

Guest Editors' Introduction: Virtual reality: immersion and empathy

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Hype cycles

Many of us are 'over' virtual reality (VR), even if it has yet to happen in the way we imagine it. Always about to arrive, VR has exhausted any sane sense of anticipation. To sustain itself, the enthusiasm that it sparks about what could be over the next technological horizon sometimes rebounds, instead, toward the past to rediscover historical precursors. Witness, for example, the unlikely resuscitation of the Viewmaster in 2015, using a smartphone as a very expensive, moving-image stereoscope.¹ As popular interest waxes and wanes, VR seems to have always been around and to be always emerging, but never to have completely arrived.

According to business analysts and investment bankers, almost all emerging technologies follow a 'hype cycle' that has five phases.² A 'technology trigger' instigates the cycle, driving excitement about the next big thing toward a 'peak of inflated expectations'. As this fails to appear as quickly and perfectly as imagined, hopes sink into a 'trough of disillusionment', slowly struggle back up a 'slope of enlightenment', and then, ideally, level out into a 'plateau of productivity' in which progress takes place at a reasonable pace. This plateau may appear unproductive, as the technology recedes from popular attention, until another 'triggering' technical leap restarts the cycle and inflames expectations again.

While the accuracy of the 'hype cycle' model remains open to question, VR seems to have been through this cycle several times at least. How many times depends on what could be defined as an 'earlier' form of contemporary VR. This could trace back through the glove technologies of the 1980s, experiments with head-mounted displays in the 1950s and 60s, forms of 3-D and moving image 'peep' media around the turn of the 20th century, 19th-century

stereoscopes and panoramas, and so on, all the way back to the shadows in Plato's cave.³ It seems clear, however, that the most recent cycle was triggered around 2012, when Palmer Luckey launched a kickstarter campaign for his new Oculus headset. Luckey was born in 1992, during the last VR boom, and describes being influenced by the way virtual reality was imagined in Neal Stephenson novels and Matrix movies.⁴ He decided to take another stab at this aspiration by developing a lighter weight, less expensive VR interface that would leverage new display technologies that had rapidly advanced alongside the spread of smartphones. This technical shift suggested that VR might finally be able to break through as a widespread consumer technology.

Facebook certainly thought so, and its 2014 purchase of Oculus for \$2.3 billion may mark the current cycle's 'peak of inflated expectations'. In a Facebook post announcing the acquisition, Mark Zuckerberg gushed that:

The incredible thing about the technology is that you feel like you're actually present in another place with other people. People who try it say it's different from anything they've ever experienced in their lives . . . This is really a new communication platform. By feeling truly present, you can share unbounded spaces and experiences with the people in your life. Imagine sharing not just moments with your friends online, but entire experiences and adventures . . . Virtual reality was once the dream of science fiction. But the internet was also once a dream, and so were computers and smartphones. The future is coming and we have a chance to build it together.

Facebook's intention to integrate VR into its social media platform helped validate the idea that it could soon be as everyday as smartphones. HTC, Valve, Sony, and a multitude of new startups and VR initiatives quickly announced their own intentions and pushed their own innovations in this area. Sony's Playstation VR (PSVR) has sold 4.2 million headsets (Shuman, 2019) as of March 2019, while mid-2018 user data from Valve's Steam platform shows around 650,000 users with high-end VR headsets plugged in, 0.78 percent of total users (Lang, 2018). In 2019, *Beat Saber* became the first VR game to sell over one million copies. These numbers are exponentially large compared to the number of VR devices in use in the 1990s, while the cost of entry has fallen in almost inverse proportion.

More than half a decade into the current VR boom, Facebook's stated goal of putting a billion people in VR is still far, far away and consumer interest has been slowing down. As in the aftermath of the earlier 1990s VR boom, however, specialized uses are quietly proliferating. VR is now a well-established tool in many areas of architecture and 3D product design, particularly for high-ticket items where even small improvements to the design workflow can justify the added expense. VR training in corporate and military contexts is

the target of increasingly large investments, such as Walmart's 2018 purchase of 17,000 Oculus Go headsets for employee training in the United States. In health care, VR offers new ways for doctors to interface with patients' bodies, and gives patients access to therapeutic environments and potentially less invasive forms of pain relief. In museums and contemporary art, VR has quickly become an accepted medium, taken up by established artists like Laurie Anderson, Olafur Eliasson, and Hito Steyerl. VR continues to evolve as an educational tool, with more and more research into the potentials and risks of VR pedagogy. And while the audience for VR games and VR cinema is still just a small fraction of those for gaming and film as a whole, every year sees advances in the sophistication and variety of works produced.

Like artificial intelligence, which has had similar waves of popular hope and fear in between long periods of neglect, VR tends to resuscitate the same thorny questions every time it reappears. These questions are sharpened, however, now that VR platforms have become a kind of litmus test within larger battles over user attention and user data. In the context of broad concerns over cybersecurity, surveillance, and data privacy, questions of control become paramount. Who will own the dominant VR platforms of the future? How will the platforms be monetized? What protections will be in place surrounding the copious amounts of personal and biometric data VR produces? How will they connect to other non-VR platforms and databases? What are the ethical implications of asking someone to put on a headset, especially as VR travels across national and cultural borders, and is put to work toward social and political ends far beyond the imagination of current VR developers? The provisional answers to these questions are all currently being decided, establishing standards and practices that may be with us for many years to come.

Academia, too, has its hype cycles. The new humanities scholarship on VR (including the work in this issue) builds on an earlier wave of VR scholarship that still has much to offer, not least because the new revival has given renewed life to many of the same claims and concerns from this earlier period (Bolter and Grusin, 1999; Grau, 2003; Hillis, 1999; Murray, 2017[1997]; Shields, 2002). As a concept, 'virtual reality' cannot be disentangled from its initial late 1980s–early 1990s context, including associated concepts like cyberspace, cyberpunk, and postmodernism. Even as many theorists gladly jettisoned these terms to make space for the internet and digital media theory that followed, the current VR revival hints that the conceptual and technological hangover from that period remains with us still. In many ways the theoretical questions that found their center of gravity in VR in the early 1990s were not so much resolved as displaced. They have now returned with a vengeance, drawing power from all the digital media infrastructures developed in the interim. Along with an examination of what VR means today, the time is ripe for a reevaluation of this earlier period in light of all that has happened since – and all that has stubbornly remained the same.

Without doubt, the media landscape has changed dramatically. By the turn of the century, media studies had largely graduated from Baudrillardian concerns about the simulacra of cyberspace and the seemingly imminent threat of digital disembodiment. This was replaced by a focus on networks, algorithms, online identities, and mobile media. Yet here we are again worrying about full-scale perceptual immersion, fabricated worlds that look convincingly real, and the ethics of wearable technologies that work directly on the body. Today, work on VR is inflected by questions about global material infrastructures and environmental impact, automation and artificial intelligence, accessibility and algorithmic bias. Work addressing these issues is just beginning to emerge (see, for example, Evans, 2018; Refractory, 2018), but there is much left to be done. VR is still in desperate need of perspectives from cultural studies, media studies, art history, and other related approaches found here in this issue. Buffeted by hype, hope, and skepticism from all sides, VR as a practice and a subject of study has much to gain from taking a step back and working through where the medium fits into these larger historical, cultural, and technological currents.

This themed issue of *Journal of Visual Culture* includes work from both emerging scholars and well-established voices who have long shaped the discourse on VR. The articles here build on previous scholarship while also rethinking VR in light of the pressing cultural and technological issues that have since come to the fore. VR is a medium few would claim to have fully figured out, with everything from basic aesthetic principles to larger hardware and software standards still in continuous flux. The shape of the VR industry even five or ten years from now is difficult to predict, even as it appears likely it will persist in some form. Rather than attempting to predict the future, this issue considers the current stakes of immersive media today. Rather than attempting to define what VR really is, was, or will be, these articles aim to engage questions about our contemporary technological context that VR's shifting instantiations make it particularly well positioned to answer.

Immersion and empathy

For this themed issue of the *Journal of Visual Culture*, we have chosen to focus on the dominant form of contemporary VR today: interactive 360-degree moving image experiences that require a stereoscopic headset as well as additional input devices and motion tracking sensors. This decision excludes the field of Augmented Reality (AR), which certainly overlaps with VR, as well as more conventional still or moving images that can be rotated with a mouse or trackpad around a 180- or 360-degree perspective (often used in real-estate or, more recently, journalism such as NYTVR). One reason we chose to narrow our scope in this way is because this type of VR requires specific forms of visceral engagement that have underwritten much-lauded claims that contemporary VR can induce

heightened experiences of immersion and of empathy. Analyzing examples from art and games to commercial platforms, the articles here each work to interrogate the ethical, philosophical, and aesthetic questions raised by these claims and expectations.

This issue opens with an article by Janet Murray that serves as a foreword and offers an important context for readers who may be new to this topic. Murray looks back to the last wave of scholarship about VR, including her own pioneering work, to assess what has and has not changed in contemporary debates about VR's new and emerging forms. She shows how the current revival of VR also revives many of the hopes and confusions that structured earlier iterations.

The first part of the themed issue focuses on rethinking the 'VR empathy' debate that sprung from a series of contentious claims that VR's increased sensory immersion directly translates to an increased potential to generate empathy, and that this can be a vector for social change. Chris Milk's 2015 TED talk first popularized the idea of VR as the 'ultimate empathy machine', claiming his VR documentary *Clouds Over Sidra* (2015) – produced for the UN to document the humanitarian crisis facing Syrian refugees – could put audiences 'inside' the Za'atari refugee camp with a young girl named Sidra.⁵ Milk described VR as a new form of cinematic experience that was so radically immersive, it was 'poised to combat apathy and elicit empathy from our fickle, oversaturated millennial minds.' He claimed that:

When you're inside of the headset . . . you see full 360 degrees, in all directions. And when you're sitting there in her room, watching her, you're not watching it through a television screen, you're not watching it through a window, you're sitting there with her. When you look down, you're sitting on the same ground that she's sitting on. And because of that, you feel her humanity in a deeper way. You empathize with her in a deeper way.

The video of Milk's talk (now at over 1.5 million views on the official TED site) spurred an ongoing debate over what this claim to empathy really entails. For media historians and artists, claims like Milk's echoed colonialist rhetorics that have often framed new visual media as allowing increased – and one-directional – access to 'other' places and people. The three articles in this section of this issue thus contest simple arguments about empathy to find more analytically and critically precise vocabularies for the affects and emotions produced with and through VR. They suggest how the potential for intersubjective and interpersonal violence may be the mirror image of VR's promise to, as Zuckerberg puts it, 'feel like you're actually present in another place with other people'.

Grant Bollmer and Katherine Guinness offer a critique of the 'empathy machine' discourse before attempting to push these empathy claims to their extreme limit through a close reading of Jordan Wolfson's controversial VR installation *Real Violence* (2017). The following piece by Lisa Nakamura extends her earlier work on the racial dynamics of online interaction to critically examine claims of racial empathy in virtual reality. Finally, Paul Roquet draws on the detailed VR imagination of *Sword Art Online* (2009–present) to propose an understanding of VR as creating empathy not for those people and places presented within it, but rather for VR developers who promise to fulfill users' immersive fantasies through virtual worlds they control.

The three articles that form the second section of this issue focus on questions of immersion – spatial, perceptual, and proprioceptive. Claims of immersion in VR are often articulated in comparison to preceding media forms like cinema and video games. As VR proponents have attempted to specify what distinguishes it as a medium, they have unwittingly repeated promises of verisimilitude accompanying the emergence of new media technologies at least since the 19th century. There is, undeniably, much that is novel in VR's immersive aesthetics, even as it draws from a wide range of earlier media and other spatial practices like theater, architecture, and installation art. By correlating its representational cues with a user's internal senses of spatiality, dimensionality, movement, and position, VR prompts users to actively incorporate and construct whatever takes place as part of being within a virtual world. Rather than simply asserting this novelty, however, our contributors endeavor to understand the critical implications of VR's particular forms of immersion. They use methods from comparative literature, communication studies, art history, and film and media studies to critically interrogate the techniques and technical rhetorics supporting VR's constructions of immersion, and consider the ethics of placing VR users within or in proximity to otherwise inaccessible terrain.

Maria Engberg and Jay David Bolter open the section by presenting a critical overview of immersive VR aesthetics, clarifying the different affordances of 360-degree video and 3D stereoscopic imagery. Michael LaRocco's article follows with a close reading of prominent VR developer guidelines from Oculus, pointing to consumer VR's endlessly deferred promise of full spatial immersion. Finally, Brooke Belisle thinks through *GoogleEarth VR* (2016) to examine what happens when this promise extends to the planet itself, seeming to put the 'world within reach' by aligning technical and embodied processes of world-creation.

Inevitably, these articles engage with objects that are not always easy to access and often exist to be experienced only briefly. Given that the terrain of VR is itself constantly shifting, 'new' and 'old' examples and perspectives

can often switch places and interleave. We offer the articles in this issue as a contribution to wider conversations emerging both in traditional disciplines as well as across the interdisciplinary fields of visual studies, game studies, film and media studies, software studies, and science and technology studies. We hope readers will look toward this larger context to discover much of what had to be left out here. But we also hope that these articles will establish why, despite its tiresome hype cycles, and its repeated booms and busts – or perhaps, because of them – VR remains crucial for thinking about larger issues in contemporary media and mediated experience more broadly. Even as it continues to transform, VR will continue to be a critical site where the tensions between ‘real’ and ‘virtual’ are renegotiated and reconceived.

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Notes

1. Available at: <https://www.forbes.com/sites/davidewalt/2015/02/13/mattel-and-google-relaunch-view-master-as-a-virtual-reality-headset/#283d49bc7f73>
2. The research and advisory firm Gartner has published graphs showing hype cycles of emerging technologies each year since 1995: see <https://www.gartner.com/en/research/methodologies/gartner-hype-cycle>
3. Other examples might include August Fuhrman's 1890 Kaiserpanorama, Morton Helig's 1960 Telosphere Mask and 1965 Sensorama, Ivan Sutherland's 1968 head-mounted display, Jaron Lanier's late 1980's Data Glove, and so on
4. Available at: <https://www.vanityfair.com/news/2015/09/oculus-rift-mark-zuckerberg-cover-story-palmer-luckey>; <https://www.telegraph.co.uk/technology/11309013/Oculus-Rifts-Palmer-Luckey-I-brought-virtual-reality-back-from-the-dead.html>
5. A video of this now infamous talk can be found at: https://www.ted.com/talks/chris_milk_how_virtual_reality_can_create_the_ultimate_empathy_machine?language=en

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