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FIELD REVIEW

Critical Game Studies and Its Afterlives: Why Game Studies Needs Software Studies and Computer History

By: Whitney (Whit) Pow

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ABSTRACT

The study of digital games is necessarily a study of software and computers and their politics, histories, and imbrications in systems of power. Critical game studies as a field locates identity as a central infrastructure of power, history, and action on which all technologies are built, examining the history of games and game studies beyond the supposed "universal" player or user of technology—a figure founded upon hegemonic imaginaries about race, whiteness, and domination. This field review critically examines the past and present of game studies and argues that the fields of critical game studies and queer game studies cannot be studied in isolation from the preexisting and ongoing work of Black women, Indigenous people, people of color and queer and trans people in the fields of transgender studies, computer history, software studies, critical surveillance studies, science and technology studies (STS), critical studies of artificial intelligence (AI), and critical code studies. Interactive technologies are and always have been connected historically, materially, and theoretically to the experiences and histories of marginalized people. This field review makes a proposal: Game studies needs software studies and computer history. From this foundation, we can open up the critical study of games to larger and wider concerns, connecting the field to critical dialogues happening currently in feminist and antiracist science and technology studies.

Introduction: Decentering Game Studies

The study of digital games is necessarily a study of software and computers and their politics, histories, and imbrications in systems of power. As Naomi Clark and merritt k write, digital games—just like

algorithms, biometrics, and AI—can determine what becomes "invisibilized and naturalized" with regard to technology: Assumptions about power, identity, and technology became so deeply embedded in our use of computers that it is easy to overlook their politics or forget their presences entirely. If we start here, we can begin building out the field with the understanding that digital games are inherently political and have always been about power and identity; that games' abstractions of power are implicitly connected to the politics of technology and its history.

Critical game studies, which includes subfields like intersectional feminist game studies and queer game studies, has developed in response to game studies as a field and its history of positioning the politics of identity "on the margins" (Malkowski and Russworm 2017).[1] Critical game studies asks what it might mean to think about the history of games and game studies beyond the centering and naturalization of the "universal" player/user, a figure founded upon hegemonic imaginaries about race, whiteness, disability, and constructions of masculinity and hierarchies of power. The whiteness of the "who" that is centered in digital game design does not just extend to software, but to hardware as well. David Parisi writes about this with regard to digital game controllers: "Game controllers, in short, participate in forging and cementing the contested, gendered, normative, and hegemonic 'gamer' identity, bringing with them particular notions of what constitutes the ideal, and non-ideal, gaming body" (2015, 17). The work of critiquing the "normative" and very much racialized imaginary that structures digital games must be brought together with current and ongoing work in critical surveillance, technology, and AI studies and computer history—fields that deeply inform one another but are not often placed side-by-side.

Game studies cannot be practiced in isolation from larger work that Black women, people of color, and queer and trans people have already been doing in the fields of computer history, software studies, critical surveillance and technology studies, critical artificial intelligence (AI) studies, and critical code studies. Pushing against the increasing canonization of critical game studies that has developed in isolation from software and computer history, this field review summarizes past movements in game studies and critical game studies and proposes new approaches that draw from ongoing movements in computer history, software studies, technology studies, critical code and AI studies, transgender studies, and the digital humanities that take into account the fact that interactive technologies are and always have been very much connected historically and theoretically to the experiences and histories of marginalized people. From here we can open up the critical study of games to larger and wider concerns and expand it through existing antiracist and feminist research on technology.

Methodologies: The Critical Study of Digital Games *as* Critical Technology Studies

Digital games are computer and software systems. When studying digital games, we need to begin with the fact that digital games are first and foremost *digital*—they are extensions of digital platforms and the ideologies they were built upon. By positioning the study of digital games as extending from and critiquing long histories and lineages in the study of technology, we can see that critical game studies is deeply and inextricably connected to fields like software studies, surveillance studies and computer history.

The array of disciplines, approaches, and possibilities suggests a decentralized game studies, a field that does not rely on a "canon" of methods but that necessarily draws from many different disciplines and histories.

If we turn to the history of game studies, it is important to acknowledge that it is not a unified field with one set of disciplinary methods and concerns. The critical study of games and interactive digital media has emerged across a number of disciplines, including media studies (with scholars like Anna Everett, Soraya Murray, TreaAndrea M. Russworm, Jennifer Malkowski, Lev Manovich, Laine Nooney, and Alexander Galloway); English language and literature and the digital humanities (referencing here early movements in interactive fiction and hypertext studies in literature and the digital humanities, including Katherine Hayles and Janet Murray's work); learning, language, and semiotics (James Paul Gee and Katie Salen); performance studies (Clara Fernández-Vara and micha cárdenas); queer theory and trans studies (with notable work by Naomi Clark, mattie brice, Adrienne Shaw, Amanda Phillips, Bo Ruberg, Teddy Pozo, and Josef Nguyen); and critical race theory and Black intersectional feminisms (work by Alexandrina Agloro, Christopher B. Patterson, Tara Fickle, Lisa Nakamura, Kishonna Gray, Samantha Blackmon). Many of these scholars work cross-disciplinarily, moving effortlessly between multiple approaches and fields. This lack of unification makes it difficult to locate a singular "canonical" methodology in game studies as a field, though this is game studies' strength: The array of disciplines, approaches, and possibilities suggests a *decentralized* game studies, a field that does not rely on a "canon" of methods but that necessarily draws from many different disciplines and histories. Here, we can frame game studies not just as centralizing on an *object* of study, but critical game studies as offering an array of *methods* that move across disciplines.

In approaching the critical study of digital games *as* a critical study of technology, I take an historical framing method from media studies called *medium-specific analysis*. This methodology looks at different types of media (for example, painting, sculpture, film, television, and digital games) as having *distinct historical and material qualities* that differentiate them and set them apart from other types of media. Medium-specific analysis has a long history in media studies and cultural theory, with notable theorists including Marshall McLuhan (1994), Walter Benjamin (1992), Stuart Hall (1980), Theodor Adorno and Max Horkheimer (2002), and Katherine Hayles (2004) thinking through the medium specificity of certain types of mass-produced, digital, and broadcast media and how the material, cultural, and historical context of media affects the development and dissemination of information and meaning.

When taking a medium-specific approach to the study of digital games, we must look closely at the historical and material specificities that allow them to contain their own unique sets of priorities, actions, and aesthetics. Digital games cannot be distanced from the fact that they are built using computers, they consist of software shaped and affected by algorithmic and computational thinking, and they are often interacted with through screens and interaction devices and hardware like computer mice, keyboards, and controllers. Understanding digital games *as* software allows us to connect the study of digital games to longer histories of computer, technology, and interaction design—in other words, to fields like

computer history, software studies, science and technology studies, critical artificial intelligence (AI) studies, human-computer interaction (HCI) and intersectional and feminist approaches to software studies, critical data studies, and surveillance studies.



Photo source: Pexels.

Alexander R. Galloway uses a medium-specific approach when he argues that a video game (that is, a kind of digital game) is "a cultural object, bound by history and materiality" (2006, 1). There are two points that I would like to establish here as important to framing the critical study of digital games *as a* critical study of software and technology. Galloway first writes about games *as systems of power and action* through the centrality of rulesets: "A game is an activity defined by rules in which players try to reach some sort of goal… If photographs are images, and films are moving images, then *video games are actions*… Video games come into being when the machine is powered up and software is executed; they exist when enacted" (2006, 1–2; italics in the original text).

And second, Galloway foregrounds that digital games *are* software systems, establishing digital games as sets of rules that are guided and implemented by software. He makes an important parallel between how digital games function and how software applications function:

> Video games are games, yes, but more importantly they are software systems; this must always remain in the forefront of one's analysis. In blunt terms, the video game *Dope Wars* has more in common with the finance software *Quicken* than it does with traditional games like chess, roulette, or billiards. Thus, it is from the perspective of informatic software, of *algorithmic cultural objects*, that this book unfolds. (2006, 6; italics in the original text)

This mode of thinking—connecting lineages and legacies of software and technology to the study of digital games—frames the methodologies for this field review. In order to critically approach the study of digital games through game studies and its subfields (including feminist and queer game studies, and approaches that consider critical race theory as central to games), we must first and foremost consider that:

1. digital games are composed of systems of rules that allow certain actions and disallow others, and thus are ideological machines that emulate larger political systems of power and control, and
2. digital games are software systems and "algorithmic cultural objects" (as Galloway writes) that cannot be divorced from ongoing issues like algorithmic bias, critical data and AI studies, and computer and software history.

Starting from these two points that deeply inform my own work and research, I would like to present the critical study of digital games as already interconnected to longer, and larger networks of technological, computer, and software history. We may begin moving forward with the critical study of digital games *as* the critical study of software and technology, and here I propose that *computer and software history are a necessary framework for game studies and our understanding of how we study digital games today.* This is a direction that I hope to see critical studies of digital games and game history moving toward in the future—as a field that is intimately connected to critical movements happening in critical technology, data, AI, and software and computer studies, especially work that is already being done by Black and Indigenous people and people of color, queer and trans people, and feminist scholars.

Software, Digital Games, and Institutional Control

If we start from the understanding that games consist of rules, and that digital games are first and foremost algorithmic technologies, *the study of digital games is necessarily a study of software and computers and their politics, histories, and imbrications in systems of power.*

Digital games are composed of rules, defined simply as "either/or" logics or "yes" or "no" commands, which are not unlike the rules and regulations of a law system, an archive, a government, the border, or a medical system. If we look closely at the systems of power and rules embedded in the logics of games and software systems, we can more overtly see these systems' connection to larger networks of institutional control. A number of texts examine technology, networks, and software platforms' relationship to power, citizenship, control, and consent (see Chun 2005, 2021; Apprich et al. 2019; Peña and Varon 2019; Nguyen 2023; Browne 2010, 2015; Benjamin 2019; Noble 2018; Russell 2020; Broussard 2023; Brock 2020; Everett 2002; McGlotten 2016; Gaboury 2022; McKinney 2020; McKinney and Mulvin 2019; Costanza-Chock 2020; Steele 2021).

Because software systems are all built upon logics and systems of rules that already exist within systems of institutional control, queer people, trans people, Black and Indigenous people, and people of color's histories are already present and already exist within computers and computers' at-times invisible replications of these rules and systems of power.

By considering the connections between interactive technologies like digital games and the exercise of power by states and bureaucracies, we can better understand our relationship to computers, to humans, to rule sets, to institutions—the capillaries that connect the politics of the body to the politics of the state, as transgender studies scholars Susan Stryker, Paisley Currah, and Lisa Jean Moore write.[2] Because software systems are all built upon logics and systems of rules that already exist within systems of institutional control, queer people, trans people, Black and Indigenous people, and people of color's histories *are already present and already exist* within computers and computers' at-times invisible replications of these rules and systems of power. The rule sets within computers and digital games echo the rules that govern contemporary artificial intelligence and biometric protocols, surveillance and border-crossing technologies and technologies of control: Reverberations between a computer's error messages and the error messages that occur at the TSA body scanner at an airport, where trans and nonbinary people, Black and Indigenous people and people of color, and people with disabilities, medical devices and prosthetics are hypersurveilled and forced into additional screenings, pat-downs, and other invasive measures.[3]

This context of digital games as software systems, and software systems as emulating larger systems of citizenship, power, and control, is crucial for understanding digital games. We must zoom out and turn toward computer history as a part of the long history of digital games to help frame digital games as not just a contemporary issue, but one linked to histories of power, race, and the development of computational technologies (e.g., see Gray 2020; Russworm and Blackmon 2020; Shaw 2018).[4]

Ongoing movements in queer, trans, and feminist game studies and game design are working to reshape our understanding of digital games: that gender, sexuality, race, class, ability, and identity fundamentally must be taken part and parcel with the history and study of technology and artificial intelligence; that the issues and politics of identity are inseparable from our understanding of games and the technologies they are built upon. These movements look at the presences of queer and trans people, Black and Indigenous people and people of color as a constellation of forces that have been moving us forward: Presences that were and are undeniably *always here*, even when many existing modes and methodologies of writing game history and studying games and technology might not always explicitly represent us.

Decolonizing the History of Digital Games

Let us begin at the beginning, with the framing of the history of video games. Video game history is often told as originating from the military-industrial complex, with many chronologies of video and computer

games beginning with *Tennis for Two*, which was created in 1958 at Brookhaven National Laboratory by William A. Higinbotham, "an engineer who had worked on the first atomic bomb" (Goldberg 2011, prelude). We can use the historical case study of *Tennis for Two* in order to think about what a decolonial game history might look like and examine how histories of governments, institutions, and spatial and financial accessibility are bound to early game historiography. *Tennis for Two*'s screen was an oscilloscope, an electronic visualizer used primarily in military, science, and medical laboratories; the game itself ran on the Systron Donner 3300, a $200,000 computer which Higinbotham's "instrumentation department had used mainly for … mathematical calculations" (Goldberg 2011, prelude). This history of games presents us with an institutional lineage for understanding how game studies has often situated itself: as an extension of larger governmental systems of power.



Video game set up of "Tennis for Two" during a visitor's day at Brookhaven National Laboratory in 1961. Photo source: Flickr/Brookhaven National Laboratory.

To give context for this institutional history, Aubrey Anable writes that early video games "were a part of a broader movement of using computer games during the Cold War to simulate complex systems and make them understandable to laypeople. As Jennifer Light argues, games during this period played a central role in spreading systems thinking into the popular consciousness" (2018, 3). Anable brings together the study of digital games with larger computer histories and histories of psychoanalysis and cybernetics, which serve as a crucial context for understanding the institutional history of interactive technologies like games. Anable's book (2018) proposes that studies of digital games cannot be separated

from issues of biopolitics, or the fact that *digital game history is computer history*, making *histories of digital games inseparable from histories of governments and institutions*. There is a direct connection between the simulated logics of a computer, and the logics of the state, which have always structured the lives and histories of people, particularly marginalized people.

Even in the case of *Tennis for Two*, a game that emerged from state and military institutions, marginalized people are still a part of the story. Brookhaven National Laboratory, where the game was developed, was built upon Camp Upton, which was used as a Japanese internment camp during World War II. This connection entangles the cultural impact of games and their histories with the presences and lives of Asian Americans and the history of Asian America.[5] Many scholars are investigating the intersection of Asian/American identity and history with the study of games and interactive technologies, including Tara Fickle (2019) who connects the study of games to Asian/American histories, including Chinese exclusion and Japanese internment, Christopher B. Patterson (2020) who places games in relationship to wider decolonial frameworks in relationship to race, and Edmond Y. Chang who has written about gaming while Asian (2024; see also Patterson and Fickle 2024). We must also turn toward a growing discussion of what it means to decolonize play in game studies, which is crucial in framing the very problematic, colonialist, and racist origins of play theory (see Trammel 2023; Mukherjee and Hammar 2018; Murray 2018; Mukherjee 2017).



Japanese Americans being relocated to internment camps during World War II. Photo source: US National Archives.

Addressing the Divide: The Emergence of Critical Game Studies

Game studies as a field has been oriented by these histories of domination, neoliberalism, military history, war and empire, the "normalization" of the idea of the "gamer," (as Parisi writes), and the financial "success" and market saturation of certain hypervisible games and consoles. This existing history is important in its critique and in the development of successive "waves" of game studies, with notable texts including those by Patrick Crogan (2011), Nick Dyer-Witheford and Greig de Peuter (2009) and Harold Goldberg (2011).

There are a number of game studies texts that look at games and interactive technologies as offering experiences specific to games as a type of media, including failure, persuasive rhetoric, networks, metagaming, education and learning, and the incorporation of media theory and space studies (Juul 2013; Bogost 2007; Jagoda 2016; Boluk and LeMieux 2017; Galloway 2006; Gee 2007; Salen Tekinbaş 2007; Manovich 2001a, 2001b). Additionally, there is also historical work on early hypertext, the digital humanities, and interactive and electronic literature with writers like Hayles (2004) and Janet Murray (1998). Importantly, these texts all address issues of the medium first and foremost: How we may think about digital media as offering experiences and outcomes specific to the technological platforms on which they were coded and implemented.

During the development of this body of literature, we also see emerging a greater need and desire for the examination of identity (specifically gender, sexuality, and race) within the study of games as a field. Malkowski and Russworm write about this historical divide: "For most of game studies' history, conversations about identity have only ever happened on the margins" (2017, 1). While the book focuses on the idea of *representation* in games as a complex system of politics, power, and (in)visibility that contains the presence of marginalized identities (a methodology that has expanded further to thinking *beyond representation* with the development of queer game studies and works by people such as Adrienne Shaw and Bo Ruberg), the academic history of game studies has been largely constructed as an "either/or" positioning between studies of representation as the main methodology for understanding race, gender, and sexuality vs. the idea of "action" and "play" (or ludology) as critical to understanding the technological "fabric" of games themselves. Malkowski and Russworm write,

> Anna Everett well summarizes in the foreword [of *Gaming Representation*] that analyses of identity in video games were effectively displaced in the narratology-versus-ludology debates, the focus on procedural rhetorics and "interrogations of gaming's structures of play and affective engagement," and, more recently, the "neo-formalist tech turn to platform, software and code studies."… Viewed in this way, representation analysis becomes the less rigorous, less medium-specific way to approach video games, compared to a focus on "hard-core" elements. (2017, 2)

The "narratology-versus-ludology debates" that Malkowski and Russworm allude to are early arguments about "valid" methodologies for studying games that happened in the history of game studies as a field. This debate assumed a zero-sum approach to the study of games—that game should be studied one of two ways.

The first is through "narratology," or the narratives that games convey (and thus, implicitly, the representations and stories they present), a methodology that extends from English language and literature studies, and work in the digital humanities. And the second is "ludology," or the study of play (from the Latin word for "game," *ludus*), a methodology that focuses more on games as sites of play, interactivity, and action, emerging from theorists like Johan Huizinga (1971) and Roger Callois (2001). Huizinga's text introduced terms like "the magic circle," which was later taken up in work by many scholars including Shaw (2015) and Eric Zimmerman (2012). Murray (2005) also expands on this historical debate between ludology and narratology.

Importantly, Tara McPherson (2014) discusses the broad-reaching and harmful repercussions this narratology vs. ludology debate has had on the study of games, technology studies, and the digital humanities, with the study of narrative and representation becoming synonymous with the study of race, gender, and sexuality within games. McPherson characterizes this as an extraordinarily problematic binary, with game scholars like Bogost, at the time, arguing that studies of representation and identity politics within games were a "distraction" from fully understanding the fullness of computational technologies. McPherson pushes against Bogost's argument—which is a position I take in in this field review—stating that the "either/or" construction of looking at *either* games as representing race, gender, and sexuality *or* games as computational machines that are divided from these ideas about identity is a false construction, and one that many people in critical game studies, queer game studies, and intersectional feminist game studies have been pushing against.

A Turning Point: Intersectional Feminist and Queer Game Studies

To write about games and game history requires us to be aware of these existing prioritizations, power dynamics, and modes of understanding. Only then can we write, teach, and think toward the *radical and resistive potential* for game studies and studies of technology. Many of the texts in intersectional feminist and queer game studies are pushing against the idea of *adding on* the history and politics of identity to the study of games and technology, and instead argue that we should locate identity as a central infrastructure of power, history, and action on which all technologies are built.

> *It is important to acknowledge that queer game studies is inextricable from the politics of trans life, as early strides in queer game studies were founded by trans women…*

A great deal of important work is being done at the intersection of queer theory, transgender studies, and game studies. It is important to acknowledge that queer game studies is inextricable from the politics of trans life, as early strides in queer game studies were founded by trans women: micha cárdenas (2016, 2022; cárdenas et al. 2009) has worked extensively at the intersections between trans of color critique, technology, and games, notable is her foundational performance piece *Becoming Dragon* (2008) in which she "lived for 365 hours immersed in the online 3D [game] environment of Second Life with a head mounted display." Also important is mattie brice's foundational game design work centering "everyday

activism" (2017)[6] and centering the experiences of Black trans women in foundational queer games like *Mainichi* (2012); Anna Anthropy's books (2012, 2014) alongside her work in early queer games like *Dys4ia*, *Mighty Jill Off*, *Lesbian Spider-Queens from Mars*, and *Queers in Love at the End of the World* are foundational to later strides in the development of queer game studies. Also notable is the work of Naomi Clark and merritt k (2014) who also catalyze the logic of queerness as being central to the methods and mechanics in games.

We can also see successive waves of people working in trans studies and game studies building off of this work by trans women and trans women of color. Ruberg and Phillips (2018) write about the history and politics of women of color feminisms, anger, and their relationship to queer game studies. Ruberg (2019, 2020, 2022) has published work thinking through the relationship between queer game studies and trans life. My article, "A Trans Historiography of Glitches and Errors" (2021), also traces the trans lineages inherent to computational media, glitch art, and the home computer and video game console through Jamie Faye Fenton's 1978 glitch art piece, *Digital TV Dinner*. Ari Gass (2024) discusses glitch as a trans representational mode; Madison Schmalzer (forthcoming) and PS Berge (Berge and Schmalzer, forthcoming) write about trans life and tool-assisted speedrunning in games. My article, "How the Computer Taught Us to See" (2024), examines computer history, the development of the first object-oriented graphical user interfaces and the development of the desktop metaphor (the imagery of the file, folder, and document in the user interface) as tightly connected to histories of the visuality of medical surveillance and the changing definitions of "queer" and "trans" in the *Diagnostic and Statistical Manual*.

We can also turn toward trans game designers and programmers whose work are foundational within the history of games and game studies, including Jamie Faye Fenton, Danielle Bunten Berry, Cathryn Mataga, Rebecca Heineman, and many others. A brief and nonexhaustive list of recent games and interactive art by trans artists might include Danielle Brathwaite-Shirley's *WE ARE HERE BECAUSE OF THOSE THAT ARE NOT*, Naomi Clark's *Consentacle*, DREAMFEEL's (a company founded by Llaura McGee) *Curtain* and *If Found…*, Porpentine Charity Heartscape's *Foldscape* and *With Those We Love Alive*, Maddy Thorson's *Celeste*, Ryan Rose Aceae's *GENDERWRECKED*, merritt k's games, which include *HUGPUNX*, *Lim*, and *Consensual Torture Simulator,* Zoyander Street's *Interactive Portraits: Trans People in Japan*, and many others.

Though some scholars have sought to define queer and trans approaches to game studies as separate fields, queer game studies was built on the efforts and contributions of trans people, particularly trans women and queer trans people, who have long been creating queer games, organizing community events like the Queerness in Games Conference, and writing foundational research within queer game studies. It is important to note, however, that much of queer game studies has been written with the politics of centering trans liberation and the liberation of Black and Indigenous people and people of color. Queer game studies includes works by Edmond Y. Chang (2017, 2021); Michael DeAnda's (2022) research on the intersections between queer of color critique and Latinx identity and games; Jess Marcotte's (2018) writing about queer game design from the perspective of a "queer mixed white-passing Mi'kmaw game designer." Also noteworthy is Amanda Phillips's work (2020, 2022); Josef Nguyen's (2023; Nguyen and Ruberg 2020) work on consent, power, labor, games, and technology. Teddy Pozo's (2018) research looks at empathy, queerness, and haptics in games. Other notable works include Ruberg and Shaw's coedited

collection, *Queer Game Studies* (2017), as well as Shaw's other works (2014, 2015); and Kara Stone's (2018) work at the intersection of queerness, disability studies, and game design as well as her games *Ritual of the Moon* and others. Games operating within the queer games scene also include works like Sean Wejebe's *The Longest Couch* and Robert Yang's games, which includes foundational works like *Cobra Club*, *The Tearoom*, *Hurt Me Plenty*, and *Stick Shift*, to name only a few.

Centering intersectional Black feminisms and critical race theory in games has also been ongoing work. This includes Alexandrina Agloro's (2018) work on politics, race, and game studies; Anna Everett and S. Craig Watkins's work (2008); and Fickle's work (2019), which looks closely at the alignment between critical race theory, Asian American studies, and game studies and game history. Also notable is Gray's (2020; Gray and Leonard 2018) research focusing on the importance of intersectional Black feminisms within the study of games and game culture. Malkowski and Russworm's edited collection, *Gaming Representation* (2017); Adrienne Massanari's research dismantling gender, power, and white supremacy in games and online platforms like Reddit (2017); Soraya Murray's (2021) work*;* Lisa Nakamura's (2012, 2014) examination of race, gender, and sexuality in games; Patterson (2020) looks at the relationship between transpacific studies, and queer theory and game studies; Russworm and Samantha Blackmon's article (2020) that imagines new methodologies for writing about Black intersectional game history; and Hong-An (Ann) Wu's work (2022) on the intersections of race, education, and games. As mentioned earlier, there are a number of people working within decolonial, postcolonial, and anticolonial game studies, with works by Mukherjee, Murray, and Trammell being particularly noteworthy, among many others. Games that look at the distance in the experience of race and diasporic and multilingual identities include *Venba* by Visai Game; *Tamales con Familia* by Sam Ortiz, Cam, Jamie, Caio M. Jiacomini, Oriana, Gem, and Brent; games by Mike Yi Ren, which include *YELLOW FACE* and *Asian Actors Wanted,* and □□ *[tong jyun]* by npckc.

Some highlights among the meaningful work happening at the intersections of Indigenous studies and decolonial and anticolonial approaches to games are the works of Jodi A. Byrd (forthcoming, 2018, 2019); Elizabeth LaPensée (2020; LaPensée, Laiti, and Longboat 2022); and Ashlee Bird (2021; Chang, Bird, and Gray 2022). There are also a number of Indigenous designers, including digital artist Skawenatti and her works *She Falls for the Ages* and *TimeTraveller™* as well as games, such as *When Rivers Were Trails* developed by LaPensée in collaboration with The Indian Land Tenure Foundation, *Never Alone (Kisimi Ingitchuna)* developed in collaboration with the Iñupiat by Upper One Games,and *Hold my Hand* by Nathan Powless-Lynes.

Proposals for the Future: Building New Methodologies

Queer and trans people and people of color have been deliberately calling attention to our interactions with digital games, questioning the normativity of mundane, invisible, and so-called "normal" aspects of computer interactions, archives, and history since early game design. To center how digital games determine what becomes "invisibilized and naturalized" within technology, I propose that we open up the disciplines of critical and queer game studies to a broader array of methodologies, concerns, and scopes that incorporates work already being done by Black and Indigenous people and people of color in critical

technology studies and computer history.

This methodological act of questioning and de-normalizing systems of power reproduced through computers and digital games, and refusing the normative method of "adding on" identity rather than acknowledging that race and identity are constitutive of these computational systems (and not something that can be ideologically separated from them) is crucial.

In their foundational essay "Queer OS," Kara Keeling writes about race and identity as inseparable from studies of technology and media: "QueerOS would take historical, sociocultural, conceptual phenomena that currently shape our realities in deep and profound ways such as race, gender, class, citizenship and ability… to be mutually constitutive with sexuality and with media and information technologies, thereby making it impossible to think of any of them in isolation" (2014, 153). In "Designing for Difference," McPherson writes about the future of the digital humanities, asserting that "Gender, race, sexuality, class, and disability might then be understood not as things that can simply be added on to our analyses (or to our metadata), but instead as operating principles of a different order, always already coursing through discourse and matter" (2014, 181). This methodological act of questioning and de-normalizing systems of power reproduced through computers and digital games, and refusing the normative method of "adding on" identity rather than acknowledging that race and identity are constitutive of these computational systems (and not something that can be ideologically separated from them) is crucial. These movements can be seen already happening in the fields of queer, trans, and feminist game studies and game history, with game historians and scholars envisioning alternative modes of contextualizing and theorizing digital games and technology.

In "Queering Human-Game Relations,", k writes,

> All games are abstractions, and all abstractions involve human, and thus, political decisions about what to include or emphasize. In the context of digital games where the rules can be selectively concealed from the player, these decisions are invisibilized and naturalized—as in the case of SimCity, which presents itself as a city simulation but leaves absent racial dynamics like redlining. (Clark and k 2014)

Looking closely at digital games for the dynamics, politics, and systems that they naturalize, abstract, and leave out can give us a fuller understanding of how games and their systems are inherently structured around history, race, and importantly, institutional power. Queer, trans, and feminist game scholars have been working to critique the historical methodologies, approaches, and assumptions that can reproduce existing structural absences within histories of games. The concerns of the way we write histories of technology and games are also the concerns of the politics of identity and power. To reimagine how we write game and software history is to reconfigure how we order and narrativize the past, and to acknowledge that what enables the writing of history—the objects, facts, and dates that are saved and made accessible and visible—is often managed by institutions, corporations, and governments,

which can enable the elision of marginalized people from history. Critical game studies and studies of digital games *must be in conversation with* antiracist, decolonial, and anticolonial critiques of computer and software history.

Eden Medina proposes a decentered computer history, one that challenges the notion of computers as infallible objects of colonialist "progress," addressing issues of colonialism that saturate the way histories of computing have been written with their overwhelming focus on the United States and Europe:

> Decentered histories give greater attention to members of lower classes, experiences of women, and experiences of marginalized and subaltern groups. They include histories from parts of the world outside the United States and Europe and histories of colonization told from the perspective of the colonized. Such histories illuminate the plurality of experiences while also detailing the lives of those formally overlooked by the historical canon. (2018, S103)

We must bring these methods, proposed by women and marginalized people within histories of computing and technology, to our studies of games. Other works that have guided me toward how we might move forward writing about digital games, the computers they were built upon, and their politics and histories, include writings by Mar Hicks (2019), which look at "transphobic algorithmic bias" in histories of government identification and documentation in Britain, connecting current criticisms of algorithmic bias to the history of early computational documentation of British citizens. Hicks writes, "The struggle for trans rights in the mainframe era forms a type of prehistory of algorithmic bias: a clear example of how systems were designed and programmed to accommodate certain people and to deny the existence of others" (2019, 22).

In addition, Wendy Chun centers race as a historical and theoretical methodology. She asks about the *how* of race and the way race has been framed within histories and studies of media and technology:

> Can race be considered a technology or a form of media—that is, not only a mechanism, but also a practical or industrial art? Could race be not simply an object of representation and portrayal, of knowledge or truth, but also a technique that one uses, even as one is used by it—a carefully crafted, historically influenced system of tools, mediation, or enframing that builds history and identity? (2009, 7)

Tightly linked to Chun's discussion of race *as* a technology that is used and mobilized is Fickle's work with regard to game history and the infrastructures that games function upon as being directly impacted by these infrastructures of race, as Chun writes. Fickle brings together the arbitrary systems of categorization and classification of race in her discussion of the classification systems of games:

> "Game" itself… is essentially a classification system, a way of categorizing human activities and expressions according to the (equally nebulous) binary of "serious" and "playful." And, like the equally artificial classification system of race with which it is intertwined—which categories huma beings, at the broadest level, into the binary of "white" and "nonwhite" (and more specifically, "[B]lack")—such ludic distinctions are neither natural nor neutral. (2019, 11)

These techniques of sidestepping existing historiographic methods and the visibilities and elisions they perpetuate, and the call to become critical of the *how* of history are also interrogated by feminist historians including Laine Nooney who writes on histories of mainstream game industries. They write,

> Insofar as videogame history struggles to represent itself as much more than a chronology of consoles, games, and programmers, the field fails to critically inquire into the ways gender is an *infrastructure* that profoundly affects who has access to what kinds of historical possibilities at a specific moment in time and space. Gender dynamics in relationship to technological practices must address how spatial politics, technological and educational access, and social formations set conditions for who might find themselves available to games as a medium to begin with. (2013)

Echoing the way that games themselves exist as selective abstractions of power, we can position the act of writing about games and game history as selective abstractions of the past. Nooney writes that gender is something we must take seriously within game history, because it determines historical possibility.[7] Similarly, race, sexuality, identity, and ability deeply affect the embodied politics of life and death,[8] and historical record-keeping with regard to histories of computers, technology, and digital games.



Photo source: Unsplash.

Conclusion: Why Game Studies Needs Software Studies and Computer History

It is necessary to foreground our understanding of the study and teaching of digital games and their history alongside ongoing and existing feminist, antiracist, queer, and trans work in critical technology, software studies, and computer history. We must look at game studies (and digital games specifically) as sharing methodological roots with and being indebted to these fields, which write about and critique ongoing systems of surveillance, networks, archives, and technology. Framing digital games as a kind of computational media—a media that is run on, and is influenced by, the history and ideology of computers and the institutional systems thinking they enable—gives us a wider set of historical tools for contextualizing games and computers as systems infrastructurally bound to race, Blackness, biopolitics and necropolitics. For decades, many scholars have been doing this work, linking Blackness, race, and technology in media studies—Anna Everett, TreaAndrea M. Russworm, Samantha Blackmon, Kishonna Gray, André Brock, and many others—and we are indebted to them. Their work has always been a necessary critique of computer and internet history, and race and technology.

This is just one proposal for the study of games and digital media, and this field review reflects my own methods and approaches to teaching digital games in the classroom, and the ideologies that underpin my own work as a scholar and historian who works in both histories of games and computer history. It's my hope that this field review may be helpful or illuminating to those working in game studies who may also be imagining paths forward for the field with me, and actively working toward the critical and resistive potential of our own work, scholarship, and activism.

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Footnotes

1 I will be returning this quotation by Russworm and Malkowki's statement later on in this essay.

2 Stryker, Currah, and Moore write about how we might conceive of trans as a connection between the micro-political and the macro-political: "'Trans-' thus becomes the capillary space of connection and circulation between the macro- and micro-political registers through which the lives of bodies become enmeshed in the lives of nations, states, and capital-formations" (2008, 14).

3 This is a common experience for trans and nonbinary people and our communities, and something that Sasha Costanza-Chock (2020) writes about.

4 Shaw's work in particular focuses on Kimberlé Crenshaw's essay "Demarginalizing the Intersection of Race and Sex" (1989) and the Combahee River Collective's "The Combahee River Collective Statement" (1977).

5 This research on histories of games and artificial intelligence and how they intersect with histories of Asian America and immigration law is another of my research projects. Additionally, information about Camp Upton and other sites of Japanese internment have been collected by the University of Idaho ("Justice Department and US Army Internment Camps" n.d .).

6 "Everyday activism" is a term that mattie uses for her own work.

7 The first issue of *ROMchip: A Journal of Game Histories*, founded by Nooney, Raiford Guins, and Henry Lowood, holds an array of open-source essays speculating about what game history could be, with particular attention to the archive, race, and identity as central concerns. My own essay (2019) on the experience of encountering trans game designer Danielle Bunten Berry in the archive appears in this collection as well as articles by Byrd (2019), Murray (2019), and Russworm (2019). Notably the issue contains essays by scholars of color who are working toward recentering feeling, being, and identity as a crucial scaffold central to game studies and game history.

8 The politics of life and death that I am referring to are Michel Foucault's biopower, and Achille Mbembe's necropolitics. Both are crucial to understanding the way that computers and computational systems replicate the state's politics of control, and its regulation of life and death. micha cárdenas writes biopower and necropolitics as tightly connected to the life and safety of trans women of color (2016), as well on trans of color art and poetics (2022).