digital media industries (Gillespie, 2010) and in the context of biomedical discourse (Keating & Cambrosio, 2003, pp. 25–47). In order to remain concise, this

article focuses on examining Montfort and Bogost's perspective on platform studies and how it has been used and expanded by other authors writing in the series.

Montfort and Bogost do not suggest that platform studies has emerged from a vacuum. They prudently draw parallels between platform studies and other key work taking place in the critical humanities, notably Alexander Galloway's (2004) work on packet switching and Matthew Kirschenbaum's (2008) work on hard drives. The theoretical transportation of ideas into platform studies is crystallized in Kirschenbaum's *Mechanisms: New Media and the Forensic Imagination* (2008), which is an "exemplary" illustration of a media archaeological approach to software (Parikka, 2012). The work of Wardrup-Fruin (2009) in this area is emblematic of more well-established, common and complementary, concerns of media archeology and software studies. Clearly, platform studies emerges alongside a fruitful milieu of recent scholarship focused on developing new critical humanities techniques to study technologies and technocultures on their own terms.

Platform studies has also come to the fore amid a renewed interest in issues around the history of digital games (e.g., Guins, 2014; Newman, 2012). Recent studies of platforms within the framework of media history include Camper's (2012) analysis of the Williams Arcade platform and Whalen's examination of the Fairchild Videogame System (2012). Other scholars such as Huhtamo (2005, 2012), Nooney (2013), Parisi (2013), Pias (2011, 2015), Strauven (2011), Verhoeff (2012), and Wilson (2008) have engaged with digital games using conceptual tools from media archaeology. The way that platform studies resonates with the diversely constituted fields of media archaeology has already been postulated (Apperley & Jayemanne, 2012; Parikka, 2011, 2012). Specifically, the two approaches share a concern with the historical analysis of recurring discourses and alternative paths of media history.

This article elaborates these interconnections between platform studies and media archaeology, focusing on two areas:

- the archive used to reconstruct the platform and
- how the issue of creativity is foregrounded.

The intention is not to dismiss the core concerns of platform studies, but rather to use media archaeology to locate conceptual paradigms from the existing studies of individual platforms that can provide a basis for an explicitly articulated critical methodology of platform studies. In particular, we will organize our discussion around the concepts of the *epistemic threshold* and *media anarchaeology*, which illuminate several implicit assumptions of the platform studies methodology. However, our intention in bringing these assumptions to the forefront is not simply to highlight several potential problems with the method, rather we present these media archaeological tools as a starting point for connecting platform studies to a body of work that adds to its (already considerable) intellectual and methodological scope. In particular, we are concerned with opening the notion of platform in the study of

digital games to an alternative, widely cast definition that encourages engagement with contemporary media theory and critical artistic practice.

The Epistemic Threshold

One way to understand the impact of platform studies in games and media research is to address it in the context of epistemic thresholds (see Parikka, 2012; Elsaesser, 2004). Elsaesser, through means of conceptualizing the impact of "the digital" on cinema history, establishes the position of a threshold to negotiate the diverging yet mutually constitutive approaches to film history. The notion of threshold aims to offer a more complex picture of historical change than accounts that assume constant continuity or even progress, or which posit history through a radical epistemological break or rupture with the past (2004, p. 80). Elsaesser has issues with both positions, railing against the linear, chronological, and teleological models found in traditional film history just as much as he does against solely focusing on "epistemic breaks" with the past (p. 80). However, he maintains that the threshold between incremental change and total reconceptualization is an opportunity to reassess historical approaches in new complex ways (p. 78). The epistemic threshold is a "heuristic device" (Parikka, 2012) that cuts between novelty and history to develop and reflect on knowledge of media outside of the rubrics of "old" and "new." We argue that this perspective is implicit in platform studies, and this article demonstrates what is at stake in foregrounding the epistemic threshold in the platform studies methodology.

Montfort and Bogost's curatorship of the platform studies book series has developed strong connections to the analysis of video games and into general computing. In the case of the Wii, this genealogy is tied to the corporate history of Nintendo (Jones & Thiruvathukal, 2012), in *Flash: Building the Interactive Web* (Salter & Murray, 2014), the focus is not just on the iterative development of the software platform by FutureWave Software, Macromedia, and eventually Adobe Systems but also the enduring influence that Flash had on the amateur and professional developer community, particularly in terms of aesthetics. The books on the Atari VCS (Montfort & Bogost, 2009) and Commodore Amiga (Maher, 2012) mark the influence of those platforms on the genealogy of digital gaming consoles or home computers more generally. These positions are largely contradictory and neither an absolute break nor a causal continuity is asserted. But rather than focusing on negotiating this contradictory positions, we suggest that this threshold position can be more effectively occupied by turning to an "'archaeological' perspective" (Elsaesser, 2004, pp. 98–99). This perspective is open to nonlinear understandings of technology which, rather than celebrate incremental innovations, emphasizes that the history of media technologies is traversed by multiple potential pathways, technological dead ends, lost histories, circuitous routes, and alternative conceptions.

This, we believe, challenges a certain consistency to the notion of "platform" that is assumed through platform studies. We suggest that platforms are not recalled and

rediscovered through platform studies, rather *in the process of "doing" platform studies, a uniform platform is produced*. This makes the theoretical and methodological lenses that platform studies uses to produce the platform an immediate and central concern for the media history of digital gaming hardware, software, and cultures. The technical specificity with which platform studies conceptualizes the platform as computational cannot avoid association with other definitions, particularly when platform is mobilized as a crucial term in contemporary corporate discourse (Gillespie, 2010). "'Platforms' are 'platforms' not necessarily because they allow code to be written or run, but because they afford an *opportunity to communicate, interact or sell*" (Gillespie, 2010, p. 351, emphasis added). Platforms, then, are not just technologies but techniques that sustain interactions as well as offer an epistemological framework.

In terms of the existing platform studies methodology, however, the investigation of a platform is relatively straightforward. A scholar in the present examines a platform that exists. The evidence of its existence must be unambiguous. To achieve this recognition, the platform requires a degree of *stability and consistency* as a technical object: Engineers and designers have established a blueprint that demarcates an envisioned sweet spot that elides a past of dialogue, struggle, and compromise between supply, cost, efficiency, and market research. Factories exist, or once existed, where the various components are produced; while in other factories, the platform is assembled. The platform is (or was) marketed, with a campaign that was more or less nuanced, focusing on particular high impact (or specialist) markets, using various kinds of media forms that are appropriate to particular times and spaces. This campaign may also be accompanied by analysis in popular media in the forms of reviews, commentary, technology and industry news, and even financial news. Also shaping this discourse is the inevitable "media panic" stories, pointing toward issues such as linking digital games with addiction, crime, obesity, and antisocial behavior or even how every new platform brings with it a new injury: Pacman finger, the Wii tennis elbow, the list goes on. Just as they cause injuries, platforms contribute to a wide range of social habits, assemblages, and cultural techniques (see Winthrop-Young, Iurascu, & Parikka, 2013).

The goal of platform studies is to examine one platform (or a closely related series of platforms). *Connecting technology to social and cultural practices* is also a key concern of the method (Bogost & Montfort, 2009; Montfort & Bogost, 2009, pp. vii–viii). We suggest two crucial issues that characterize platform studies' epistemic threshold: the platform studies archive and platform studies' too straightforward approach to creativity.

The Platforms' Archive

Platform studies does not focus only on reading and interpreting textual sources. While the core goal of platform studies is to focus on the specificity of individual "computational platforms" (Bogost & Montfort, 2009), it makes use of a variety

of materials to place the platform at the center of a materially grounded discourse. This material-discursive formation is produced through an often unarticulated or obliquely delineated archive of developer interviews, end user responses, software, and other material from video game subculture that Mia Consalvo (2007) has dubbed "paratexts"—primarily journalism and marketing materials. This archive is important because it produces a particular *material doubling*, where the material-discursive conditions of the individual platform and the archive for conducting platform studies are a congruent operation. As a consequence of this doubling, the intention to approach the platform as a historically stable object is imbricated in the processes of the production of an archive.

This means that platform studies entails a particular type of archive. Particularly important is that the platform must have produced and distributed a sufficient volume of software and other secondary materials to make up an archive that allows it to be stably reconstituted through platform studies. This raises two key issues. First is the indiscernible role of the users of the platform in platform studies. The existence, whether contemporary and/or historic, of a community of users is central to platform studies. A large portion the archives of existing platform studies draw from publicly available materials, particularly commercial software and paratexts, but underlying the success and viability of platform studies is the potential to evoke the *embodied memories and experiences of users*. While platform studies includes the users of platforms in its address, the embodied memories of users are not as yet core to the platform studies archive. Second, platform studies has a problematic limit defined by which platforms are "successful" enough to attract an audience and thus develop the archive of relevant material that is necessary for a rigorous and sustained platform studies analysis.

Invisible Users

To what extent do the practices of the users of platforms form and inform the platform studies archive? In addition to understanding the creativity of the platforms' designers and programmers, we suggest that platform studies could be enriched by accounting for the creative and everyday practices of the community of users. Through software, users explore the hardware, although the software interface often establishes the limits of their discoveries. In some cases, though the platform was also "played with," for example, the common act of clearing dust from software cartridges by blowing on them, now considered to be largely a ritual that actually damaged the cartridges (Plunkett, 2012). But playing with the platform could also go much further, which is demonstrated by Salter and Murray's analysis of the community of developers that contributed to Flash "through experiments and creative works," shaping the development of the platform and its role in cementing the aesthetic of the interactive web (2014, p. 7). This is an area where media archaeology lends an approach that extends beyond the stabilized platform produced through the commercially established and mass marketed digital games industry, to also include

experimental, imaginary, and playful platforms. In this context, *The Future Was Here: The Commodore Amiga* (Maher, 2012) illustrates how the software practices of the hobbyist community are crucial for understanding how the use of, and experimentation with, a platform can play a crucial role in knowledge formation and future creative practices. Salter & Murray (2014, pp. 46–52) also emphasize the role of amateurs, arguing that Flash's "communal approach remains a model for sustainable platforms" (p. 63). But there are many other instances where hobbyist communities have played a crucial role in the shaping of the platform. For instance, early commercial home computer platforms such as the Sinclair ZX80 demanded concrete hardware building from their owners (Donovan, 2010, p. 113). These material practices were supported by wider hobbyist communities that circulated tapes and newsletters containing homemade software for the ZX80 around Britain (Donovan, 2010, pp. 113–115). Similarly in Czechoslovakia and Finland, the hobbyist scene was central in the early phases of adoption and domestication of new technologies and formed the social backbone for stabilization of the uses and understanding of new platforms (see Saarikoski, 2004; Švelch, 2013).

While primary data based on the personal recollections and oral histories of the users are not yet found in platform studies, the method does often make use of interviews with key designers and industrialists. The books in the series also prominently feature secondary media about the platforms and the software that they use. In *Codename Revolution: The Nintendo Wii Platform*, Jones and Thiruvathukal (2012) make use of promotional materials for the Wii, and Maher (2012) consistently refers to contemporary computing and gaming media in his discussion of the Commodore Amiga—suggesting that they are an important part of the platform studies archive. Several well-known projects on digital gaming make a great deal of use of secondary media in developing their arguments and have theorized their role, more generally, in gaming culture. Kinder's (1991) study of the Super Nintendo located digital games in a "transmedia supersystem" made up of television, video games, and other products. Kline, Dyer-Witheford, and de Peuter's (2003) analysis of Nintendo marketing noted the particularly close relationship established between Nintendo and its new North American audiences during the 1980s through *Nintendo Power* (see also Consalvo, 2007). Kirkpatrick's (2012) study of British computer gaming magazines of the 1980s also argues that they play a large role in shaping local cultures of games and game players. Consalvo's (2007) study, however, shifts the focus away from just "official" materials to include audience productions. However, platform studies is yet to embrace this widely framed definition which offers the possibility of considering a large number of player-generated "unofficial" texts as part of the platform studies archive. Paratexts record and archive unofficial histories of the material production of digital games and gaming cultures that provide myriad perspectives on individual and collective encounters and may support reconceptualizations of the platform informed by an assemblage of experiences characterized both by correspondence and by difference.

In its life cycle, the platform occupies a central place in domestic and personal life. It is a fleeting sign of status and modernity, that is, eventually consigned to the drawer, the cupboard, the child's bedroom, and the attic, before it (possibly) reemerges in a car boot sale, second-hand market or garage sale—as a curio, an artifact, a brief nostalgic glimpse of the past. Communities may persist or resurface that give the dead platform a strange new "zombie" life (see Hertz & Parikka, 2012). The platforms' zombie life is celebrated by Montfort and Bogost in their analysis of the Atari 2600 (2009, pp. 142–143), where they point to the home brew development community as well as to the use of the Atari VCS by artists and musicians as symptomatic of the platform's influence on popular culture. Jones and Thiruvathukal (2012, pp. 130–133) similarly outline some of the mods and hacks that take the Wii outside of gaming and explore other possible uses for the technology, including artistic use. The diverse uses of Flash made it influential for animation, gaming, and media art, and despite its death knell been announced by several influential technologists, it still remains an important software platform for those who do not use their smartphones to surf the Internet (Salter & Murray 2014, pp. 141–142). However, despite these gestures toward a cyclic understanding of media history, platform studies does not explicitly articulate its historiography. This underscores a crucial area where the platform studies methodology may be enriched by media archaeology: in the conceptualization of how history is figured in the process of research and knowledge production. Media archaeology highlights the Foucauldian spirit of platform studies' epistemic threshold by demanding a critical examination of the conditions of existence of knowledge formations. For us, this demonstrates how the archival assumptions that are already embedded in platform studies provide a possible opening into wider discussions of media archeology through the remapping of the singularities of platforms to include their multiple manifestations.

Platform studies may "open the box" of video game consoles, but the domestic spaces that have housed many platforms are closed off. It institutionalizes informal cultural memories without an explicitly articulated acknowledgment of the context in which they were produced. This history has often been unofficial and produced in collaboration with gamers, enthusiasts, hobbyists, and, in general, amateurs. The congruence between the platform archives and the audience of that platform suggests that recognizing how the archive is produced is particularly important, because the audience—which we argue is absolutely central to the viability of the platform—is not strongly conceptualized in the existing iterations of the method. The thorough historical and archival work in the series so far provides many possible strategies for maneuver that illustrate the impulse to question a purely formal definition of platform.

The Ambiguity of "Success"

Related to the question of the invisible audience of platform studies is the ambiguous way that notions of success and/or failure are central to the production of the archive.

This occurs in two ways. First, the relative success of the individual platform with particular audiences shapes what can be effectively studied as a platform. Second, the relative success and failure of particular pieces of software may have tremendous impact on how the platform studies archive is produced because to date software has been crucial in that archive. The significance of a platform could be conceptualized in many ways. Particularly for a historical method, commercial success is not necessarily as important as the long-term cultural impact of the platform, and for software, achievement may be defined in relation to commercial success, critical success, ''cult'' status, or innovation, either aesthetic or technical. These many possibilities are not a problem, the issue is that platform studies needs to consider how these notions shape the establishment and navigation of the archive of an individual platform.

One way that the series has been shaped by a specific understanding of achievement is how the series so far been framed around the U.S. market and audiences. The series does cover platforms from both Japanese and American developers, but they have all been at least relatively successful—in either commercial or critical terms—in the United States. Both the Atari VCS and the Amiga Commodore were part of the same wave of commercial computing from Silicon Valley in the 1980s that contributed to ''the Californian ideology'' (Barbrook & Cameron, 1996). Flash was developed in the second wave of influential U.S. computing technology, the dot-com boom of the 1990s, and managed to survive the crash of 2000. The SEGA Dreamcast and the Wii, while both Japanese products, had major U.S. releases. The Wii had particularly high visibility in the United States as the harbinger of what Juul (2009) dubbed ''The casual revolution.'' However, the Dreamcast fared less well. Despite its acknowledged legacy of technological and creative innovation, its significance in popular culture and early success in terms of sales, the Dreamcast was eclipsed by the Sony PlayStation 2 in the U.S. market. This led to its withdrawal from the U.S. market in 2001, just 3 years after the Dreamcast was first launched. However, it flourished in other regions, its relative success in Brazil and the enmeshing's between TechToy (the local manufacturer and distributor of the Dreamcast), and the more recent development of the Zeebo console (Aslinger, 2010) illustrate the need for platform studies from perspectives outside of the North American context. Indeed, Allison Gazzard's forthcoming treatment of the BBC Micro in the platform studies series (see Gazzard, 2013) suggests that there is scope for a book-length treatment of a platform that existed outside of the North American market.

The account of the Commodore Amiga by Maher (2012) is illustrative of how particular notions of success and failure inform and shape the methodology of platform studies. The ''video game crash'' of 1983 (see Wolf, 2012) meant that the Commodore Amiga, originally intended to be a purely gaming platform that would compete with the Atari VCS, was quickly rebranded as a home computer (Maher, 2012, p. 17). This last-minute realignment was not substantial enough to entirely remove all traces of the platform's original design. Some gaming terminology endured in the programming languages and descriptions of the material features

of the platform. For example, the term *playfield* was used to describe the composition of a grid of pixels rather than the traditional term, *raster* (Maher, 2012, p. 85). Furthermore, the Amiga retained the connectors that allowed it to be connected to the television—an essential feature for gaming consoles—which meant that it was compatible with the NTSC video format. This feature was created entirely by the incomplete and speedy rebranding from gaming platform top home computer and made it "uniquely sympathetic among computers of the era to interfacing with televisions, VCRs, video cameras, and other video hardware" (Maher, 2012, pp. 115–116). This allowed game designers to explore mixing traditional game style graphics with animated video, inadvertently establishing an enduring generic feature of digital games: the "cutscene."

The most prominent item in the current iterations of platform studies is software, particularly game software. Often in existing work on hardware platforms, the platform is conceptualized through the software. Jones and Thiruvathukal (2012) rationalize this as follows:

> Throughout, we select software for the discussion that illustrates some particular aspect of the platform, some constraint or affordance, not based on formal or critical criteria, or on how good a game is. We've also chosen software that emphasizes what we see as the most important and unique features of the Wii as a console .... (p. 19)

There are numerous cases where particular pieces of software (gaming or otherwise) have been virtually inseparable from the platform or highlight particularly important trajectories or experiments. Examples of the close association between platform and software abound. For example, the success of the VCS/2600 in the home console market has been attributed to negotiation of a licensing deal with Taito (1978) to produce *Space Invaders* for the console (Donovan, 2010, p. 79). *Halo: Combat Evolved* (Bungie, 2001) was almost synonymous with the Xbox for years, making the game absolutely crucial in the platform's early marketing and promotion. A similar relationship also exists between the Nintendo GameBoy platform and *Tetris* (Bullet Proof Software/Nintendo, 1989). Other experimental software has highlighted emerging technologies that may or may not be later adopted as standard. Examples include the controllerless *WarioWare: Twisted* (Nintendo, 2005), operated by a rotation sensor in the game cartridge, which anticipated the widespread uptake of motion-based, gestural interfaces in gaming, or the *Legend of Zelda: Four Swords Adventures* (Nintendo, 2004), which allowed the GameBoy Advance to be used as a controller for the GameCube, anticipating—albeit in a "wired" context—the second screen integration promulgated by the Wii U.

Software, then, draws out and highlights particular features of the platform to the point that they may be approximately defined by their unique relationship to software. Salter and Murray argue that software shapes "a user's relationship with computer hardware by enabling certain experiences ... and failing ... to facilitate others" (2014, p. 9). This suggests that platform studies—just as the contemporary

reception of the platforms themselves—is strongly mediated and shaped by software. While other platforms are less associated with particular software, platform studies may well continue to be refracted through the experience of software. This is not necessarily an impasse, but it is a limit and challenge that must be acknowledged and thoroughly conceptualized.

It is precisely because software is such a crucial tool for researching the platform that it is necessary to have a more critical appreciation of "failure." The Dreamcast and the Amiga are both discussed as influential and important failures (see Montfort & Consalvo, 2012; Maher 2012, p. 41; p. 78). Flash on the other hand is regarded as an influential platform for the desktop era, which is now in the process of being displaced by HTML5 (Salter & Murray 2014, p. 139). Yet these platforms still produced an archive that was large enough to make an informed assessment of this significance. Explorations of the Nintendo Virtual Boy (Boyer, 2009) and Fairchild Video Entertainment System (Whalen, 2012) illustrate that a critical engagement with less successful platforms can be fruitful. In terms of the relative success/failure of software, Monfort and Consalvo (2012) deliberately dwell on some of the SEGA Dreamcast's more obscure titles, but the other projects in the series have focused exclusively on titles that are both commercially successful and critically respected. The existence of game software that lacks either critical or commercial success is acknowledged, but no sustained effort has been made to explore them. How strongly is the viability of the platform tied to successful software? Would an examination of—commercially or critically—unsuccessful software reveal as much about the inner workings of the platform as successful software? Could the significance of the Nintendo DS be appraised without accounting for the various iterations of the "killer app" *Nintendogs* (Nintendo, 2005)? Does *Halo: Combat Evolved* necessarily reveal any significant truths about the Xbox platform that *Azurik: Rise of Perathia* (Adrenium Studios, 2001)—a critically panned "launch title"—cannot?

Beyond the immediate question of how success and failure are defined in this context, the issue of how exactly to approach a platform study of a "failed" platform is pertinent. The demand for a substantial archive could mean that only studies of certain platforms can be rigorously produced without augmenting the methodology. We suggest that media archaeology's palpable concern with failed platforms and the lost pathways of media history (Huhtamo & Parikka, 2011) thus poses a fruitful antagonism to platform studies. In this following section, we introduce the media "anarchaeological" approach of speculative media history, which supports the serious examination of failed, experimental platforms.

Platform Anarchaeology

A key strength of media archaeology is how it offers an innovative approach to realizing alternative ways of formulating and researching gaming platforms. Through these tools, platform studies can develop a more sustained, long-term, historical engagement with media cultures and provide a strategy for remapping the subtle

contradictions, remediations, reappropriations, and more nonlinear connections between past and future platforms and the conditions of the present. In this section, we will turn to Siegfried Zielinski's (2006) notion of media anarchaeology in order to suggest an alternate approach to conceptualizing creativity in relation to digital gaming. The intervention of "anarchaeology" relates to Elsaesser's (2004) notion of the "epistemic threshold" in the sense that it diverges from any aim to find a "standardized object of an original experience" (Visker cited in Zielinski, 2006, p. 27). Like the epistemic threshold, media anarchaeology, rather than looking to the past or future, carves out a space to examine platforms through a lens that " . . . privileges a sense of the multifarious possibilities over their realities in the form of products" (Zielinski, 2006, p. 27). This approach is aligned with Zielinski's interest in the exploration of failed or imaginary media (see also Kluitenberg, 2006) but also suggests ways to expand the notion of creativity that take it out of a specifically industry-oriented discourse. Media archaeology and anarchaeology also suggest that opening up and working on platforms are valid methods of scholarly inquiry. The "platform anarchaeology" we propose here repurposes these two theoretical and methodological ideas from media anarchaeology to speculate on alternative yet complementary trajectories for platforms and platform studies.

Here our concern is to consider how the notion of anarchaeology may contribute to invigorating platform studies and broadening its potential applications by evoking the speculative, alternative, minor, and even imaginary perspectives of media history. Through careful attention to opening up these "other" perspectives of media history, media archaeology has produced a whole range of theoretical writings about quirky devices from the precinematic era to more recent years as tools for conceptualizing new and digital media cultures (see Huhtamo, 2011; Kluitenberg, 2006; Parikka, 2012). Parallel to these histories of the other, media archaeology has traced deep connections between the practices of the media and art disciplines and the more technical disciplines of science and engineering which also suggest productive ways for reenvisioning the platform studies methodology.

What Is Creative?

Rather than examining the mundane context of domestic video game consumption, platform studies often tends to focus on creativity in software design. Ultimately, the commitment to exploring creativity across the series tends to coalesce around the "creative work" (Montfort & Bogost, 2009, p. vii) of the "genius" designer or engineer. This approach to platform studies, which uncovers the platform through an engagement with a series of notable creative works, is perfectly reasonable. However, we suggest that this approach requires thoughtful and measured analysis in order to avoid an account of the platform that is merely celebratory. Maher's (2012) otherwise excellent discussion often verges on a celebration of the "delirious nocturnal technoculture" (Kline, Dyer-Witheford, & de Peuter, 2003, p. 87) associated with the development of the Commodore Amiga. For example,

> . . . although the Amiga's hardware design made it remarkable, most of the credit for the vibrant, creative culture that sprang up around this platform must go to the people who saw the potential in the hardware and made it sing. (Maher, 2012, p. 8)

Many other gaming histories share a similar uncritical perspective (King & Borland, 2003; Kushner, 2004) that may be factually accurate but also focuses on a particular interpretation of genius, technology, and even the "American dream." Media archaeology shares platform studies' concern with creativity but in a manner that is explicitly framed against the hyperbole of Silicon Valley (Parikka, 2012). Media archaeology aims to explore creativity through the strategic moments in media history that unearth new possibilities or posit alternative histories, for media technologies. Zielinski's (2006) discussion of the camera obscura and Cubitt's (2004, pp. 70–97) reflections on the early animation of Emile Cohl (1857–1938) are exemplary of this drive.

In media archaeology, there is a more critical relation to the creative industries, and accompanying notions like participatory culture. Zielinski's version of media archaeology locates creativity outside the framework of the current media industry. He champions an alternative pantheon of heroes of media history: Empedocles, Giovanni Battista Della Porta, Johann Wilhelm Ritter, and Jan Evangelista Purkyně (Zielinski, 2006). These share, to a degree, the same "creative" spirit of the engineers and designers celebrated in platform studies (see Goddard, 2014, p. 8). But what is notable about Zielinski's anarchaeology is its focus on experimentation with how media technologies may be used to modulate the sensory experience and affect. Zielinski (2006) thus demonstrates that current consumer media culture discourses need to be countered with an understanding of creativity that stems from the long-term history of interactions between art, science, and engineering.

Core to Zielinski's media arts informed approach to apparatuses is the perceived division between active users and active machines since the 1980s and 1990s. Coming in the wake of the emergence of consumer-oriented computer cultures that are often framed as "convergent" or "participatory" in contemporary scholarship (e.g., Jenkins, 2006), Zielinski's critique is formulated on the basis that platforms emerge through the development of software interfaces that effectively turned computers into "black box" that could be understood and operated through their surface effects (see also Kittler, 1995). Indeed, the "precisely prestructured, calculated construction of visual surface and temporal sequences" (Zielinski, 2006, p. 259) establishes the notion of computer platforms as interfaces. Zielinski's concern was to understand the relations of the user and the platform in ways that had historical precedents:

> The only effective form of intervention in this world is to learn its laws of operation and try to undermine or overrun them. One has to give up being a player at the fairground sideshow and become an operator within the technical world where one can work on developing alternatives. (p. 260)

Creativity, for Zielinski, involves opening the platform, digging behind the interface, and unearthing the assembled material components of the technology. While this constitutes something of a provocation for platform studies, game studies has examined various components of video game consoles, including chips (O'Donnell, 2011, 2014) and buttons (Parker, 2008). The notion that opening up and tinkering with gaming consoles could be a part of platform studies methodology also suggests a connection to do it yourself (DIY) art practices, such as circuit bending (Parikka, 2012).

From Screen Essentialism to Circuit Bending

Media archaeology seeks out the practices and platforms that fall outside the media industries approach. It encourages a nonconsumer, and nonuser, approach to media also *beyond* history and is deeply invested in developing scholarly and intellectual practices and approaches that open up media in order to engage with their constitutive hardware. A similar drive is found across the contemporary humanities: The desire to move beyond what Nick Montfort (n.d.) describes as "screen essentialism" to explore what is beneath the screen and interface and inside the black box of the platform (see also Kirschenbaum, 2008, pp. 27–35). Similarly, Bogost and Montfort (2009) argue that platform studies can examine the black box "from the inside out" in order to locate how computational platforms "embody particular cultural concepts."

The relation that media archaeology suggests between circuit bending and platform studies is underscored by Wolfgang Ernst (2012, n.p.) who notes the proximity that platform studies shares with media archaeology and the wider articulation of media studies that starts from "a responsibility to open up systems (black boxes)." Ernst refers to this analytical demand as micropolitics and suggests that this level of politics begins with (reverse) engineering that demands technical skills in order to take critical analysis beyond the interface level. It also refers to the need to move beyond screen essentialism. This demand suggests to us the value of a hybrid approach to platforms that executes platform studies in a media archaeological manner.

At times in a spirit close to the work of Ernst and the *Medienarchäologischer Fundus* (The Media Archaeological Fundus [MAF] or Archive) that operates as part of the Humboldt University Media Studies Institute, platform studies from its inception pioneered a careful attentiveness to technology, emphasizing "technical rigor and in-depth investigation of how computing technologies work" (Montfort & Bogost, 2009, p. vii). For Ernst (2013), the operationality of technologies is a starting point for a machine-friendly media analysis that grounds mathematics, engineering, and general sciences within the media studies agenda. This reflects the approaches of the MAF (2013), where media apparatuses are used as "epistemological toys" to excavate the insides of machines.[1] This, we suggest, corresponds to the spirit of platform studies that is apparent in the consistent raising of issues such as hacking,

mods, and the question of open versus closed by the authors of the series. It is important that media archaeology is not understood solely as a media–historical enterprise that writes alternative stories of media incorporating its "losers." Rather, in a manner similar to platform studies, it is an "under the hood" methodology that challenges screen essentialism by excavating the archive of media culture from inside the machine. A tinkering, DIY-styled, and technologically informed media analyst is in this sense informing the figure of the media archaeologist who is as close to the circuit bending and hardware hacking media artist as they are to a cultural historian.

DIY art practices have featured prominently in game art. Corey Arcangel's *Super Mario Clouds* is a particularly celebrated example of game art made by hardware hacking. Hardware and software hacking link artistic practice to the grassroots cultures of digital games (Galloway, 2006, pp. 112–113). Activities emerging from game communities like the production of machinima and other collective projects like "glitch hunting"—which are documented by Newman (2008)—increasingly overlap with contemporary artistic practices (Lowood, 2007; Menkman, 2011). Huhtamo (1999) suggests that practices such as hacking and patching games harken back to the early precommercial era of video games. He argues that these practices are not simply nostalgic; they also suggest a sensibility found in "tactical media" (see Garcia & Lovink, 1997). Accordingly, as a result of these projects,

> The *seams* are left visible—instead of beating an illusion with another illusion, the aim is to make the cracks in the facade visible, to focus attention on the manifold processes looking for an outlet behind the ideologies of uniformity. (Huhtamo, 1999, emphasis added, n.p.)

The artistic practices inspired by media archaeology illustrate this drive to search for the seams and cracks that contradict the orderliness of the black box and test the platform's limits.

What if we approach platform studies by looking for these breaking points? The ambition to seek the limits of the platform is exemplified in the media artist Garnet Hertz's *Out Run* project (2010). Hertz's modified hardware game is a simulation that turns physical reality into an augmented reality 8-bit game. It redesigns the 1986 SEGA *Out Run* arcade driving game into a car that "desimulates" driving into a computer model implemented in real space on four wheels.[2] The *Out Run* project connects the reappropriation of platforms to critical design and making. While it does not take an explicit stance toward platform studies, it provides a strategy for testing the boundaries of what is counted as a platform and contests the narrowly defined user relations that platform studies often assumes. Exploits, reappropriations, and patches thus become an approach to conceptualizing different relations to hardware and platforms than the social media-driven conceptualization of platforms versus users/content producers outlined by Gillespie (2010). Indeed, such media archaeology inspired ideas of active users suggest a markedly different critical maker mentality that is exemplified by the critical design practices promoted by Hertz and other artist–scholars.

By exposing the seams, critical design and art practices indicate possible pathways for interrogating the uniformity and (im)mutability of the platform. Opening the platform suggests new strategies for platform studies which connect it to critical practices in new media arts and existing practices of hardware and software hacking and modification among communities of players. Speculative practices in design and art thus offer platform studies a crucial mode of extending its method to include the experimentality of scholar–artists as well as historians.

Conclusion

Is there a media archaeology of platforms? The question of what stabilizes the notion of a platform as part of the seriality of the theory methods, and what are the implicit, unarticulated themes that drive the notion are particularly important for the ongoing viability of platform studies as a method. Our interest resides in excavating the implicit conditions of platform studies, and conceptualizing how they resonate in media archaeology. Some theoretical strands of so-called German media theory has been strategically hesitant to identify with the Anglo-American traditions of cultural or media studies and insisting on the peculiar specificity of context. However, as we can see from recent innovative developments in media studies which include software and platform studies, the identification of technical specificity as a core issue in media scholarship is no longer limited to "quirky" European media theory. Perhaps the so-called "Kittler effect" (Winthrop-Young, 2011, pp. 143–144) has influenced this opening up of the humanities to technological methodologies, such as those found in recent discussions of Digital Humanities. In relation to these larger currents, we suggest that platform studies is a fruitful way to frame not only studies of digital gaming but also media history. However, the implicit ideas and sources—the platform's archive—that govern the articulation of platforms and how that articulation anchors the media history it produces need to be explicitly considered by scholars undertaking platform studies.

Media archaeology is not itself just one clear-cut method. Rather it is a broad field of analytical and creative interests that has been able to complicate and broaden media historical analysis, to open up new media cultures to their old media contexts and hence also complexifying too simple questions of new and old. It has also examined how the technical archive frames questions of epistemology: How do technical media govern, guide, and enable culture? In this context, our questioning of platform studies and media archaeology in parallel lines maps their convergences and divergences, with the goal of posing media-archaeological questions to platform studies, through the process of marking out their common ground.

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Notes

1. For more on the Media Archaelogical Fundus, see Owens (2013).
2. See http://www.conceptlab.com/outrun/ for the Outrun project's homepage, and examples of a working prototype.

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