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Gamified Dinosaurs and Prehistoric Play: The *Jurassic Park* Ludo Mix

Justin Wigard*

University of Richmond (United States)

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Abstract

Over 30 years, the *Jurassic Park* franchise has spawned myriad games across several mediums, including: video game consoles; arcade cabinets; PC games; standalone handheld games; a tabletop role-playing game (TTRPG); board games; game-versions of LEGO toys; an alternate reality game; games using bar codes. By treating this games portfolio as a ludo mix, a theoretical frame that allows for connecting these disparate game forms to one another and to the larger franchise, it becomes clear that the *Jurassic Park* franchise historically positions dinosaurs as adversaries, hazards, and commodities to be exploited within their games, and in the process, requires players to be complicit.

Keywords: Dinosaurs; Ludo Mix; RPG; Video Games; Games Studies.

* jwigard@richmond.edu

Fig. 1: The cover for *Jurassic Park: Survival Game* (1993, MCA Publishing), a Japanese gamebook that features original drawn art and gameplay based on the original film.

1 Introduction

Throughout its 30-year lifespan, the *Jurassic Park* franchise has spawned myriad games across several mediums, including: various video game consoles; arcade cabinets; PC games; standalone handheld games; a tabletop role-playing game (TTRPG); board games; game-versions of LEGO toys; an alternate reality game. Accordingly, the *Jurassic Park* franchise has inspired multitudes of games including the TTRPG *Escape from Dino Island* (Tung and Roberts, 2019) and board games like *Dinosaur Island* (Pandasaurus Games, 2017) that draw from the films thematically, but position dinosaurs similarly to the *Jurassic Park* games.

Little academic research has been devoted to the *Jurassic Park* games, though each entry in the series generally receives press and reviews from popular sources. Stephan Schütze discusses his approach to composing the soundtrack for *Jurassic Park – Operation Genesis* (Blue Tongue Entertainment, 2003) as well as how the construction of its audio environment provides a blueprint for future sound installation spaces in next-generation consoles. In this way, Schütze explores how the games of the franchise have a strong potential for impact beyond their initial scope. Schütze's extrapolation is interesting as he observes the significance of the dinosaurs for the development of *Operation Genesis*. He notes that "For *Operation Genesis* it was desirable to create a similar level of impact and importance for the dinosaurs as was created in the *Jurassic Park* films...The T-REX, as the starring character, needed to have a presence over the entire island" (2003: 173). While this is but one example from one designer on one *Jurassic Park* game, the starring role of dinosaurs in other *Jurassic Park* games suggests many of these designers have similar aims.

Offering a historical treatment of the entire *Jurassic Park* game series is nigh impossible within the confines of a single article owing to the franchise's proliferation across platforms, genres, and game mediums. For instance, *The Lost World: Jurassic Park* (1997) inspired games that appeared in several formats, including:

- Side scrollers created for the PlayStation and the Sega Saturn;
- A top-down shooter for the Sega Genesis;
- Four versions of the film adaptation for the Game Boy, Game Gear, the Game.com handheld, and the R-Zone handheld.
- A strategy game for Windows;
- An arcade game;
- A first-person shooter demo.
- A tabletop role-playing adventure book

This trend continues throughout the series' thirty-year history, with each successive movie generating more games. The above list does not address the number of unique handheld consoles, additional board games, card games, theme park attractions, apps, and other media touchstones that *The Lost World* inspired, let alone what else the rest of the cinematic franchise has spawned. What connects these games are, of course, trappings common to many popular media franchise: characters, settings, narratives, etc. Marcel Luiz Stocker and Rafael Jose Bona similarly state that "*Jurassic Park* games provide not only an experience of film adaptation, but collaborate for a transmedia narrative of the respective films by enabling new experiences for the spectator/consumer with plot revelations not presented in the origin stories" (2017: 955). However, the broad variety of game formats push them a little further afield than the mode of transmedial storytelling a la Henry Jenkins' notion of narrative unfolding across multiple media formats in one overarching story. While Stocker and Bona rightfully note that some of these games offer plot revelations beyond the originating films, the vast majority of these games are playable distillations of a single film with most narrative tentpoles of the film guiding the game's action, as in the classic *T.Rex* chase scene from the original film or working to dodge flying dinosaur hybrids in *Jurassic World*. In other instances, as will be discussed later, the games offer playable explorations of the *Jurassic Park* settings: Isla Nublar, Isla Sorna, and the Park itself. All the same, these games rarely advance a new aspect of the story in the same way that other transmedia properties take part in, and as a result, bear scrutiny to better understand what it is that the games do, indeed, advance: ideological underpinnings, marketing conventions, paleontological knowledge, or something more.

To this end, I focus on what and how one specific medium (games, broadly conceived) contributes to, reflects, and complicates the *Jurassic Park* franchise as embodied through play, game design, and game elements. Attending to the *Jurassic Park* games illuminates how American popular culture is exposed to the franchise beyond its core movies, and in turn, sheds light on how the various game developers perceive the dinosaurs at the heart of *Jurassic Park* as part of a larger media ecology only unlocked through the central act of play: that of the ludo mix.

2 Welcome to Jurassic Park…'s Ludo Mix

The ludo mix has become an effective framework for those scholars studying games against a broader historical or cultural backdrop, a way of understanding the disparate ludological outgrowth from popular media franchises. First emerging as a method for making sense of Japan's particular approach to marketing strategies of popular franchises, a strategy known as the media mix (Ōtsuka, 1989), the ludo mix is a way of understanding the media ecology of video games, particularly how they extend or reflect the overarching franchise through the act of play and through marketing. Indeed, in their opening remarks for the 2019 Digital Games Research Association centered around "Game, Play, and the Emerging Ludo Mix," program chairs Hanna Wirman, Masakazu Furuichi, and Torill Mortensen offered an early definition of the ludo mix as: "a diversified distribution and consumption model" with games and play as a kind of focal point that "may include several versions of games or several different games together with other content thus resulting in novel media ecologies, business models and development of consumption cultures" (2019: 2). These *Jurassic Park* games are united in foregrounding the dinosaurs, arguably the franchises' most iconic and persistent element, tying these disparate games together through playable interactions. Fictional characters like Ian Malcolm (Jeff Goldblum) and Henry Wu (BD Wong) don't appear in every game, and in fact, quite a few of these *Jurassic Park* games do not feature

a single human character nor fictional setting from the franchise — but each one features dinosaurs, and not just dinosaurs at random, but significant prehistoric figures that regularly appear in most every *Jurassic Park* movie or television show.

I won't make the claim that the *Jurassic Park* franchise operates as a ludo mix completely: that games are the primary driving force behind the consumption of this franchise in the face of the wildly popular films, television shows, toys, clothing, amusement rides, and beyond. However, paying attention to how the franchise constructs its gaming sphere allows us to clarify how ludo mix strategies and game development shifts "have interacted to create novel challenges and incentives for a particular kind of game development" with regards to the *Jurassic Park* franchise (Bjarnason 2019: 3). The ludo mix's novel challenge, then, might be understanding how developers have worked to map *Jurassic Park* dinosaurs onto different game genres and formats while staying true to the franchise aesthetic. And, at the same time, the incentive might be akin to understanding what playable experience is afforded in the process (or, what emerges through gameplay in this ludo mix).

Since then, these ludo mix conversations have grown to unpack how particular ludic elements permeate such largescale game-centric media ecosystems: character archetypes and their stability across adaptations (Blom 2021); game design sensibilities (Chiapello 2021); game rules informing otherwise traditional media outcroppings in the media mix (Steinberg 2015); musical literacy and oral traditions (Oliva 2021). Other studies have yielded fruitful insights into what the ludo mix reveals about its larger franchise: a 2.5-dimensionality to the *Paper Mario* ludo mix (Campana 2015); video game narratives and absences in the *Final Fantasy XV* franchise (Bjarnason 2021); the longitudinal evolution of the *Kingdom Hearts* series from a bildungsroman to a critique of modern societal repetition (Horn 2019); and designed scarcity of character cards and figurines in the *Animal Crossing* franchise (Blom 2022). As one example, Akinori Nakamura and Susana Tosca study the ludo mix of the *Mobile Suit Gundam* franchise that runs across anime, manga, video games, and more. Here, the ludo mix provides a crucial way of understanding the macro-level portfolio perspectives of games within a transmedia franchise not on a single game basis, but rather a framework for understanding connections and relations between games within the same franchise. Laureline Chiapello argues that ludo mixes should be seen as "grand experiences" rather than "grand narratives," that the games in their varied incarnations are often as much about the aesthetics and the overall feel of the franchise as they are about offering playable experiences of the franchise itself. With this in mind, we must understand the ludo mix not just as a convergence point for media franchise games, but also as a marketing strategy built around a designed experience, and therefore, unearth what that designed experience to be.

Battery powered handheld games, board games, role-playing game books, 32-bit console video games and ongoing AAA-developed augmented reality games — all are within the *Jurassic Park* franchise, and all feature dinosaurs prominently. Within this article, the ludo mix acts as more than a theoretical glue for connecting these disparate games together; instead, it affords a way to understand the games as playable artifacts, as designed experiences, and as points of reflections of what franchise elements are deserving of adaptation from film to game. Further, attending broadly to trends in this 30-year game portfolio allows for analyzing trends across game formats: what connections can we draw by examining card games alongside of mobile video games? How can we make sense of a one-off Japanese gamebook adapting *Jurassic Park* (1993) and a complex video game distilling multiple films into a playable LEGO aesthetic?

My goal here is to build on this scholarship to look at the ways in which the *Jurassic Park* ludo mix encompasses not just video games, as most scholarship into the ludo mix has focused on at this moment, but broader game formats beyond the digital, including board games, gamebooks, card games, and more. Though these games have been developed by dozens of different design companies, released by just as many publishers, and in myriad formats, they are united by their inclusion in the *Jurassic Park* ludo mix — their portfolio of marketed and commercialized games in a grander 30-year franchise. I argue that the JP ludo mix is tied together not by named fictional characters like Alan Grant (Sam Neill), Owen Grady (Chris Pratt), John Hammond (Sir Richard Attenborough), or Claire Dearing (Bryce Dallas Howard), nor by their real-life actors, nor even by a shared, larger transmedial narrative. Instead, I contend that the 30-year-long *JP* ludo mix is actually tied by ludic representations of dinosaurs, and further, that the ludo mix reveals a friction between the narrative ethos of the *Jurassic Park* franchise and its films especially — that dinosaurs, once genetically created, were not meant to be caged, controlled, or commodified — and how dinosaurs are actually positioned, designed, and

encountered within the games, both narratively and symbolically. Ultimately, the *Jurassic Park* ludo mix of digital and analog games reveals dinosaurs to be depicted as immaterial playthings to be treated as adversaries to be shot or killed, collected as commodities, overcome as hazards, and colonized as geospatial markers.

The rest of this article unfolds by tracking entries within the ludo mix according to playable trends across multiple game formats and eras before zeroing in on one short case study within that ludo mix commonality. We will begin by looking at the experience of playing as a *Jurassic Park* dinosaur: what this can look like, what some of the design limitations are, and what this affords the player. From here, we move outward to examine a more prevalent pattern: dinosaurs appearing as obstacles and hazards, but more complicatedly, as adversaries to be attacked and killed. Moving still further outwards from the immediacy of playing as or against dinosaurs, we unpack what it means within the *Jurassic Park* ludo mix to collect dinosaurs within different games, and what happens when we treat them as commodities to be played with. Finally, it becomes apparent that the *Jurassic Park* ludo mix grows enough in scope and technological potential to treat dinosaurs as a kind of bridge between the real world and the fictional franchise through contemporary games. Examining the *Jurassic Park* ludo mix broadly, beyond the digital and encompassing the analog, reveals that the ludo mix makes the player concomitant in the dinosaurs' reduction too.

3 "Monster is a Relative Term": Dinosaur as Playable Character

First and foremost, one unique affordance of these *Jurassic Park* games is that they allow players to actually take on the role, the identity, of a dinosaur. Without rehashing the various medium-specific affordances of both films and games, what most game studies scholars agree marks games as unique is the act of play itself: that players have the capacity to don the roles of various characters and engage in interactive exploration of the virtual world. By and large, the films in the franchise are unequipped with providing this perspective or uninterested in delivering this experience to the audience: dinosaurs are meant to be spectacles, seen most clearly with the appearance of that first *Brachiosaurus* in *Jurassic Park*, or in the unstoppable nature of the *T.Rex* later in the film. Each film progressively adds more nuance to the dinosaurs; some of these films, particularly *Jurassic World*, offer thrilling scenes in which characters are so surrounded by stampeding dinosaurs as to echo their fear of a hunting carnivore, as when a *T.Rex* is hunting *Gallimimus* in the first film.

Many of the games, on the other hand, provide players with the opportunity to actually *be* one of these dinosaurs, and over time, have offered similarly nuanced gameplay experiences suiting equally nuanced understandings of dinosaurs. This aspect is present from the beginning of the franchise's games: in the very first *Jurassic Park* video game, *Jurassic Park* (Sega 1993), players have the option to choose between playing as Dr. Alan Grant or as an unnamed velociraptor. In the former, Grant must escape the island; for the latter, players must try to track Grant down. While this experience is somewhat limited by the nature of a 16-bit sidescrolling platformer, the game was lauded for its innovative implementation of the *Velociraptor* as a playable character. Indeed, as the *Velociraptor*, players hunt other dinosaurs, sure, but need to solve puzzles in order to proceed further into the game: turning off electrical switches, maneuvering wooden boxes to leap to higher ground, and opening doors, to name a few. As the *Velociraptor*, players are fast and can jump extremely high befitting the *Jurassic Park* conception of the carnivore, but they must also hunt other dinosaurs and defeat guards armed with guns, grenades, and tasers.

Jurassic Park franchise games with the most nuance work to simulate a dinosaur's unique traits, what it might be like to be such a dinosaur. The video game *The Lost World: Jurassic Park* (Dreamworks Interactive and Appaloosa Interactive, 1997) provides 3-D renderings of the *Compsognathus* (*Compy*), *Velociraptor*, and *T.Rex* to play as, whereas the asymmetrical tactical board game, *Unmatched* (Mondo Games and Restoration Games, 2019 – Present) has options for two different dinosaurs to play as: velociraptors (*Unmatched: Jurassic Park — InGen vs Raptors*, 2020) and the *T.Rex* (*Unmatched: Jurassic Park — Dr. Sattler vs T. Rex*, 2022). In *The Lost World* video game, each dinosaur is depicted according to its real-life size: the *Compy* is tiny, able to squeeze into tight spaces but beholden to dodging or fleeing large dinosaurs and creatures. These *Unmatched* iterations provide unique actions to act out the experience of being each respective dinosaur. The *Velociraptors* deck comes with a team of three raptors, and provides players with gameplay that simulates pack tactics, along with sudden bursts of speeds and violence. By contrast, the *Tyrannosaurus Rex* deck has larger attacks but slower

Fig. 2. A gameplay scene of Velociraptors hunting Muldoon from *Unmatched: Ingen vs Raptors* (2020, Mondo Games and Restoration Games, each of which are playable characters.

movement in accord with its lumbering nature and awesome, terrifying power (including several special Roar cards).

Yet, not all of these games provide nuance or treat the dinosaurs as unique creatures. At time of writing, there are several dozen different board games connected to the *Jurassic Park* franchise, beginning with *The Jurassic Park Game* (Milton Bradley, 1993). In this board game adaptation, the dinosaurs can be moved by players, but they act as obstacles or hazards to other players i.e. if a player rolls a "Dinosaur Move" on the die, they get to move one dinosaur of that type, if they wish. This point is key: the players adopt the role of the humans, rather than the dinosaurs, so the dinosaurs act as pawns — dangerous ones, but pawns nonetheless. The dinosaurs are further limited to several rules and boundaries: players cannot land on spaces with other dinosaurs, can only hinder player-characters, cannot go into specific spaces, and so on. *Jurassic World Volcano Escape Game* (2018, Cardinal) treats the dinosaurs as playable characters, but primarily deploys them in a ruleset reminiscent of *Parcheesi*. In acting out the pivotal volcano scene from the film *Jurassic World: Fallen Kingdom* (2018), players must get their four dinosaurs off the island before the other players do the same. The only dinosaur that has some kind of defining trait is the *T.Rex* figure, which can be moved around to impede other players. All other dinosaurs have no defining traits, primarily acting as pawns. Here and in other games (various *Monopoly* clones, for example), the dinosaur acts as a token stand-in to tie the game to the *Jurassic Park* franchise.

Fig. 3. *The Lost World Jurassic Park Game* (1996, Milton Bradley) features Rexy on the cover and comes with playable dinosaur figures. Photo from the Strong National Museum of Play, undated.

Compare these to other board games like *The Lost World Jurassic Park Game* (Milton Bradley, 1996) where players are divided into two teams, humans and dinosaurs. In these kinds of games, players are at least able to play as dinosaurs, but primarily the carnivorous ones. In brief, *The Lost World Jurassic Park Game* has one team working to get humans across the island to the Visitor Center, while the other team plays as the dinosaurs. The quality is primarily adversarial: dino-players are actively trying to reach, attack, and consume the human-players. There can be no coexistence: if a dinosaur enters a space that has humans in it, all of the players are eaten immediately. Many of the board games reimplement and reify these dinosaur traits: *Jurassic Park III: Survival Game* (Milton Bradley, 2001), *Jurassic Park III: The Spinosaurus Chase Game* (Hasbro, 2001), *Jurassic Park: Danger!* (Ravensburger, 2018), and others. Players either have to escape carnivorous dinosaurs as the humans — simulating many of the chase sequences found in the films — or play as said carnivores in order to hunt down the human characters. While these dinosaurs' traits are combative and predatory befitting prehistoric carnivores unleashed onto a new island, there is little nuance to differentiate between a *Tyrannosaurus Rex* and say, a *Dilophosaurus*.

What this long history of playable dinosaurs in the *Jurassic Park* ludo mix further reveals is that even in the games and the dinosaurs' most nuanced forms, players most often only have the opportunity to play as the carnivores: combative, dangerous, and aggressive. Herbivores are rarely implemented and playable, with the *Lego Jurassic World* (TT Fusion, 2015) being a rare example. Even when they are playable characters, as in *Lego Jurassic World* , their abilities and identities are flattened out, interchangeable with one another. Yet, their playable properties still afford powerful engagements with the dinosaurs that the films and even the television show *Jurassic World: Camp Cretaceous* (2020–2022) fail to fully reach. *Jurassic World* briefly simulates the frenetic experience of raptors sprinting at full speed through a jungle, following the camera on the necks of Blue, Charlie, Delta, and Echo. *Camp Cretaceous* occasionally provides a similar experience when

deploying a horror-like "monster vision" for the experience of *Scorpios Rex* hunting prey. This is corroborated by Stocker and Bona (2017), who note that some of the *Jurassic Park* video games provide new characters or experiences that are unique to the games (including playing dinosaurs), while also re-creating scenarios from the films in a playable format.

This is not to say that the figure of the playable dinosaur is only prevalent in the games mentioned here, nor that it is the only connective tissue present in these games. The *Jurassic Park* dinosaur ludic traits can compound, such that in the same game, dinosaurs can manifest not just as playable characters, but as the other forms laid out below: as portals for education, as adversaries, as commodities, and more. Each of these subsequent case studies should be considered in light of the ones before it, at times complicating one another, at others presenting new elements not present in previous iterations of the ludic franchise. The ludo mix therefore offers a way of understanding both connections between games in the franchise's portfolio and games' relation to the portfolio itself.

4 "Shoot her!": Dinosaurs as Obstacles, Hazards, and Adversaries

One primary feature of the *Jurassic Park* films (writ large) involves escaping the dinosaurs, whether stampeding herbivores, diving *Pteranodons*, prowling *Velociraptors*, or a charging *T. Rex*. Indeed, Malcolm warns of this very thing in the second film: "Oh, yeah. Oooh, ahhh, that's how it always starts. Then later there's running and screaming." These scenes of spectacle, followed by spectacular running, foregrounds games where dinosaurs are not playable characters, but rather, obstacles that direct player movement, in the sense that they are to be avoided, hazards to be overcome, and even adversaries to be defeated.

The handheld games created in the wake of the first three films in the franchise — particularly those developed by Tiger Electronics — center gameplay around avoiding different dinosaurs while escaping the island. For instance, *Jurassic Park* (1993, Tiger Electronics) finds players guiding both Lex and Tim to restoring power and escaping the park all the while avoiding *Velociraptors*, *Dilophosaurs*, and the *T. Rex*. Many of these Tiger Electronic and other handheld games have limited actions for the player to take, and limited movement for the dinosaurs. As Eric Mortensen notes, these handheld games are simple and repetitive:

> Most of Tiger Electronics' handheld games utilized a LCD screen and a couple buttons. The games worked by having the different elements of the game printed on the game screen. [The] character and the enemies would appear on the screen when the game lighted up various sections of the screen. This meant that [players] only had a couple of options...at any given time. [Players] could move left, up, and right one space and then after a short period of time would return to the starting position. In addition to movement the games usually included a jump or attack button which [players] could use to attack enemies or avoid them. Most of the games had a couple different levels and the goal was to avoid/destroy enemies to successfully make it to the end of the level. (GeekyHobbies 2020)

By their nature, these miniature consoles rarely offered nuance, most often giving players the tools to run, jump, and take one or two different actions to further avoid the dinosaurs in something of a precursor to contemporary rhythm games. Returning to Tiger Electronics' *Jurassic Park*, players primarily move Lex and Tim further down the path towards their objective (restoring power in the early levels, escaping the island at the end). When one of the three dinosaur types appears, players must choose to climb a tree on either the right or left sides of the screen, moving away from the menacing dinosaur.

These handheld games are, of course, not the only games to feature this playable encounter based on avoiding dinosaurs. Other board games noted above center this same gameplay, particularly *Jurassic Park III: The Spinosaurus Chase Game* and *Jurassic Park III: Island Survival Game*, which finds players running from the *Spinosaurus* that hunts Grant and co. throughout the third movie. The franchise's focus on this thrilling facet of the dinosaur continues to find traction in contemporary games, as seen in the augmented reality video game, *Jurassic World Aftermath* (Coatsink Software, 2020). Here, players land on Isla Nublar after the events of *Jurassic World* and must escape with valuable data while avoiding a trio of velociraptors hunting the players.

Other games position dinosaurs as hazards to be deterred or overcome, rather than outright avoided, as seen in the gun-based arcade games self-titled after the first three movies: *Jurassic Park* (Sega, 1994), *The Lost World: Jurassic Park* (Sega, 1997), *Jurassic Park III* (Konami, 2001), and *Jurassic Park Arcade* (2015, Raw Thrills), the last of which is based on the original trilogy. Each of these games roughly follow their respective films with additional dinosaurs or scenes packed in. *The Lost World: Jurassic Park*, for instance, features *Carnotauruses* with chameleon DNA that gives them camouflaging capabilities. They are also predicated on the arcade model of games: insert quarters > choose a gun > blast enemies > earn power-ups > beat the game (with enough quarters). In the first game, for example, players must be pinpoint accurate in their actions as they shoot weak-spots on the underside of a *Brachiosaur*'s feet to keep it from stomping their jeep. NPCs shout commands like "Aim for that weakspot!" at the player while said weak-spots are visually highlighted with bright and colorful targets. At times, players must attempt to save somebody during a dinosaur stampede, where dinosaurs impede movement and act as deterrents to achieving the goal. *The Lost World: Jurassic Park Role-Playing Game Book* (Price Stern Sloan, 1997) similarly provides players with ample opportunities to achieve their goal while working around hazardous dinosaurs. Early on, players must navigate Isla Sorna while trying to find their friend (later revealed to be Sarah Harding) while there are *Stegosaurs* roaming and romping about. At times, they have to choose how to avoid one of these rampaging *Stegosaurs*, or even whether to engage them.

Fig. 4. Stills from three Jurassic Park Games where players must shoot dinosaurs in order to proceed. From L-R: the manual for *The Lost World Jurassic Park: Raptor Run* (1998, Milton Bradley); *Trespasser* (1998, DreamWorks Interactive); *The Lost World: Jurassic Park* (1997, Sega).

Most often, though, dinosaurs are adversaries, enemies with an aggressive intent to harm the players, and this trend permeates almost every *Jurassic Park* game — board, video, or otherwise. Many of the handheld games feature players fighting dinosaurs with weapons of different kinds, commonly with nonlethal means. Games like *Jurassic Park: The Lost World – Raptor Run* (Milton Bradley, 1996) deploy dinosaurs as obstacles, hazards, and adversaries all at once. Players must work to rescue other humans while dodging *Velociraptors*. However, players have an opportunity to preemptively shoot velociraptors with tranquilizers before they attack either the player or the victims. This dynamic shifts the balance between solely running away from dinosaurs, instead providing players with a modicum of control and agency over their situation: the ability to actually fight back against the dangerous dinosaurs pursuing or antagonizing them.

Further, this adversarial trend leaves behind any pretense of preserving the dinosaurs, any measure of treating them as scientific marvels worthy of study, seen most prominently in the arcade games. While the game never left the demo phase, *Trespasser* (Electronic Arts, 1998) is a first-person shooter intended to serve as a sequel to *The Lost World: Jurassic Park* in which the sole survivor of a plane crash lands on Isla Sorna (see also: Justice, 2021). Throughout the game, players work to escape the island they have unknowingly "trespassed" on, avoiding many dinosaurs and outright fighting off the rest with guns based on real world models: .357 Magnums, .44 Desert Eagle, and so on. The dinosaurs are aggressive, veering far off their movement paths to hunt down the player. In order to survive, in order to escape, players must shoot to kill, and do so often. This style of gameplay occurs elsewhere in other video games of course, as well as handheld games like *Raptor Run*, as well as in board games like the *Unmatched* iterations if players choose to play as Robert Muldoon, dinosaur hunter extraordinaire.

This pales in comparison to the arcade games previously mentioned, where players use their guns on Isla Nublar and Isla Sorna, actively shooting dinosaurs in pursuit of higher scores based on accuracy and number of dinosaurs taken down. Packing simulations for each of the first three films into one cabinet, *Jurassic Park Arcade* provides players with, according to the description, a "high-powered tranquilizer gun", yet players actually use a combination of five offensive guns: the standard X-22 Renegade, a high-powered machine gun; the Titan 2000, a minigun; the Shockbolt, a gun that shoots electricity; the Frostbite Cannon, capable of firing icy beams; and the Triple Threat, akin to a three-barreled shotgun. Shooting smaller dinosaurs sometimes knocks them back, but more often destroys them outright. There is no tranquilizing here: the dinosaurs are menacing and meant to be put down.

Positioning the dinosaurs as hazards or obstacles to the humans is on brand for much of the franchise, with many of the films following the protagonists trying to escape the island without getting torn to shreds. Those games where dinosaurs are something to be shot, hunted, or killed, however, feels misaligned with the core narrative and ideologies the films espouse. There is a friction of sorts with how dinosaurs of all kinds manifest in these games akin to siding with Ingen or the seedier sides of the Masrani corporation — the villainous big game hunters, black market militarists, and corporate geneticists. The top-down marketing strategy might be that the dinosaurs are meant to be stars of the franchise on par with the actors themselves (Blue and Chris Pratt or Bryce Dallas Howard; Rexy and Sam Neill, Laura Dern, or Jeff Goldblum), or that there are complicated conversations embedded within their very creation let alone their continued existence. Yet, many of the designers and publishers who have created games with the license seem to view dinosaurs as secondary to players: not just something to be hunted, but commodified, thereby imbuing the ludo mix with a very humanocentric model of gameplay and worldbuilding.

5 The Commodification of Dinosaurs

Perhaps the most outwardly concerning game trend of the *Jurassic Park* franchise are those games that treat the dinosaurs as commodities, resources, units. Several video games have provided players with the opportunity to play God, or at least, play a simulacrum of one akin to John Hammond and his team of geneticists. Others simply treat the dinosaurs or their offspring (unborn or otherwise) as something to be collected, harvested, then extracted. In some of these real-time strategy (RTS) games or construction and management simulation (CMS) games, players operate in a third-person omniscient perspective and oversee the dinosaurs, islands, and parks in different ways. Scholars like Daniel Black note that the third-person omniscient viewpoint offers a distanced perspective, eliminating much of the intimate and immersive experiences of first-person *JP* games while offering "a more important kind of simultaneity between player and game character — a simultaneity of action rather than viewpoint" (2017: 195). Black goes on to note that "the player has a greater awareness of the game body and its actions when the ideal viewpoint is situated outside the game body," or in this case, when the game cameras are not first-person limited — in other words, through the third-person perspective, players are even more aware of their actions than in first-person games. Dinosaurs become resources, things that are expendable in order to serve the game's missions.

While the trend can be extended beyond to other entries within the *Jurassic Park* ludo mix, *Chaos Island: The Lost World* (1997, DreamWorks Interactive) stands as one significant case study of this commodification trend, an RTS video game developed to coincide with *The Lost World* film. Like other games in the franchise, it loosely adapts the film, but in this case, players must guide characters like Dr. Ian Malcolm, Dr. Sarah Harding, and others to various goals that align with the film's narrative. The unique spin here, however, is that the player not only has the capacity to control large groups of dinosaurs, but to send them on attack sweeps against the InGen camp and their assorted mercenaries. Players quickly breed the appropriate dinosaurs (say, *Pachycephalosaurs* for attacking small vehicles and a trio of *Compies* to serve as scouts for the *Pachies*), then send them into the camp to wreak havoc. Battle can be swift and brutal, yet when dinosaurs die, there is almost no fanfare, no moment or need to mourn: more can — and will — be generated by the player, even as this first wave is dying in battle. Not every level is outwardly about combat or destroying humans: one level requires players to guide dinosaurs to a large pool of water. Along the way, however, other roaming dinosaurs need to be slaughtered. While *Chaos Island* boasts a large amount of voiceover work from the cast of *The Lost World*, its narrative threading rarely explains the driving impetus behind why the player is working towards

Fig. 5. A still from *Chaos Island: The Lost World* (1997, DreamWorks Interactive) showing players moving about the map and interacting with dinosaurs.

these tasks. Dinosaurs are soldiers, blips on a map that are meant to be exploitable and expendable in the same way that Vic Hoskins envisions militarized velociraptors in *Jurassic World*.

Others, like the handheld *Jurassic Park: The Lost World* (1997, Tiger Electronics) have players working to collect dinosaur eggs. This game in particular pits two competing collection ideologies against one another by choosing to play as either Roland Tembo or Dr. Sarah Harding. Adapting the plot of the second film on a small scale, Tembo desires to collect the eggs and bring them back to the mainland while Harding is working to gather the eggs as a protective measure to stop Tembo. The game unfolds relatively the same regardless of what character/storyline players ultimately choose, suggesting that dinosaurs are, again, nothing more than something to be collected no matter the character's in-fiction goals or player's drive. *Raptor Run* drives its gameplay through a tension between rescuing people, collecting dinosaur eggs, and running from carnivores. Even the original *Jurassic Park* video game released in 1993 has players, as Grant, collecting eggs and DNA at times while dodging dinosaurs. There is no wonder to be had with these embryonic casings — just a treatment of them as collectibles or level-based goals, nothing more.

Jurassic Park: Genesis (Vivendi Universal Games, 2003), *Jurassic Park Builder* (Ludia, 2012), *Jurassic World: Evolution* (Frontier Developments, 2018) and *Jurassic World: Evolution 2* (Frontier Developments, 2022) are situated within the CMS genre. Taking one of these such games as a brief example, *Jurassic Park Evolution's* description on Steam reads:

> "...Build for Science, Entertainment or Security interests in an uncertain world where life always finds a way. Bioengineer dinosaurs that think, feel and react intelligently to the world around them. Play with life itself to give your dinosaurs unique behaviors, traits and appearances, then contain and profit from them to fund your global search for lost dinosaur DNA. Control the big picture with deep management tools or go hands-on to confront challenges on the ground or in the air." (Steam, "*Jurassic World Evolution*")

The *Evolution* games are clear in their aims: players are to "bioengineer dinosaurs," "play with life itself," "then contain and profit from them." Dinosaurs, in this case, only serve to further the player's predetermined capitalist goals. With three divisions (entertainment, science, and security), players actually begin building their own versions of *Jurassic Park* itself, with all of the simulatory management systems that come with such an enterprise. Newer, bigger, and more impressive dinosaurs must be created, and not just once, but constantly. These prehistoric creatures must be supplied with the appropriate fending, security measures, and sustenance. The dinosaurs' genetics can be modified and spliced for increased lifespans or changes in temperaments. Power has to be balanced between dinosaurs, research and development, security, and generally powering on buildings for the customers. All of these activities, however, are in service of bringing in new customers, and sustaining their pleasure at that. While the ludo mix as a theoretical framework is entrenched in marketing strategies,

the *Jurassic Park* ludo mix suggest that, across all video game formats and across the franchise's thirty years of games, players are not only encouraged, but incentivized, to think of dinosaurs as commodities, reinforcing troubling themes from the films and novels.

6 Geospatial Markers

Returning to one of Nakamura and Tosca's key insights into ludo mixes — that these games within the ludo mix must preserve some modicum of fidelity or canonicity with respect to the franchise's lore — a curious trait emerges with respect to the dinosaurs' relationship with the real world. The franchise's fiction has generally had a close tie with the real world: the fictional positioning of Isla Nublar and Isla Sorna proximally near Costa Rica, dinosaurs being brought to San Diego in *The Lost World: Jurassic Park*, and most recently, dinosaurs from the parks being unleashed globally in *Jurassic World: Dominion* (2022). Mark JP Wolf speaks to the ties between imagined or virtual worlds and the real world, with imaginary worlds being "the surroundings and places experienced by a fictional character (or which could be experienced by one) that together constitute a unified sense of place which is ontologically different from the actual, material, and so-called 'real' world" (2014: 377). While most of the games in the franchise primarily take place on either Isla Nublar or Isla Sorna, there are several real-world connections that permeate the games. This connection means that dinosaurs are occasionally deployed as geospatial markers that guide gameplay, or they act as bridges between the fictional world and real world.

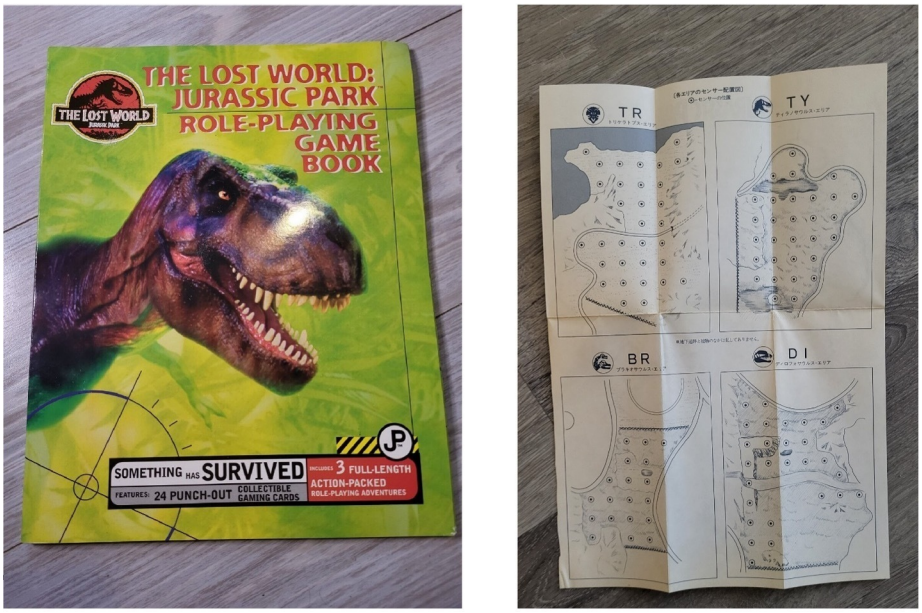

Fig. 6. Images of Jurassic Park role-playing games that utilize geospatiality. L: *The Lost World: Jurassic Park Role-Playing Game Book* (1997, Price Stern Sloan). R: The interior fold-out map for *Jurassic Park: Survival Game* (1993, MCA Agency).

A clear example of this geospatiality might be to think of the Isla Nublar and Isla Sorna maps which are, in part, defined by distinct markers that indicate the habitats of dinosaur types akin to the park's original purpose: a tourist-style zoo. Isla Nublar, for instance, primarily features herbivores or omnivores closer to the visitor center and carnivores towards the back and outer rim of the park's landscape. On Isla Sorna, however, herbivores tend to stay on the outer rim of the island closer to the water, while carnivores congregate in the center of the island. This has an impact on the gameplay of several games, notably *The Lost World: Jurassic Park Role-Playing Game Book* (Price Stern Sloan, 1997). In the first of three adventures, titled "Missing", the first choice revolves around whether players know the eating habits of Stegosaurs: if they remember that Stegosaurs are herbivores, then players will know that they "would find one somewhere along the outer edge

of the island", and if carnivores, "toward the center of the island" (20–21), yet functionally, this adventure only features *Stegosaurs* and *Compies*. On a granular level, the Stegosaurs primarily act as nonlethal challenges or hazards for players to overcome, avoiding stampeding herds or a grumpy Stegosaur swinging its tail in a defensive manner. The first adventure, "Missing," takes place almost entirely on the outer rim of Isla Sorna, whereas Adventure 2, "The Hunter and the Hunted," moves the player further into the island — and therefore, into more dangerous territory. This mirrors the narrative arcs in the first two films of encountering herbivores first before encountering carnivores as the islands are explored.

A similar move occurs within a rare Japanese gamebook, *Jurassic Park: The Role-Playing Game Book* by J.P. Crews and Y. Okada (MCA Publishing Rights, 1993), which features a combination of choose-your-own-adventure branching narratives, manga-esque illustrations, RPG statistics and dice rolling, and most germane to this article, a full map of Isla Nublar that players must navigate based on quadrants that dinosaurs inhabit. Here, the dinosaurs operate as above: they are obstacles, hazards, and adversaries; dinosaur eggs and DNA can be collected (or not); but, gameplay is driven by this geospatiality. In order to determine which page to flip to, players must choose between moving to the *Triceratops*/TR quadrant, the *T.Rex*/TY quadrant, the *Brachiosaurus*/BR quadrant, or the *Dilophosaurus*/DI quadrant. In this way, players are keenly aware of the danger levels in a given space: herbivore quadrants are likely to be safer, while carnivore quadrants represent more danger (though, hazards abound regardless of where on the map the player is).

Dinosaurs' own habitats and preferences for such habitats also dictate how some of these games can be played, acting almost akin to rules at times. Returning to *Jurassic World Evolution*, the overall goal is to build and maintain a successful iteration of Jurassic World, and to do so, players must build habitats that suit each dinosaur species. In the first "Let's Play" video for *Jurassic World Evolution*, Executive Producer Rich Newbold comments that the dinosaurs' natures should, in theory, determine what kinds of fences one builds for the habitat ("Jurassic World Evolution"). Herbivores, for instance, are typically programmed to have a more docile nature, and as such, can typically be contained with the lightest of fences. Most carnivores, however, need more structurally sound fencing, with the largest apex predators (like *T. Rex*) needing electrified and reinforced fencing. Another instance might be found in dinosaur preferences for the space within the enclosure. *Brachiosaurs* tend to prefer rather forested enclosures due to their proclivity for snacking on tall trees, whereas a diplodocus prefers wider grasslands. Likewise, velociraptors thrive in open grasslands while *Dilophosaurs* like similarly forested areas. Thus, the nature of the park's layout and its geospatiality is tied to dinosaur temperaments and habitual preferences.

Even though the five islands in the Muertes Archipelago chain are fictional, the *Evolution* series primarily draw on the geographic location of paleontological dig sites for the in-game fossil expeditions. In order to begin researching new dinosaurs for creation in their park, players must go on an expedition around the globe in order to find new fossils. When players go on expeditions to fossils in *Jurassic World: Evolution*, they choose between available dig sites in the real world: The Lance Formation in Wyoming, United States for *Edmontosaurus*, *Triceratops*, and *Struthiomimus*; the Tendaguru Formation in Mkoa Wa Mtwara, Tanzania for *pterosaurs* and *Kentrosaurus*; and so on. Gameplay hinges upon what dinosaurs are actually discoverable at each dig site, tethering the gameplay to the real-world. Thierry Joliveau notes that "Geospatial technologies contribute to the development of an intermediary territory, a space between the real world and the fantasy world," (2009: 369) wherein fans of popular media (in this case, the *Jurassic Park* franchise) are able to embark upon "set-jetting" to visit real-world filming locations for fantastic and fictional spaces. While one example might be the real-world locations of Kualoa Ranch in Oahu or Manawaiopuna Falls on Kauai, where several iconic scenes of the *Jurassic Park* franchise were filmed, the inclusion of real-world dig sites has the capacity for fostering a reverse set-jetting, should they wish. Each additional connection between the fictional spaces of the *Jurassic Park* franchise and the real world can stitch the two together a little more, and each dinosaur's ludic geospatiality — their in-game bridge to real dig sites and paleontological origins — allows players to bridge that gap further.

In an attempt to follow in the popularity of augmented reality game *Pokémon Go* (Niantic, 2016), *Jurassic World Alive* (2018 –Present, Ludia) requires players to walk around the real world, and interact with digital markers coinciding with physical landmarks and spaces. In doing so, players are able to research new dinosaurs, build a collection of dinosaurs, and even battle other players' dinosaurs. The dinosaurs' in-game geospatial position-

ing guide players throughout the real world. Drawing on the bevy of research on the geographic politics or geospatial trends of similar games like *Pokémon Go* (Colley et al., 2017; Paavilainen et al. 2017; Larissa Hjorth's edited special issue of *Mobile Media & Communication* on *Pokémon Go* 2017; etc.), I look to this instantiation as indicative of the *Jurassic Park* franchise capitalizing on *Pokémon Go*'s popularity, to be sure, but also as attempts to use dinosaurs to further bridge the real world and the ludic, augmented one. *Jurassic World Alive* encourages players to explore the world in order to discover new dinosaurs, becoming an active participant in bridging these ludic worlds together through dinosaurs roaming around an augmented version of real world.

7 "A Do-you-think-he-saurus": Dinosaurs as Learning Tools

For all of the franchise's fantastic elements (dinosaur hybrids, genetic modification) and outdated or factually incorrect traits (Osterloff 2018), their games bely a subsidiary interest in educating players about dinosaurs, their behaviors, and even paleontology itself. Rather than creating a fully educational game or serious game about dinosaurs, these educational elements are most often embedded in the games' menus, secondary features, and central hubs. These educational elements vary in their dispersal and connections to gameplay itself.

Fig. 7. A screenshot from *Jurassic World Evolution* (2018, Frontier Developments) shows an educational panel for a *Struthiomimus*. Further panels and windows provide more information on their eating, mating, and living habits.

Jurassic World Evolution and *Jurassic World Evolution 2*, for instance, hold a massive repository of educational information, filtered through the dinosaurs. As noted previously, this particular pair of games foregrounds dinosaurs as commodities first, so players are first treated to the dinosaur's personal "stat points" or quantified breakdowns of their physical attributes, before being able to see information about the dinosaur itself. Rather than imbue the dinosaurs themselves with factoids, they act as gateways to information, meaning, once players have discovered a new dinosaur to create, they unlock access to additional information about that dinosaur species in the Ingen Database tab. The *Struthiomimus*, players are informed, "was an ornithomimid (bird-like) dinosaur that lived across North America. Its name means 'ostrich mimic' from the long, developed hind legs and bipedal structure indicating a fast runner." There is further information about its physiology, its original discovery, and even its paleoecology — where the fossils have typically been found, and in what ecological conditions (i.e. "Sites where *Struthiomimus* have been found show a remarkable diversity in animal and plant life. There is evidence of freshwater animals indicating water bodies like rivers and lakes"). Each successive dinosaur unlocks its own informational card in the educational database, akin to filling in the fossil record through gameplay, but only as a secondary or tertiary goal for the game. First and foremost is the success of the park itself. This same treatment of dinosaurs-as-portals-to-education occurs in other games, including *Lego Jurassic World*, where players can learn more about each dinosaur they have unlocked by accessing the Visitor Center.

There are times where these educational elements drive part of the gameplay surrounding the dinosaurs. Several scenes or prompts in *The Lost World: Jurassic Park Role-Playing Game* require players to sift through a stack of dinosaur cards (each laden with facts and information about the dinosaurs), then act on the information they find. Adventure 2, "The Hunter and the Hunted," has the following information under prompt #9:

> ...Down below you see a clearing in which a herd of dinosaurs is grazing. The dinosaurs have thick, bony skulls with lots of bumps on them. Off to one side, two of them are butting their heads together like mountain goats. Do you know what sort of dinosaur these are? Look through the dinosaur cards and see if you can identify them.
>
> - If you think you know what they are, go to 13.
> - If you have no idea, go to 48.

In this case, if players know what they think the dinosaur is, they are able to act on that information. If not, they have the capacity to sort through the deck of dinosaur cards and look for dinosaurs that may fit this scenario. If, after sorting through the deck and doing research on the dinosaurs, players are still unable to discern what their character might be seeing, they will go to prompt 48, where the game will reveal that they are, in fact, *Pachycephalosaurs*. Of course, trivia-based games like *Jurassic Park: Bid to Win Trivia Game* (USAOpoly, 2021) position knowledge about the franchise as key to winning the game, but this is less about the dinosaurs acting as portals to education, more about testing one's memory about factoids from the original film trilogy.

More often than not, however, these educational elements are ancillary and entirely optional, suggesting that while the element is present and pervasive through the *Jurassic Park* franchise, it is rarely a dominant one. The *Jurassic Park Evolution* games provide players with statistical information if a player hovers over a dinosaur during gameplay. This pop-up menu displays numerous physical stats of the dinosaur in gamified bars like health, food, comfort, social status; in-game lore about what the dinosaur needs to thrive in the park (not its history or scientific facts); its genetic pedigree (what modifications the player has imbued it with); and its expected lifespan. In other words, the default menu and information array is to treat the dinosaur as livestock, as a commodity. Learning about the creature is secondary, and must be sought out on their own. The same can be said for many of the other games: the above example in *The Lost World: Jurassic Park Role-Playing Game* suggests that players can benefit from educational insight, but in reality, even if they choose prompt 48 and learn about Pachycephalosaurs, the very next prompt returns them back to prompt 13. In this case, while the dinosaur as educational game element exists, and is prevalent, it rarely manifests in such a way as to become the dominant one in a *Jurassic Park* game.

8 "Hold On to Your Butts": The Future of the *Jurassic Park* Ludo Mix

I hesitate to speculate on the franchise's impact on dinosaurs in other games; such an effort lies outside the boundaries of this particular article and its case studies. Further, I would not be so naïve as to suggest that these are the only ludic traits that dinosaurs manifest as or embody within the *Jurassic Park* Franchise, nor that every *Jurassic Park* game advances an ideology or theory in its deployment of dinosaurs. Sometimes, a game is just a prehistoric reskin of a classic board game with a single additional rule, like the *Jurassic Park*/*World* versions of *Kerplunk*, or the *Jurassic World Dominion* iteration of *Uno Attack*, which uses a bespoke *Dilophosaur* head vomiting out Uno cards instead of the game's standard launcher. But, this special issue's contents and retrospectives of a franchise at its 30th anniversary should give an indication of its historical impact, cultural legacy, and influence writ large. The prominence and longevity of the franchise certainly has had an undeniable impact on how dinosaurs are perceived in popular culture, for good and for ill.

These case studies of how the franchise itself has positioned the dinosaurs within their various lines of games gives additional insight into how the dinosaurs have at least been perceived or deployed from a production standpoint. At times, the creatures are treated in a careful, complex manner befitting what paleontological research has revealed about the dinosaurs. Players have the opportunity to experience what it is like to be some of these dinosaurs, experiment with the size and scale of tiny dinosaurs like the *Compsognathus* or the awesome capabilities of the *Mosasaur*. These games also provide crucial learning opportunities embedded in

play itself, providing necessary and crucial education alongside of fun experiences. Unexpectedly, dinosaurs also can act as geospatial markers, moving beyond their awesome and terrible depictions within the franchise. Even further, the ludo mix of the Jurassic Park franchise offers crucial insight into how game elements move from format to format, genre to genre, decade to decade, all traced through the figure of the dinosaur.

More often, though, the game developers — and the entire franchise — seem to utilize the dinosaurs in face of every quotable warning from the books, films, and comics. Their qualities are such that players are expected to harvest, genetically modify, commodify, shoot, and outright hunt them. Players are narratively positioned as benevolent heroes bringing order to the parks, yet ludically don similar roles to villains in many of the films in the name of fun and entertainment: corporate mindsets for monetizing dinosaurs' very existence for the sake of park commerce, or god complexes a la Hammond and Wu in creating dinosaurs with rampant abandon. Time will tell what the next thirty years may look like for the *Jurassic Park* ludo mix. As with any survey-style approach, products were left out of the discussion, including dozens of handheld electronic games, countless video game adaptations (even of the same film!). At the same time, deeper studies of each ludo mix element here are absolutely warranted, as are considerations of the ludo mix's global nature across thirty years of marketing, with many games created by Japanese developers as well as by North American developers, by large teams and by single creators, with radically different audiences in mind from youngsters to adult consumers. All the same, the present analysis reveals a deep need to revisit many of the franchise's games with deeper, critical attention as a significant part of their transmedia portfolio.

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Justin Wigard – University of Richmond (United States)
jwigard@richmond.edu
Justin Wigard is a Postdoctoral Research Fellow in the Distant Viewing Lab at University of Richmond, where he works and teaches in comics studies, game studies, and digital humanities. His current project explores visual representations of race and gender in the contemporary US newspaper comic strip through combined methodologies of comics studies and computer vision. He is co-editor of *Attack of the New B Movies: Essays on SYFY Original Films* (McFarland Press, 2023), the first academic treatment of SYFY Channel's made-for-television films, including *Sharknado* (2013), *2 Lava 2 Lantula* (2016), *Frankenfish* (2004), and more. The book features a cultural history of the SYFY Original Film beginning with the channel's inception in 1992; essays on creature features, genre studies, ecocriticism, and STEM-humanities connections within the SYFY Original Film corpus; and the first filmography of 525 SYFY Originals from 1992-2022. His work has appeared in *INKS*, *Cultural Analytics*, *Genealogy*, *KULA*, and various edited collections. You can find more at his website, justinwigard.com, and you can reach him on most social media platforms @JustinWigard.