

**Delivered at PCA/ACA Conference, Washington D.C.
Science & Popular Culture Area
Panel: From Game of Thrones to Westworld, 19 April 2019
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Presentation Title:

THESE VIOLENT DELIGHTS HAVE VIOLENT ENDS: REPRESENTING

ARTIFICIAL INTELLIGENCE IN HBO'S WESTWORLD

Accompanying visual supercut, played part of presentation

https://www.youtube.com/watch?v=WWIoT_jeZpE&feature=youtu.be

Script

I'd begin with some words from Jonah Nolan, creator of HBO's *Westworld*.

“[People have] started to think of AI only as a question of science fiction, and the reality is these things are happening very quickly. I believe we're going to start grappling with some of these questions far earlier than we anticipated.” Jonathan Nolan (*Westworld* Co-Creator, 2016)

These questions have been grappled by a number of news stories this week. The Wall Street Journal reported yesterday that DeepMind has become the second Alphabet company to disband an AI ethics panel, commentary from the UK considers the ethics of self driving cars, and CBS have commented on an academic studio which identifies bias in AI systems by a workforce dominated by white men. I'll return to some of these issues at the end of this presentation.

The theme park location of HBO's *Westworld* (2016-), shares some traits of Michael Crichton's 1973 feature film of the same name. The park is staffed by android actors, referred to

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within the narrative as 'hosts', indistinguishable from humans and tasked to respond to the often violent whims of the park's visitors – referred to as 'guests', within a cycle of repeated scripted narratives that – in the first season – are situated within the themes of the Western genre.

The narrative of *Westworld* is centred around three main ideas – (1) the development and commercial exploitation of AI robotic technology embodied through the hosts of the park, (2) the ethics related to the deployment of these hosts by both employees of the corporation that created them, Delos, and those human 'guests' of the park, and (3) an exploration of what constitutes consciousness, specifically in relation to emergent artificial intelligence within humanoid robotic physiologies.

In Season One, first broadcast in 2016 and which I'll focus on today, these themes are predominantly explored as a number of hosts appear to develop sentience as they stray from their pre-scripted programming. As in so much other science fiction, from Mary Shelley's *Frankenstein* (1818) to Alex Garland's *Ex Machina* (Garland, 2015), *Westworld* uses these themes to consider notions of identity, memory and the formulation of the self and subjectivity. As the series develops, it becomes clear that the host's programming has been adjusted by the park's co-founders Dr. Robert Ford (played by Anthony Hopkins) and Arnold Weber (played by Jeffrey Wright). The pair hope that through introducing trauma and loss into the experience of the hosts by enacting within them the ability to recall the suffering of their past selves within the park

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through memories - referred to as 'reveries' within the series - the hosts' consciousness can be jump started and that they will work themselves free of their subjugation by the Delos corporation programming and develop a true sentience of their own.

The story unfolds across four distinct timelines: (1) the park's present day, which Reddit users have identified as being 2052, (2) one year prior to that moment, (3) thirty years prior to that moment and (4) and – perhaps most significantly for an audience – including myself - who have concerns about the ethical and industrial implications of machine learning - a period that begins 37 years prior to the park's present day, in events that take place in the years between 2015 and 2022. As part of the series commitment to a puzzle that sits within the narrative, the shows creators offer little in the way of traditional expositional clues – preferring that the audience disentangle the characters and events unfolding across these four timelines. This feat is made more challenging by the android hosts, who do not age and are tasked to play different characters during their deployment in the park and a further complication is added by the series not directly signposting the dual identity of some of the human guests who age as they reappear across different timelines.

Instead of providing its exposition primarily by dialogue, clues in *Westworld* as to a particular timeline or character's identity are drip fed through subtleties of the mise-en-scene and mise en-bande. The former is represented both in the production design and in internal visual

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grammar of the show - where conventions of cinematography and editing established in early episodes are later broken in order to signify a disturbance in the park or a host's deviation from their programming. As an example of this, in the season finale, as one of the host characters may or may not have made a decision of her own free will, the cinematography moves from Steadicam to handheld shots. Showrunner Jonah Nolan suggests that, at this moment, the change in aesthetic indicates that the character is free: "We're no longer in programmatic or prescribed behaviors," He says "She's improvising and we're right there with her" (in Riesman, 2016).

More unusually, and in addition to these visual signifiers, a large amount of narrative information is also communicated through the *mise-en-bande*, or the interaction of sonic components on the soundtrack with the image. This is achieved both through sound design, and in the deployment of original music written for the series and existing music tracks deployed both non-diegetically and within the diegesis as source music. By aligning the creative practice of those involved in the production – drawn from interviews I've conducted with the show's co-creator Jonah Nolan, producer Stephen Semel and supervising music editor Christopher Kaller – with a close analysis of the scenes they discuss, this presentation examines the significance placed on these techniques as a carrier of expositional information and ethical uncertainty of the use and abuse of AI within *Westworld*.

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Directed by Patrick Clair of production studio Elastic, this two-minute Main Title sequence for Season One articulates the themes of the show as a whole. The sequence shows a series of abstract images depicting the creation of a horse and a humanoid host by Delos machinery.. In the titles, these images of creation cut a number of times to a piano keyboard.

Initially, this is presented in an abstract image that shows an industrial robotic arm stringing keys to the pin block of an upright piano. Later the robot arm is revealed to complete its work on a white hand – bare of skin but otherwise fully formed – showing a host playing the melody of the show's title music on the piano. Eventually, this player lifts their hands from the keyboard revealing the instrument to be a player piano, a self-playing instrument that uses a mechanism to perform pre-programmed music inputted into the device through a perforated paper roll. The next shot discloses to the viewer the source of the melody, showing the perforated holes of the music roll forming the code that indicates the notes to be played by the machine. The following wide shot reveals the player piano and its perforated program performing without the skeletal host at all.

In the pilot, a piano can be heard within the opening moments accompanying the character Teddy Flood's transport to Sweetwater, the town at which all of the guests start their adventure within the park. The origins of this music written specifically for the show within the diegesis are revealed in a close up of the perforated music roll and player piano as the train

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arrives at the town's station. Music supervisor Chris Kaller explains the significance of the motif: "The hosts are in a loop which restarts every day, and the player piano signals that. Every day the piano resets, you hear the switch happen, the gears get going and it plays through as the hosts restart" (2018). In a later scene, taking place at a central location of Sweetwater, the Mariposa Saloon, an extreme close up of the player piano establishes a visual motif for its use. As the piano's take-up spool spins and its tracker bar clicks into place, music begins to play and the perforated roll is revealed as the camera tracks left to right across the instrument. In this instance, however, differentiating this moment from the earlier scene where the piano plays diegetically, the music further draws attention to itself not through the player piano playing an original piece of music, but in its iteration of a cover version of Soundgarden's 1994 track 'Black Hole Sun' (S1E1, 35:38).

The use of Soundgarden in this sequence establishes another convention – the use of cover versions that the composer Ramin Djawadi has described as piano reductions– draw attention to the repetition of the park's false recurring narratives before later indicating to the audience when deviations in the park's scripted storylines are emerging as the hosts become more sentient. This function is further developed in Episode Two where a piano reduction of Radiohead's 'No Surprises' is played twice (S1E2, 14:31 & 22:17). The first occurrence of the cue is an accompaniment to a dialogue sequence between the Saloon's madam Maeve Millay (Thandie Newton) and a male guest, when Maeve experiences a brief flashback to a memory

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from her past. The cue is repeated in a scene in the same episode when Maeve speaks to a female guest, its use here drawing the audience's attention to the scripted nature of Maeve's delivery of dialogue identical to that of earlier scene- her programming ensures repeatability. In both instances the cue is introduced visually in a manner that directly mirrors the Main Title sequence with an extreme close up of the perforated music roll (the camera tracking left to right) followed by a close up of the keyboard and a wider shot of the piano in the context of the saloon.

This citation of extra-textual sources is embedded in the show's production culture through the use of scripted, sonic and visual references that draw from a deep cultural well of cinema, literature, mythology, theology and fine art (Hoffman, 2016; Winckler, 2017). Nolan explained that the park in *Westworld* is: "built on allusion, homage, and theft. We wanted those musical motifs to follow the characters on their journeys, a constant reminder that both the hosts and their world are creations" (2018). This Radiohead cue is extra-textual, remember this is 50 years in the future, and its use both reminds the audience of the inherent inauthenticity of the park within the larger world of the show and I argue remind the audience of the relationship between the shows representation of AI in the future, and our own more familiar present day.

In Season One this occurs most often in relation to the character Maeve, the violence of Robert and Arnold's reveries causing her to flashback to past narratives and triggering an awakening to the constructed nature of her reality. Maeve's growing awareness of the false

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reality and machinations of the park, paralleled by a similar awakening by the character Dolores, serve as the major story arcs of the season. As an example, at the beginning of Episode Six, Radiohead's 'Fake Plastic Trees' plays diegetically (S1E6, 1:40) as Maeve wakes up and walks to her saloon – a sequence repeated a number of times within the series. In the following episode, Maeve awakes for the first time to no musical accompaniment - indicating a break in the repetition of the narrative cycle. In the next shot, the player piano creaks into life, the cue slow to reach its usual tempo (S1E7, 13:50) as Maeve makes her way through the town. This slowing or distorting of previously deployed cues accompanied by slow motion visuals is used as a device within the series to signal an imminent disruption of the park's pre-programmed narrative. As she enters the saloon, the player piano is foregrounded both visually and in the soundtrack – she slams the piano's lid shut, both ending the cue and indicating her desire to break from the Delos programming. In the very next shot, however, the piano lid is open, a subtlety of production design rather than a continuity error that suggests a slip in the timeline as Maeve sits at the bar and speaks to her colleague Clementine.

In the episode 8, a piano reduction of Amy Winehouse's 'Back to Black' (S1E8, 28:41) shown to occur in the diegesis by the now familiar click of the mechanism, a close up reveal of the perforated piano roll and its keyboard. In a break from the previously established visual conventions, however, the camera tracks right to left across the roll. This reversal in the direction

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of the camera movement is significant and indicates a further layering of clues for the attentive viewer as to the narrative and timelines ceded within the mise-en-scene.

The Winehouse cue plays as Maeve rises from her bed, walks through the town to the Saloon and speaks with the Clementine – substituted by another actress, following the malfunction of the earlier model - at the bar. The cue pauses for a moment as Maeve challenges the saloon's barman. He glitches for a second, indicated through his facial twitching, and the diegetic player piano cue restarts as he processes and accepts a new narrative reprogrammed by Maeve's spoken instructions. Maeve surveys the bar and, on seeing a small girl and her mother at the window, the piano cue ends again as she is drawn into a flashback to a previous timeline. The 'Back to Black' cue returns for a third time as the flashback recedes and Maeve returns to the present moment. The piano reduction ends, the sequence demonstrating a key development in the season - Maeve's ability to alter the scripted narratives of the hosts through her own spoken commands – effectively allowing her to reprogram hosts within the park.

According to the title sequences's director Patrick Clair, a player piano was a prominent piece of furniture in *Westworld*'s production office (in Perkins, 2016), and has been described by Jonah Nolan as one of a number of "touchstone images" of the series (in Crow, 2016). Nolan explained to me that he and co-creator Lisa Joy: "settled on the image of the player piano very early, as we were developing the story for the pilot. I had been struck by the penny-

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farthing bicycle used in the opening credits of *The Prisoner*, and I thought we could take something antique, benign, almost comical, and turn it into something much more ominous. We were struck by the idea of the player piano – taking a page from [Kurt] Vonnegut's 1952 novel of the same name – as the original western robot. The great granddaddy of our newly sentient hosts." (2018). This embedding of the piano as a motif, as a callback to previous extra-textual televisual and literary references and as a metaphor for the hosts is typical to the series – where choices made within the show build a palimpsest of meaning. Throughout *Westworld* the use of music and the deployment of the piano reductions serves as a metaphor for the shadow of human control over the park's robotic 'hosts', and the desire of the park's creators for these robotic inhabitants to break free of their programming in order to reach self-actualisation and sentience.

Both Vonnegut's book and Nolan and Joy's *Westworld* feature dystopic worlds where mechanisation and automation have disrupted individual identity, social structures of class and politics. The piano in Vonnegut's novel, as in *Westworld*, serves as a metaphor. An early scene in the novel finds men forced out of work by the advent of the machine age and widespread automation sadly watch a player piano recount a track while they drown their sorrows in a dusty bar. The characters of both the novel and television series are also similar, in that it is engineers – embodied by Robert and Arnold - rather than capitalists – embodied by James Delos (Peter Mullan) – who are the oligarchs of their relative worlds. In another similarity between book and television series, the central story of rebellion is told from two different positions – the first from

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the perspective of the hosts, the discontented population ensconced within the scripted system of *Westworld*, and the second of the guests and engineers who are outside looking in. Both consider each group's choices to pursue lives predicated on seeking either happiness, revenge or freedom. Both stories offer revolutionary narratives orientated around the perception of ideas around technological 'progress' which are not matched in the pace of social, economic and political change.

The lessons of both the HBO series and Vonnegut's novel are the same – encouraging us to pay attention to the technological change occurring around us. Science fiction may often present dystopias, but Nolan and Joy's fictional representations of the complex implications of machine learning offer considerable philosophical insight into the implications of ethical deployment of technology. Perhaps tech companies such as DeepMind project – currently considering the implications of AI in healthcare – could learn something from the experience of Maeve and Dolores, Robert and Arnold.

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- *Black Hole Sun*
- *Exit Music (For a Film)*
- *Fake Plastic Trees*
- *House of the Rising Sun*
- *Main Title Theme – Westworld*
- *No Surprises*
- *Rêverie*
- *Reveries*
- *Sweetwater*
- *What Does This Mean?*

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