Ethics of a Virtual Reality Future: Dominated by Corporations

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Technology is advancing at an extremely rapid rate. One technological development with major appeal is virtual reality. Numerous individuals, including renowned researchers and scholars, agree that virtual or extended reality "is the technology platform of the future."[1] Although the possibilities of a virtual reality future seem attractive at face value, basic ethical grounds must be covered when concerning the looming threat of a virtually transformed society lacking formal law, order, and privacy especially when being subsumed by large corporate backings. In order to provide adequate context for the current standing —and future possibilities— of virtual reality, the term itself will be defined, alongside a historical recap of virtual reality technologies and future research. Then, the following three main topics pertaining to ethics will be covered moving forward: law and governance changes when inside a virtual realm, the enforcement of such laws in virtual worlds, and issues of privacy between virtual and non-virtual reality. Finally, the consequences of corporate dominance in virtual metaverses will be highlighted with respect to the aforementioned three topics.

Oftentimes, the term "virtual reality" and the corresponding phrases that coincide are filled with either overly technical jargon or loaded buzzwords; therefore, it is necessary to clarify what "virtual reality" specifically means for the current scope. It is common that when the concepts of virtual/extended reality, metaverses, etc. are referenced, individuals immediately think of popular literature and films such as *The Matrix*.[2] These mediums depict fantasied versions of worlds that are completely virtual and difficult to distinguish from real life. It is not entirely absurd to imagine that similar virtual worlds are possible to obtain through actual technology as advancements are made rapidly. However, one can also argue that the current world is already virtual — to a lesser extent obviously. As of July 2022, 5.03 billion people

[1] Samuel Greengard, *Virtual Reality*, (Cambridge, Massachusetts: MIT Press, 2019), 120.
[2] Lana Wachowski and Lilly Wachowski, *The Matrix*, (United States: Warner Bros, 1999).

around the world use the internet and 4.7 billion people have social media accounts.[3] Even from a young age, children get attached to technology via phones, television, and other modern technologies. Additionally, much of the world's infrastructure has become digitized and individuals spend countless hours each day connected with their electronics. Thus, many individuals can perceive their life, and the life of others around them, as already virtual. A distinction must be made here for clarity, however, between the extreme, futuristic type of virtual reality and the virtual world of the present. Matthew Cotton utilizes a useful distinction in his texts, where he considers "a fully [realized] and indistinguishable technology-generated artificial [reality]… complete."[4] On the contrary, he labels the current standing of humans' virtual realities as "covert virtual reality."[5] From here forward, Cotton's terms will be utilized; complete virtual reality refers to virtual reality of the future where humans are entirely within virtual dimensions that equate to real life (similar to *The Matrix*), and covert virtual reality refers to virtual reality of today's technology. The focus remains on complete virtual reality, but both are useful to understand because covert virtual reality can be concretely analyzed, whereas complete virtual reality relies on many assumptions since it does not currently exist – or have widespread usage and active users. Also, analyzing covert virtual reality can assist in understanding and applying ethics to complete virtual reality. Note that any subsequent technical terms will be defined as they occur.

Understanding the extensive history of how technology has developed to reach the current covert virtual reality builds the context needed for laying certain groundworks of ethics. The core of virtual realities in general (covert and complete) is to alter the perception of

[3] "Internet and Social Media Users in the World 2022," Statista Research Department, last modified September 20, 2022, https://www.statista.com/statistics/617136/digital-population-worldwide/.
[4] Matthew Cotton, *Virtual Reality, Empathy and Ethics*, (Cham, Switzerland: Palgrave Macmillan, 2021) 26.
[5] Ibid.

individuals to make it seem as though they perceive reality, but in a digital form. Essentially, virtual realities trick the human eyes and mind. They are simply just a form of illusions. Humans have created illusions that match the definition of an extended reality, where the mind is deceived, for centuries. For instance, "the first extended reality most likely appeared in the form of cave drawings and petroglyphs."[6] There are cave sketches of images that confuse the brain to see either a bison, saber-toothed cat, or person. Many centuries later, artists furthered the form of illusions by continuing to create art that made the brain see things that did not really exist or make logical sense. A massive breakthrough in illusions that aligns with virtual reality is the introduction of lenses to produce three-dimensional objects via hand-held stereoscopic viewers in the 1900s. Though these illusions were just static, it was a massive leap toward imagining worlds that were fully disjoint from reality. At the advent of the digital computer age, the concept of lenses was heightened to include sound, feel, and other sensory elements to expand upon the illusions of being in another world. Greengard provides a phenomenal recount of specific advances in his first chapter that outlines each step to lead to covert virtual reality today.[7] It is evident that each step brings covert virtual reality closer to complete virtual reality.

Furthermore, recognizing the numerous facets of research that assist in developing complete virtual reality helps gain the insight needed to study the ethical concerns as cutting-edge technological progression occurs. Now, there are aspects of virtual reality in numerous spheres, "appearing in games, research labs, and industrial settings" to name a few.[8] Additional applications are also being explored such as metaverse tourism. Metaverse tourism incorporates aspects of the tourism economy to an ecosystem of a metaverse including augmented reality,

[6] Samuel Greengard, *Virtual Reality*, (Cambridge, Massachusetts: MIT Press, 2019), 1.
[7] Samuel Greengard, *Virtual Reality*, (Cambridge, Massachusetts: MIT Press, 2019), 1-35.
[8] Samuel Greengard, *Virtual Reality*, (Cambridge, Massachusetts: MIT Press, 2019), 6.

lifelogging, mirror worlds, and virtual worlds.[9] Nevertheless, to reach complete virtual reality, a majority of researchers in the virtual reality sector keep in mind the elements of Myron Kreuger's thesis from 1974: "wholly computer generated, …interactive, and immersibility…"[10] Alongside these elements, research is done to make access to virtual reality devices easier by making the technology more affordable and mass producible for average consumers. User experience is also a big factor for developers because virtual reality devices must be comfortable for extensive periods of use if they are ever to reach complete virtual reality. Research is done to make the headsets lighter and more portable while reducing strain on users. However, further down the line, researchers share the desire to increase the overall level of immersion to reach complete virtual reality – even beyond headsets. Cotton includes a diagram of the continuum of computer-mediated realities where there are four types of virtual reality base on the level of immersion.[11] The discussion here pivots on complete virtual reality which is considered type four – the highest level of immersion on Cotton's continuum.[12] Therefore, consider that the other three types: window-on-a-world (phones, tablets, etc.), augmented reality (Pokémon Go), and mixed reality (remote surgery) separate from complete virtual reality because they are blended with reality, not indistinguishable. The mentioned research, therefore, sets a baseline for where ethics should be applied in discussion with complete virtual reality.

Utilizing the knowledge of the history and research areas of both covert and complete virtual reality guides into the topic of the application, or lack thereof, laws and governance changes when dealing with completely virtual realms. Since even covert virtual reality is a new

[9]Chulmo Koo, Jookyung Kwon, Namho Chung, and Jungkeun Kim, "Metaverse Tourism: Conceptual Framework and Research Propositions," *Current Issues in Tourism*, (2022): 1-7. https://doi.org/10.1080/13683500.2022.2122781.

[10] Matthew Cotton, *Virtual Reality, Empathy and Ethics*, (Cham, Switzerland: Palgrave Macmillan, 2021) 8.

[11] Matthew Cotton, *Virtual Reality, Empathy and Ethics*, (Cham, Switzerland: Palgrave Macmillan, 2021) 11.

[12] Ibid.

development, or even the internet in general, there are major concerns of a lack of legislation. It is inevitable that many laws will need to clarify and define the limits of all extents of virtual reality. There are moral issues which will be highlighted that require legal intervention. Law professors from UCLA and Stanford claim that "Virtual Reality (VR) and Augmented Reality (AR) are going to be big… Like many big technological advances, they will in some ways challenge legal doctrine…"[13]

However, the dilemma is that the virtual worlds themselves are disjointed from reality in complete virtual reality. This dilemma raises the counterargument opponents have against law and order within virtual spaces. Although this dilemma exists, a clear-cut response is that covert and complete virtual reality's technology is always grounded in physical reality – real life. The worlds themselves may also need different laws and approaches based upon some virtual worlds being inherently "evil" comparatively to other virtual worlds.[14] For instance, the covert virtual world in the popular video game series *Grand Theft Auto* is inherently "evil" compared to another covert virtual world in the game series *Animal Crossing*. This is the case because the former title encourages violence and allows the player to commit heinous crimes against nonplayer characters (NPCs) while the latter promotes a more leisure, non-violent virtual environment. Nevertheless, the interactions that occur between humans in completely virtual worlds corresponds to interactions between physical beings; therefore, laws *must* be enacted to safeguard the ethics of established societies. Thus, the argument against legislation forming in virtual worlds is weak and clashes with the ethics already associated with societies in non-virtual reality.

[13] Samuel Greengard, *Virtual Reality*, (Cambridge, Massachusetts: MIT Press, 2019), 177.
[14] Brenden Shea, "The Problem of Evil in Virtual Worlds," in *Experience Machines: The Philosophy of Virtual Worlds* (London; Lanhem, Maryland: Rowman & Littlefield International, Ltd, 2017), 137-154.

Since it has been established that laws are necessary to maintain order in covert and complete virtual realities to align with ethics grounded in non-virtual reality, a specific example of one moral issue that can and will occur in virtual worlds should be noted. Expanding on the notion of more evil virtual worlds, the general issues pertain to artificial intelligence 'living' in these worlds.[15] The moral and ethical implications of artificial intelligence require extended discussion, which is outside the current scope; however, an assumption can be made on artificial intelligence: if there is advanced artificial intelligence in future virtual worlds, then moral and ethical non-artificial intelligent agents need some obligations when interacting with such beings. The exact legislation needed to govern such interactions depends mostly on the extent of how intelligent the artificial beings are. A somewhat analogous scenario can be seen in the current laws between humans and animals. Certain animals, like household pets, are held to higher regards in comparison to farm animals used for food in slaughterhouses. This topic itself is controversial because the superiority of humans comes into question. It brings into question why certain animals are given precedence over others. If it is due to the intelligence level of say dogs or cats, where is the subsequent line drawn between humans and AI? Thus, the similarity relates to the controversy around humans and artificial intelligent beings in virtual worlds because of human-centric ideals in society. The point of the argument is that because there are laws that doctrine such interactions in the real world, it is likely that similar laws, and the corresponding debates, will be needed in virtual worlds. Other examples besides evil in virtual worlds can similarly accomplish the same argumentation point such as virtual harassment, abuse, etc., but the takeaway remains the same: law changes are unavoidable to maintain an ethical approach to handle problems in virtual worlds while protecting individuals that are still grounded in reality.

[15] Brenden Shea, "The Problem of Evil in Virtual Worlds," in Experience Machines: *The Philosophy of Virtual Worlds* (London; Lanhem, Maryland: Rowman & Littlefield International, Ltd, 2017), 137-154.

The next issue then arises of how laws can be enforced in a society that fully shifts to complete virtual reality. A major issue for covert virtual reality currently is that policies vary depending on the country of users. For instance, certain web services and tech devices are completely banned in some nations, while other nations lack any notable jurisdiction for emerging technology. However, many users can simply work around bans put in place using virtual private networks (VPNs). Also, consumers can illegally import and ship devices that are banned within their regions. To counteract such instances, stricter enforcement can take place; yet, even in the United States, "Congress has never passed a comprehensive framework for regulating online services, leaving federal oversight fragmented, incomplete, under-resourced, and unable to respond…"[16] Because there is already a clear lack of unified oversight or regulation by large governments, as covert virtual reality rapidly progresses toward complete virtual reality, a similar disregard by governments is likely to occur due to them not keeping pace with rapid technology development. Another glaring problem is that within future, completely virtual realities there will be a need for legislation depending on each world. Using the previous example of two video game worlds, both worlds would require vastly different legislation to hold users accountable for breaking laws that defy agreed upon ethics grounded in non-virtual realities. Overall, the problem of enforcing legislation or providing any oversight to virtual spaces is paramount and a large ethical concern.

Returning to the ethics grounded in reality, the next topic needed to be highlighted is privacy concerns between virtual reality and non-virtual reality as it ties in heavily to the subsumption of development by large corporations spearheading the virtual future. The major

[16] Erin Simpson and Adam Conner, "How to Regulate Tech: A Technology Policy Framework for Online Services," *Center for American Progress*, November 16, 2021, https://www.americanprogress.org/article/how-to-regulate-tech-a-technology-policy-framework-for-online-services/.

concern is that user information and actions within virtual worlds run by corporations will be at the mercy of the corporations. As aforementioned, there is no unified body regulating actions that take place in covert virtual reality, and it may be the case that the same issue ensues with complete virtual reality. Thus, there is no guarantee that corporations will have to abide by ethical data protection and freely circulate data as they please – whether it be to advertisers, malicious users, or foreign governments without the consent of individual consumers. This is a major concern as "the increased amount of personal data given through XR [covert/complete virtual reality] devices increases the risks of privacy breaches, which could be even more devastating in a Metaverse…"[17] The concern clashes with individuals' ethics because corporations will have free reign over an even greater abundance of data if complete virtual reality is reached with them having maximum control with minimal oversight.

The three core ethical concerns of virtual reality that were discussed —legislation, enforcement of said legislation, and privacy concerns— together exemplify the issue of corporate dominance. Because corporations have a massive steak in virtual reality development, red flags for ethics must be raised. Furthermore, due to the lack of federal oversight from governments and any international regulation, as outlined earlier regarding lacking enforcement of virtual laws, corporations that produce the largest online frameworks and technology devices have no restrictions in enacting rules as they deem suitable. This is particularly problematic since shifting from covert virtual reality, which is evidently already consumed by the largest corporations, toward complete virtual reality will only heighten the issue of ethics in emerging technology.

[17] Chris Warin and Delphine Reinhardt, "Vision: Usable Privacy for XR in the Era of the Metaverse," *ACM International Conference Proceeding Series*, (September 29, 2022): 111-116, https://doi.org/10.1145/3549015.3554212.

Corporations dominating development and control of the overall virtual reality space is also detrimental to individuals' personal ethics, regardless of their origin, due to the failures that already exist in covert virtual reality; analysis of this can be done on current virtual reality and other present tech spaces dominated by corporations. Already, researchers extensively study the drastic effects of technology on individuals that leads to social isolation — the paper itself concludes that more research is needed for the newer technologies, but evidence from the data collected does point toward isolation occurring in individuals that are on social media.[18] Nevertheless, there are blatant matters ranging from cyberbullying, fraud, etc. that large corporations sometimes avoid or have loose restrictions on. A counter to this would be that there are too many users to manage; however, it is crucial that solutions are found as complete virtual reality requires even more intervention. If corporations are already struggling to, or purposefully ignoring, ethical concerns of issues similar to the ones described above, then the same points will further collapse. A strong and powerful response to the counter to corporations' lack of attention being warranted is that corporations are fundamentally driven by profits, so they have less motivation to uphold concerns user face with respect to ethical problems society is facing in the shift to a total virtual future.

Although there are ethical concerns as highlighted until now, there are definitely positives of covert and complete virtual reality, ranging from advances in health care, simulations for safety, training, and even in research — one novel paper even utilized virtual

[18] Yogesh K. Dwivedi, Laurie Hughes, Abdullah M. Baabdullah, Samuel Ribeiro-Navarrete, Mihalis Giannakis, Mutaz M. Al-Debei, Denis Dennehy et al. 2022, "Metaverse Beyond the Hype: Multidisciplinary Perspectives on Emerging Challenges, Opportunities, and Agenda for Research, Practice and Policy," *International Journal of Information Management* 66, no. 1 (October 2022): 2-48, https://doi.org/10.1016/j.ijinfomgt.2022.102542.

reality to understand how personality affects criminals.[19] Yet, to conclude, individuals must be diligent and recognize the risks to everyone's ethics when corporations have priority without rigorous oversight in developing the technology that may eventually shift society from covert virtual reality toward a complete virtual reality.

[19] Iris van Sintemaartensdijk, Jan-Willem van Prooijen, Claire Nee, Marco Otte, and Paul van Lange. "Personality and Burglary: A Virtual Reality Study." *Personality and Individual Differences* 196, no. 1 (October 2022): 1-9. https://doi.org/10.1016/j.paid.2022.111712.

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