



# Avatars in the metaverse: potential legal issues and remedies

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**Abstract** This article discusses some of the issues surrounding an avatar of a real-life person in a metaverse. Given that the anticipated rise of metaverse is a developing area, the first part of the article discusses what the metaverse would entail, some suggestions on what these avatars would be like, why such avatars' rights should be protected and whether consciousness should be a defining characteristic before these rights are granted. The second part of the article analyses incorporation techniques to grant legal personality to avatars in the metaverse as well as some of the potential harms that avatars could cause there, potentially leading to an extension of the real world. The third part of the article deals with imposing liability on a real-life person by lifting the 'veil' of the avatar to identify the real person behind the avatar through four foreseeable scenarios, i.e. fraud, defamation, identity theft and crime. The article briefly explores other potential legal issues in the metaverse. The article makes two final recommendations, the possibility of statutory remedies and judicial interpretation to rectify torts committed by avatars.

**Keywords** Avatars · Rights · Metaverse · Legal Issues · Remedies

**Avatare im Metaversum – potenzielle Rechtsfragen und Lösungsansätze**

## 1 Introduction

There has been much discourse about metaverses in both science fiction and in the gaming community, but the number of legal academic articles dedicated specifically

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to the metaverse have been limited. For example, it was reported as late as May 2021 that attention from legal practitioners is still nascent where the metaverse is concerned.<sup>1</sup> Instead, one must consider the concept of ‘virtual worlds’, on which numerous articles have been written<sup>2</sup> in order to extrapolate some of these ideas to potential legal issues in the metaverse. In addition to this, there have been numerous articles written on artificial intelligence law and regulation, especially on robots, drones and autonomous vehicles.<sup>3</sup> The metaverse is a ground-breaking development and has the potential to reshape how we work, learn and socialise in a virtual world.<sup>4</sup>

The metaverse was first coined by author Neal Stephenson in his 1992 novel ‘Snow Crash’, and portrayed in sci-fi film such as ‘Ready Player One’.<sup>5</sup> Perhaps how the metaverse may look like in the future can be gleaned from the episode of ‘Striking Vipers’ of Black Mirror’s fifth season.<sup>6</sup> In order for the real-life person to experience the sensations<sup>7</sup> of a martial arts video game in virtual reality (i.e. a game metaverse), a disc interface had to be affixed onto the temple of a player to allow a neural link between the virtual reality device and the brain to form.<sup>8</sup> The body would then convulse mildly in response to stimuli from the metaverse while the mind is transported into the metaverse where the players take on an avatar. One of the issues in the movie was whether feelings developed by an avatar for another avatar in the metaverse would translate to real-world feelings if the parties behind their avatars met up in real-life.<sup>9</sup> Thus, this presents a real-world problem with the

<sup>1</sup> Jeena Greene, “Reed Smith boldly goes where no law firm has gone before—the metaverse” (21 May 2021) Reuters <<https://www.reuters.com/business/legal/reed-smith-boldly-goes-where-no-law-firm-has-gone-before-metaverse-2021-05-20/>> (accessed 4 October 2021).

<sup>2</sup> Tiffany Day, “Avatar Rights in a Constitutionless World” (2009) 32(1) Hastings Communications and Entertainment Law Journal 137–156; Bettina M Chin, “Regulating Your Second Life: Defamation in Virtual Worlds” (2007) 72(4) Brooklyn Law Review 1303–1349; Greg Lastowka and Dan Hunter, “The Laws of the Virtual Worlds” (2004) 92(1) California Law Review 1–77.

<sup>3</sup> See e.g. Jacob Turner, *Robot Rules* (Palgrave Macmillan 2019) pp 173–205; Simon Chesterman, “Artificial Intelligence and the Limits of Legal Personality” (2020) 69(4) International and Comparative Law Quarterly 819–844; S. M. Solaiman, “Legal personality of robots, corporations, idols and chimpanzees: a quest for legitimacy” (2017) 25(2) Artificial Intelligence and Law 155–179; Ben Chester Cheong, “Granting legal personhood to artificial intelligence systems and traditional veil-piercing concepts to impose liability” (2021) 1(9) SN Social Sciences 231, pp 1–20.

<sup>4</sup> Ryan Faughnder, “Former Disney chair Bob Iger invests in metaverse company Genies” (14 March 2022) Los Angeles Times <<https://www.latimes.com/entertainment-arts/business/story/2022-03-14/former-disney-chair-bob-iger-invests-in-metaverse-company-genies>> (accessed 26 March 2022).

<sup>5</sup> Matthew Sparkes, “What is a metaverse” (2021) 251 New Scientist, 3348, p 18.

<sup>6</sup> Matt Reynolds and Victoria Turk, “Black Mirror, Striking Vipers review: VR sex should be more fun than this” (5 June 2019) Wired <<https://www.wired.co.uk/article/black-mirror-season-5-striking-vipers-review-episode-1>> (accessed 7 October 2021).

<sup>7</sup> Emma Stefansky, “Black Mirror Imagines What VR Sex Could Be Like in Its Season 5 Episode Striking Vipers” Thrillist (6 June 2019) <<https://www.thrillist.com/entertainment/nation/black-mirror-striking-vipers-episode-explained>> (accessed 22 September 2021).

<sup>8</sup> Jon Christian, “Elon Musk Compares Neuralink to a Black Mirror Episode” (20 August 2020) Futurism <<https://futurism.com/the-byte/elon-musk-neuralink-black-mirror>> (accessed 7 October 2021).

<sup>9</sup> Hannah Shaw Williams, “Black Mirror Season 5: Striking Vipers Ending Explained” Screenrant (7 June 2019) <<https://screenrant.com/black-mirror-season-5-striking-vipers-ending-explained/>> (accessed 22 September 2021).

metaverse because it may become possible for people to experience a whole range of emotions in the metaverse without “ever interacting with another person in real life”.<sup>10</sup>

There is at present no agreed definition of what a metaverse is, although for a metaverse to develop, a number of supporting infrastructures, such as 5G, virtual reality, hologram technology and advanced graphic and data processors would have to be developed and integrated simultaneously.<sup>11</sup> Ball has attempted to identify key characteristics of a metaverse. Among them, “it has to span the physical and virtual worlds; contain a fully-fledged economy; and offer unprecedented interoperability, i.e. users have to be able to take their avatars and goods from one place in the metaverse to another, no matter who runs that particular part of it. Critically, no one company will run the metaverse, i.e. it will be an ‘embodied internet’, operated by many different players in a decentralised way”.<sup>12</sup>

## 2 The concept of an avatar in the metaverse

The development of the metaverse is still in the nascent stages, but it has the potential to play a large part in human existence.<sup>13</sup> One view is that the metaverse would be a ‘parallel universe’ existing alongside the real world where human beings possess an avatar that resides in the metaverse, and virtual reality would be one of the many access points.<sup>14</sup> In this metaverse, there would be no boundaries and it would be decentralised such that it does not have centralised ownership.<sup>15</sup>

### 2.1 The development of avatars

A highly futuristic avatar would probably do away with physical devices to create the virtual and augmented reality sensations. Instead, a wireless chip or interface of the kind in the episode of ‘Striking Vipers’ of Black Mirror’s fifth season would have to be implanted or affixed to the temple to allow for a two-way neural link

<sup>10</sup> Hannah Shaw Williams, “Black Mirror Season 5: Striking Vipers Ending Explained” Screenrant (7 June 2019) <<https://screenrant.com/black-mirror-season-5-striking-vipers-ending-explained/>> (accessed 22 September 2021).

<sup>11</sup> Adrian Pennington, “NVIDIA: The metaverse is coming” iBC365 (7 October 2020) <<https://www.ibt.org/trends/nvidia-the-metaverse-is-coming/6864.article>> (accessed 22 September 2021).

<sup>12</sup> Matthew Ball, “The Metaverse: What It Is, Where to Find it, Who Will Build It, and Fortnite” MatthewBall.vc (13 January 2020) <<https://www.matthewball.vc/all/themetaverse>> (accessed 22 September 2021).

<sup>13</sup> Cathy Hackl, “The Metaverse is coming and it’s a very big deal” (5 July 2020) Forbes <<https://www.forbes.com/sites/cathyhackl/2020/07/05/the-metaverse-is-coming--its-a-very-big-deal/?sh=3b9a9105440f>> (accessed 1 October 2021).

<sup>14</sup> Doug Antin, “The Technology of the Metaverse, It’s Not Just VR” (5 May 2020) Medium <<https://medium.com/swlh/the-technology-of-the-metaverse-its-not-just-vr-78fb3c603fe9>> (accessed 7 October 2021).

<sup>15</sup> Casey Newton, “Mark in the Metaverse” (22 July 2021) The Verge <<https://www.theverge.com/22588022/mark-zuckerberg-facebook-ceo-metaverse-interview>> (accessed 7 October 2021).

between the brain and the chip, which would then be a gateway into the metaverse.<sup>16</sup> This is one way the metaverse infrastructure might look in the distant future.<sup>17</sup> Elon Musk's Neuralink has recently demonstrated how a monkey with an implanted brain-chip was able to play a videogame by thinking.<sup>18</sup> Neuralink's technology has demonstrated that it is possible for brain signals to be transmitted to control an external device through the implanted chip. This is a situation where one is using the brain to control an external device. In order for the actions of the avatar to potentially affect the human being, the chip would need to be able to receive and process signals emanating from the avatar in the metaverse and transmit them to the brain.<sup>19</sup> This does not seem impossible in the near future, as ground-breaking developments by a neurotech start-up Synchron has demonstrated.<sup>20</sup>

When users interact through their avatars, there may be situations where some form of altercation occurs that would equate to breaking the law, if it took place between people in the real world. Such incidents could be in breach of tort law (which covers civil claims such as negligence or nuisance) or criminal law (involving illegal acts and crime such as assault, murder, burglary or rape).<sup>21</sup> If an avatar assaults another, would the criminal laws of assault and battery apply to this situation? Such issues in the metaverse would arise as users would expect their avatars' rights to be protected in the metaverse. Hence, one way the problem could be resolved would be by making an avatar responsible for their actions in the metaverse. But this is complicated, because it would mean that we need to attribute a legal persona to the avatar, accord these avatars rights and duties within a legal system and allow them to sue or be sued.<sup>22</sup> The more difficult issues would be the kind of standards and criteria that would need to be in place to distinguish between a 'legal' avatar and the real-life person (or an entity) who operates that avatar.

The law would need some mechanism to address actions taken against an avatar that may affect a human being behind the avatar, and to address actions taken by an avatar that may affect other avatars or people. It is also acknowledged that apart

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<sup>16</sup> Anne McKinnon, "These Technologies are bringing us into the Metaverse" (31 March 2020) The Boolean <<https://theboolean.io/2020/03/31/these-technologies-are-bringing-us-into-the-metaverse/>> (accessed 7 October 2021).

<sup>17</sup> Anne McKinnon, "These Technologies are bringing us into the Metaverse" (31 March 2020) The Boolean <<https://theboolean.io/2020/03/31/these-technologies-are-bringing-us-into-the-metaverse/>> (accessed 7 October 2021).

<sup>18</sup> Richard Chang, "Elon Musk's Neuralink shows monkey with brain-chip playing videogame by thinking" (10 April 2021) Reuters <<https://www.reuters.com/technology/elon-musks-neuralink-shows-monkey-with-brain-chip-playing-videogame-by-thinking-2021-04-09/>> (accessed 2 October 2021).

<sup>19</sup> Jaspreet Bindra, "The big promise of Elone Musk's 'neuralink' with extended reality" (3 September 2020) Mint <<https://www.livemint.com/opinion/columns/the-big-promise-of-elone-musk-s-neuralink-with-extended-reality-11599149454124.html>> (accessed 7 October 2021).

<sup>20</sup> Dan Robitzski, "How a small Neurotech startup beat Elon Musk's Neuralink to human studies" (11 August 2021) Futurism <<https://futurism.com/neoscope/neurotech-startup-beat-elon-musk-neuralink-fda-approval>> (accessed 2 October 2021).

<sup>21</sup> Pin Lean Lau, "From Data to User Interactions: Legal Issues Facing the Metaverse" (1 February 2022) The Fashion Law < <https://www.thefashionlaw.com/from-data-to-user-interactions-legal-issues-facing-the-metaverse/>> (accessed 26 March 2022).

<sup>22</sup> Visa AJ Kurki, *A Theory of Legal Personhood* (Oxford University Press 2019).

from affording rights to an avatar, it is also possible to apply other legal constructs, such as simply applying current conceptions of causality, i.e. that one is deemed to have caused harm to a human being if one knows a human being was behind the avatar.

Another way to visualise the future of metaverse would be to understand it through the online game platform and game creation system that has been developed by Roblox.<sup>23</sup> In Roblox's iteration of the metaverse, users can update their avatars with new clothing, hair and accessories on a regular basis using digital items, and developers and creators will be able to generate revenue by selling user-generated content.<sup>24</sup> Virtual worlds are serious revenue generators. Gucci, for instance, ran its own 'Gucci Garden Experience' event in the Roblox online platform in May 2021. Players were able to try and purchase fashion accessories for their avatars. The digital 'Queen Bee Dionysus' bag was listed for 475 Robux, which was equivalent to \$5. But it was eventually sold for \$4115. This was real money as players would need to purchase Robux, the virtual currency of Roblox using real money.<sup>25</sup>

## 2.2 Protecting avatars' rights in the metaverse

The main challenge here would be trying to protect rights and impose liability using existing legal concepts. If an avatar steals a digital 'Gucci bag' in the 'metaverse', this would involve issues relating to property rights, theft and intellectual property law. If loss of money or reputation of a real-world person or company is involved, there is a case to be made that these are legal problems sufficiently substantive to warrant a real claim in a real court of law.<sup>26</sup>

As the metaverse becomes more fully developed and jurisdictional issues relating to the location of the avatar to determine the appropriate forum to resolve potential dispute becomes unclear, it may be the case that an international law of metaverse could be developed to deal with these issues.<sup>27</sup> This paper suggests that some concepts from company law could be incorporated into this metaverse law. In a decentralised metaverse of the type envisaged by Bell, avatars could be incorporated as a legal person by borrowing concepts from existing company law principles in common law.

Where an avatar possesses artificial intelligence capabilities by continuously learning from its human host on how it would make decisions, execute contracts and

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<sup>23</sup> Tristan Cross, "Roblox wants to build the Metaverse. Can it?" (4 July 2021) Wired <<https://www.wired.co.uk/article/roblox-metaverse>> (accessed 2 October 2021).

<sup>24</sup> Maghan McDowell, "Inside Roblox's metaverse opportunity" (14 September 2021) Vogue Business <<https://www.voguebusiness.com/technology/inside-robloxs-metaverse-opportunity>> (accessed 2 October 2021).

<sup>25</sup> Natalie Clayton, "Someone spent over \$4,000 on this Gucci bag in Roblox" (7 June 2021) PC Gamer <<https://www.pcgamer.com/someone-spent-over-dollar4000-on-this-gucci-bag-in-roblox/>> (accessed 2 October 2021).

<sup>26</sup> Tania Su Li Cheng, "A Brave New World for Intellectual Property Rights" (2006) 17 Journal of Law, Information and Science 10.

<sup>27</sup> Bettina Chin, "Regulating Your Second Life: Defamation in Virtual Worlds" (2007) 72(4) Brooklyn Law Review 1303, 1315.

supervise others on its own in the metaverse, there is a case to be made that avatars should be granted legal personality in the metaverse. This legal personality could be conferred through the process of registration, with each natural person entitled to only one avatar in this decentralised and limitless metaverse. Arguments to attribute legal personality to robots have previously been mooted,<sup>28</sup> so the concepts can be stretched to cover avatars in the metaverse.

Lucchetti has previously argued that the benefit of conferring legal personality to an artificial intelligence system would be the presence of a corpus of rules to deal with rights and liabilities between one another and other human beings.<sup>29</sup> Similar concepts could apply to avatars in the metaverse. Incorporating avatars in the metaverse would allow specific rules to be imposed on it in order to govern its rights and obligations in the metaverse.

### 2.3 The impetus to protect avatars' rights in the metaverse

The concept of the avatar is generally used to refer to users' virtual self-representation.<sup>30</sup> It is argued that not regulating avatars in the metaverse can have serious ramifications as the very structure of cyberspace permits a separation between a person's real identity and their virtual one. Franks has observed that while cyberspace is often regarded as more real than real life, harms committed in cyberspace are often dismissed as not really real, as they are by their nature not physical, bodily harms.<sup>31</sup>

Avatars allow users to separate themselves from who they really are, and they can behave in ways their users never would in real life, making it possible for individuals to communicate and act in ways that would not be possible in the offline world.<sup>32</sup> This supposed anonymity that the avatar has in the metaverse and its empowerment of the real-life person could give rise to an exercise of power in an arbitrary manner to advance one's personal interest at the expense of the community at large. This could lead to societal instability as individuals could have their possessions taken away from them without any form of recourse.<sup>33</sup> This is the reason why society has rules in place to deal with deviations from acceptable conduct. In return for the expectation

<sup>28</sup> See for instance, Joanna Bryson et al., "Of, for, and by the people: the legal lacuna of synthetic persons" (2017) 25 *Artificial Intelligence and Law* 273–291.

<sup>29</sup> Stefania Lucchetti, "Why Artificial Intelligence Will Need a Legal Personality" (22 May 2017) *LawCrossBorder* <<https://lawcrossborder.com/2017/05/22/why-robots-need-a-legal-personality/>> (accessed 26 January 2021).

<sup>30</sup> Bernard Marr, "What is the Metaverse? An easy explanation for anyone" Bernard Marr & Co (3 September 2021) <<https://bernardmarr.com/what-is-the-metaverse-an-easy-explanation-for-anyone/>> (accessed 5 October 2021); Bobby Carlton, "CEO of Ready Player Me Talks VR Avatars and The Metaverse" *VR Scout* (3 October 2021) <<https://vrscout.com/news/ceo-of-ready-player-me-talks-vr-avatars-and-the-metaverse/>> (accessed 5 October 2021).

<sup>31</sup> Mary Anne Franks, "Unwilling Avatars: Idealism and Discrimination in Cyberspace" (2011) 20(2) *Columbia Journal of Gender and Law* 224, 226.

<sup>32</sup> Mary Anne Franks, "Unwilling Avatars: Idealism and Discrimination in Cyberspace" (2011) 20(2) *Columbia Journal of Gender and Law* 224, 232.

<sup>33</sup> John Locke, "Two Treatises of Government and A Letter Concerning Toleration" (Ian Shapiro ed) (Yale University Press, 2003), pp 107, 154–156.

that society would be able to safeguard individuals' other rights, individuals would have to give up the right to punish someone on their own. Stability in society can only be achieved if the rule of law is applied equally to everyone and not just to advance the interests of a select few.<sup>34</sup> Hence, there is a case to be made for an avatar's rights in the metaverse to be similarly protected.

## 2.4 Granting rights to avatars if they possess consciousness

The current metaverses, at least those existing, are very much on the internet and can be depicted through multiplayer games. One manifestation of this at present would be Roblox.<sup>35</sup>

In determining whether an avatar should be granted rights that a human being possesses, one must first understand the requirements to be recognised as a natural person. If what separates a natural person from everything else (be it a robot, animal, computer simulation, or virtual game, etc.), is 'consciousness', then it becomes necessary to explore what the requirements of consciousness are.<sup>36</sup> It appears that the two requirements for consciousness are the feeling of arousal and awareness.<sup>37</sup> If this view is adopted, the difference between a human being and an avatar is this concept of consciousness.

Indeed, equity was developed to deal with the harshness of the common law through one's understanding of 'conscience'. Drakopoulou has argued that "equity, as we are reminded, was originally employed to remedy defects of the common law on grounds of conscience and natural justice, with an ecclesiastic chancellor acting as keeper of the king's conscience".<sup>38</sup> In *BOM v BOK*,<sup>39</sup> a Singapore court decision which involved a wife who sought to deprive her husband of almost all his assets in the aftermath of an extremely traumatic event in the husband's life by getting him to sign a deed of trust giving away essentially all his assets and rendering him a pauper. Vitiating factors that affect one's conscience such as unconscionability and undue influence were considered.<sup>40</sup>

<sup>34</sup> John Locke, "Two Treatises of Government and A Letter Concerning Toleration" (Ian Shapiro ed) (Yale University Press, 2003), pp 155–156.

<sup>35</sup> Haihan Duan et al., "Metaverse for Social Good: A University Campus Prototype" (20–24 October 2021) In Proceedings of the 29th ACM International Conference on Multimedia <<https://doi.org/10.1145/3474085.3479238>> (accessed 6 October 2021).

<sup>36</sup> Chen Jiahong and Paul Burgess, "The boundaries of legal personhood: how spontaneous intelligence can problematise differences between humans, artificial intelligence, companies and animals" (2019) 27 Artificial Intelligence and Law 73–92.

<sup>37</sup> David Fischer et al., "A Human Brain Network Linking Arousal to Awareness" (2016) 86 Neurology 16 <[https://n.neurology.org/content/86/16\\_Supplement/S35.004/tab-article-info](https://n.neurology.org/content/86/16_Supplement/S35.004/tab-article-info)> (accessed 6 October 2021).

<sup>38</sup> Maria Drakopoulou, "Equity, Conscience and the Art of Judgment as Ius Aequi et Boni" (2000) 5(1) Law Text Culture 19.

<sup>39</sup> *BOM v BOK and another appeal* [2019] 1 SLR 349 at [102]–[155].

<sup>40</sup> See Alexander Loke, "Mistakes in Algorithmic Trading of Cryptocurrencies" (2020) 83 The Modern Law 1343–1353.



For many years, characters in a game [e.g. Runescape, a fantasy massively multiplayer online role-playing game ('MMORPG')], were not capable of exhibiting a conscience.<sup>41</sup> Hence, it would be absurd to allow one player to sue another player in the virtual world if one player engaged in player versus player combat (PvP), killed their opponent and claimed the opponent's items as a reward. If we were to argue that avatars in the metaverse should be granted rights similar to those human beings possess and use consciousness as a determinant to decide whether avatars should be granted rights, the question then becomes at which stage of the technological development this conferral of rights should be permitted.<sup>42</sup>

If an avatar in the metaverse unconscionably forces another avatar in the metaverse to give up all his possessions similar to the situation in *BOM v BOK*,<sup>43</sup> the issue is who experiences this unconscionability. If science and technology have progressed to such a state that when a human being enters the metaverse, a neural link would be formed between one's brain and one's avatar, then it may be possible to argue that the avatar itself is able to experience consciousness (e.g. the '2045 initiative' by Dmitry Itskov).<sup>44</sup> In that situation, if the avatar has been accorded legal personality, then it would be possible for the aggrieved avatar to sue another avatar for inducing the avatar who might be suffering from an 'infirmary' to enter into a contract. At present, it would be difficult to imagine how vitiating factors such as unconscionability could apply to avatar-to-avatar dealings because the avatars as we understand in existing online MMORPG platforms do not exhibit such an independent 'conscience' in the first place, but even this concept of conscience as we understand it is under threat by the doctrine of solipsism, i.e. the problem of other minds.<sup>45</sup>

It is arguable that avatars, at least in MMORPG at present, clearly fall short of the avatars possessing this degree of 'consciousness'.<sup>46</sup> Even artificial intelligence interfaces at present, including DeepMind,<sup>47</sup> are not at the stage where one can say that it has developed full consciousness (i.e. the ability to feel arousal and awareness) or perhaps to function without any human intervention.<sup>48</sup> Nonetheless, technology is advancing rapidly and it is difficult to predict when the metaverse will become

<sup>41</sup> Alfred Fritzsche V, "Trespass to (Virtual) Chattels Assessing Online Gamers' Authority to Sell In-Game Assets Where Adhesive Contracts Prohibit Such Activity" (2007) 8 UC Davis Business Law Journal 235.

<sup>42</sup> Vivek Kumar, "AI Avatar: Understanding the Next-Gen Artificial Intelligence Development" (18 December 2020) Industry Wired <<https://industrywired.com/ai-avatar-understanding-the-next-gen-artificial-intelligence-development/>> (accessed 6 October 2021).

<sup>43</sup> *BOM v BOK and another appeal* [2019] 1 SLR 349 at [102]–[155].

<sup>44</sup> David Alayon, "2045 by Dmitry Itskov" (2 August 2018) Future Today <<https://medium.com/future-today/2045-by-dmitry-itskov-bc09e0b5c58a>> (accessed 6 October 2021).

<sup>45</sup> John Horgan, "How Do I Know I'm Not the Only Conscious Being in the Universe?" (11 September 2020) Scientific American <<https://www.scientificamerican.com/article/how-do-i-know-im-not-the-only-conscious-being-in-the-universe/>> (accessed 6 October 2021).

<sup>46</sup> Hannah Shaw Williams, "Black Mirror Season 5: Striking Vipers Ending Explained" Screenrant (7 June 2019) <<https://screenrant.com/black-mirror-season-5-striking-vipers-ending-explained/>> (accessed 22 September 2021).

<sup>47</sup> DeepMind Technologies is an artificial intelligence company. Its program, AlphaGo was able to beat a human professional Go Player Lee Sedol, the world champion, in a five-game match.

<sup>48</sup> Ragnar Fjelland, "Why general artificial intelligence will not be realized" (2020) 7 Humanities and Social Sciences Communications 10.



mainstream. Indeed, the pace of technological developments has led a former ‘Go’ champion beaten by DeepMind to retire from professional play after declaring that artificial intelligence is an entity that cannot be defeated.<sup>49</sup>

## 2.5 Protecting avatars’ rights in the metaverse through incorporation

Where an avatar in the metaverse is concerned, perhaps exhibiting a ‘conscience’ should not be the only criterion in determining whether an avatar should be granted legal personality. Instead this legal personality should exist within the metaverse itself, such that anyone who creates an avatar within the metaverse agrees to subject their avatars to legal personality that would be governed by the laws of the metaverse.<sup>50</sup> Such laws could also stipulate that the separate legal personality of the avatar would be disregarded if crimes or torts had been committed. Thereafter, liability on the ultimate human being existing behind the avatar would be determined by a sliding scale of harm inflicted to both the metaverse community and the real-world community.<sup>51</sup>

*B2C2 Ltd v Quoine Pte Ltd*,<sup>52</sup> was a dispute which involved the algorithmic trading of cryptocurrency and exposed significant monetary losses that an end-user of the software could suffer when the software malfunctioned, especially since actual money was involved in these trades.<sup>53</sup> The Singapore court held that it could look at the mindset of a human actor, namely the programmer and his knowledge of the software.<sup>54</sup> This meant that the trading software programme was not deemed as capable of exhibiting its own mind. The algorithmic trading software carried out trades only as it had been programmed. Had the software involved deep machine learning, the trading software programme could then ‘learn’ how to trade. Over time, it could develop its own trading algorithm not within the contemplation of the original programmer. In that situation, it would be both unforeseeable and unfair to ascribe liability on the original programmer, as there would be no relevant human actor’s mind-set to consider.<sup>55</sup>

<sup>49</sup> James Vincent, “Former Go champion beaten by DeepMind retires after declaring AI invincible” *The Verge* (27 November 2019) <<https://www.theverge.com/2019/11/27/20985260/ai-go-alphago-lee-se-dol-retired-deepmind-defeat>> (accessed 24 January 2020).

<sup>50</sup> Morteza Vesali Naseh, “Person and Personality in Cyber Space: A Legal Analysis of Virtual Identity” (2016) 10(1) *Masaryk University Journal of Law and Technology* 1–22.

<sup>51</sup> Perry Parks et al., “Don’t Hurt my Avatar: The Use and Potential of Digital Self-Representation in Risk Communication” (2014) 4(2) *International Journal of Robots, Education and Art* 10–20.

<sup>52</sup> *B2C2 Ltd v Quoine Pte Ltd* [2019] 4 SLR 17, on appeal *Quoine Pte Ltd v B2C2 Ltd* [2020] 2 SLR 20.

<sup>53</sup> See Alexander Loke, “Mistakes in Algorithmic Trading of Cryptocurrencies” (2020) 83 *The Modern Law* 1343–1353.

<sup>54</sup> *B2C2 Ltd v Quoine Pte Ltd* [2019] 4 SLR 17 at [211], on appeal, see also *Quoine Pte Ltd v B2C2 Ltd* [2020] 2 SLR 20 at [39].

<sup>55</sup> Mark Coeckelbergh, “Artificial Intelligence, Responsibility Attribution, and a Relational Justification of Explainability” (2020) 26 *Science and Engineering Ethics* 2051–2068.

Should the metaverse be developed according to that envisioned by Ball,<sup>56</sup> then it becomes important from a regulatory perspective that the corresponding law on metaverse be developed to deal with this development. The existing situation in the online world where there is a wrong done to the avatar appears to be very limited recourse. It seems that if someone plays a game and suffers physical or mental harm, liability would fall on the manufacturer or distributor of the gaming system.<sup>57</sup> However, in a metaverse which is decentralised, it would be difficult to pinpoint a ‘manufacturer’ to ascribe liability to. This can be visualised through Bitcoin, i.e. if someone loses his or her Bitcoin, it makes no sense to sue Satoshi Nakamoto, the supposedly reported inventor of Bitcoin, because he cannot be identified.<sup>58</sup> In such an ecosystem of a metaverse, a way forward would be to view it as a virtual community existing in parallel to our real-world community.

If we accept that, similar to the real-world community, activities in the metaverse should be potentially subject to regulation, then the next issue is considering which type of law this metaverse regulation should be based on.<sup>59</sup> In this article, the argument is for the regulation to be based on company law principles, which would offer a potential solution to the various factual situations raised by the metaverse. Having said that, company law principles alone would not be able to solve every conceivable issues that could arise in the metaverse, and it is outside the scope of this paper to deal with the various laws that would need to be developed to deal with these issues.<sup>60</sup>

The paper argues that all avatars in a metaverse should be subject to registration, similar to how a company is incorporated. In order for this to work, legislation would need to mandate minimum capital requirements for avatars in the metaverse. The metaverse ecosystem made up of infrastructures that the avatars interact with, such as schools, workplaces and retail shops, would need to be similarly registered. These infrastructures should then have a higher minimum capitalisation mandated in order to meet potential liability claims in the metaverse.<sup>61</sup> The concept of causation

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<sup>56</sup> Matthew Ball, “The Metaverse: What It Is, Where to Find it, Who Will Build It, and Fortnite” Matthew-Ball.vc (13 January 2020) <<https://www.matthewball.vc/all/themetaverse>> (accessed 22 September 2021).

<sup>57</sup> John Villasenor, “Products liability law as a way to address AI harms” (31 October 2019) Brookings <<https://www.brookings.edu/research/products-liability-law-as-a-way-to-address-ai-harms/>> (accessed 6 October 2021).

<sup>58</sup> Song Yo-Der and Tomaso Aste, “The Cost of Bitcoin Mining Has Never Really Increased” (22 October 2020) *frontiers in Blockchain* <<https://www.frontiersin.org/articles/10.3389/fbloc.2020.565497/>> (accessed 6 October 2021).

<sup>59</sup> Nicolas Suzor, “The Role of the Rule of Law in Virtual Communities” (2010) 25(4) *Berkeley Technology Law Journal* 1817–1886.

<sup>60</sup> Jeena Greene, “Reed Smith boldly goes where no law firm has gone before—the metaverse” (21 May 2021) *Reuters* <<https://www.reuters.com/business/legal/reed-smith-boldly-goes-where-no-law-firm-has-gone-before-metaverse-2021-05-20/>> (accessed 4 October 2021).

<sup>61</sup> See for instance, Greg Swanson, “Non-Autonomous Artificial Intelligence Programs and Products Liability: How New AI Products Challenge Existing Liability Models and Pose New Financial Burdens” (2019) 42 *Seattle University Law Review* 1201–1222.

and foreseeability would have to be expanded under negligence law,<sup>62</sup> for instance, to cover harm caused by avatars or infrastructures in the metaverse.

## 2.6 Granting avatars separate legal personality

In the metaverse of the future, it is perhaps desirable to grant avatars a separate legal personality.<sup>63</sup> If the avatars in a virtual world can function independently of the human person (e.g. through deep learning), then the avatar in the metaverse is a separate person altogether. In his paper, Chesterman dealt with the various categories of automation where robots are concerned.<sup>64</sup> Perhaps similar concepts can be transposed to the metaverse. If the avatar is able to perform various transactions in its ‘person’, albeit in the metaverse, then as a person in the metaverse, it should be granted rights and obligations, i.e. a new law on metaverse should be developed which would cover various subject matters, such as copyright, harassment, etc. and possibly ratified by an ‘international’ metaverse community without country-specific boundaries.<sup>65</sup>

Comparing avatars in the metaverse to artificial intelligence systems, there have been numerous papers written on whether artificial intelligence objects should be granted separate legal personality.<sup>66</sup> If we are to combine developments in artificial intelligence with the metaverse, then the situation becomes overly complex. If avatars eventually become capable of ‘machine learning’<sup>67</sup> and can perform mundane tasks without human intervention, then it may be expedient to grant avatars in a metaverse rights and obligations that a human being would have.

The problem becomes even more complicated if there is an artificial intelligence robot in the real world that ‘operates’ an avatar in a metaverse, instead of a human being. In other words, the person behind the avatar in the metaverse is an artificial

<sup>62</sup> Amer Mushtaq, “Part 2: Potential Tort Liability Arising From Virtual Reality—Roblox and Beyond” (11 August 2020) *Formative Law* <<https://www.formativelaw.ca/2020/08/part-2-potential-tort-liability-arising-from-virtual-reality-roblox-and-beyond/>> (accessed 6 October 2021).

<sup>63</sup> S. M. Solaiman, “Legal personality of robots, corporations, idols and chimpanzees: a quest for legitimacy” (2017) 25 (2) *Artificial Intelligence and Law* 155–179.

<sup>64</sup> Simon Chesterman, “Artificial Intelligence and The Problem of Autonomy”, NUS Law Working Paper Series 2019/016, September 2019, [www.law.nus.edu.sg/wps/](http://www.law.nus.edu.sg/wps/) at page 8 where he describes the five levels of automation.

<sup>65</sup> See e.g. Marc Andrew Spooner, “Comment, It’s Not a Game Anymore, Or Is It?: Virtual Worlds, Virtual Lives, and the Modern (Mis)Statement of the Virtual Law Imperative” (2012) 10(2) *University of St. Thomas Law Journal* 533–578.

<sup>66</sup> See e.g. Jacob Turner, *Robot Rules* (Palgrave Macmillan 2019) pp 173–205; Simon Chesterman, “Artificial Intelligence and the Limits of Legal Personality” (2020) 69(4) *International and Comparative Law Quarterly* 819–844; S. M. Solaiman, “Legal personality of robots, corporations, idols and chimpanzees: a quest for legitimacy” (2017) 25(2) *Artificial Intelligence and Law* 155–179; Ben Chester Cheong, “Granting legal personhood to artificial intelligence systems and traditional veil-piercing concepts to impose liability” (2021) 1(9) *SN Social Sciences* 231, pp 1–20.

<sup>67</sup> See Martin Heller, “Deep learning vs machine learning: Understand the differences” *InfoWorld* (6 January 2020) <<https://www.infoworld.com/article/3512245/deep-learning-vs-machine-learning-understand-the-differences.html>> (accessed 24 January 2021).

intelligence virtual self.<sup>68</sup> One can perhaps draw reference from a 1999 sci-fi movie, *Bicentennial Man*, directed by Chris Columbus, to visualise how this would become possible.<sup>69</sup> There is a strong case to be made that if the development of artificial intelligence virtual self reaches this stage sometime in the future, then it may become persuasive to grant such ‘virtual selves’ legal personality, which would include property rights.<sup>70</sup>

## 2.7 Granting avatars rights similar to those of a company

Companies may serve as a model for extending rights to avatars in a metaverse. Just like companies, avatars are non-human, and both can exist to increase economic investments in the marketplace. There is a case to be made that whatever rights have been extended to companies should also extend to avatars with the aim of increasing productivity.<sup>71</sup>

For example, it had been established by the US Supreme Court that corporations were persons under the 14th Amendment to the US Constitution, and thus entitled to protection of the due process clause in *Minneapolis & S.L.R. Co. v Beckwith*.<sup>72</sup> Even though the corporate form is not a human person, companies are endowed with similar rights that an ordinary citizen possesses. Within the meaning of the US Constitution and Bill of Rights, corporations are ‘persons’ and are entitled to protection against the taking of their property without due process and are entitled (at least to some extent) to freedom of speech.<sup>73</sup> Companies are able to act as persons where it involves legal proceedings, ownership of property and contractual obligations.<sup>74</sup>

However, the scope of rights that avatars in a metaverse should possess are not currently settled. Indeed, Day has argued that “there is an ongoing debate over which rights are guaranteed, and until that debate is settled, avatar rights will also be an open question under this analytical framework”.<sup>75</sup>

<sup>68</sup> Eugene C Lim, “Meet my artificially-intelligent virtual self: creative avatars, machine learning, smart contracts and the copyright conundrum” (2021) 16(1) *Journal of Intellectual Property Law & Practice* 66–78.

<sup>69</sup> Jan Gresil S Kahambing et al., “Reflecting on the Personality of Artificiality: Reading Asimov’s Film *Bicentennial Man* through Machine Ethics” (2019) 9(2) *Journal of Educational and Social Research* 17–24.

<sup>70</sup> S. M. Solaiman, “Legal personality of robots, corporations, idols and chimpanzees: a quest for legitimacy”

(2017) 25 (2) *Artificial Intelligence and Law* 155–179.

<sup>71</sup> Tiffany Day, “Avatar Rights in a Constitutionless World” (2009) 32(1) *Hastings Communications and Entertainment Law Journal* 137, 150.

<sup>72</sup> *Minneapolis & St. Louis Ry. Co. v. Beckwith*, 129 U.S. 26 (1889) at 28.

<sup>73</sup> Robert A. G. Monks and Nell Minow, *Corporate Governance* (4th edn, John Wiley & Sons, Ltd 2008).

<sup>74</sup> Bryant Smith, “Legal Personality” (1928) 37(3) *Yale Law Journal* 283–299.

<sup>75</sup> Tiffany Day, “Avatar Rights in a Constitutionless World” (2009) 32(1) *Hastings Communications and Entertainment Law Journal* 137, 151.

## 2.8 Incorporating avatars in the metaverse

While a natural person is subject to rights and obligations within society, corporate law has fashioned a vehicle known as the company which is legally personified, even though it is not a natural person.<sup>76</sup> Eidenmuller has argued that the “crucial difference between a corporation and a robot is that corporations always act through humans” and that humans still make the final decisions.<sup>77</sup> Similarly, in Roblox’s iteration of the metaverse, the avatars have to act through humans and it is the person behind the avatar that makes the final decisions. It is identical to companies in that it has to act through someone. However, for more advanced avatars in the metaverse of the future possessing artificial intelligence capabilities and with a neural link in place between the brain and an avatar, there may be an even stronger case to argue that the avatar should be granted legal personhood.<sup>78</sup>

Companies may be liable in the same manner as a natural person for crimes and torts.<sup>79</sup> However, there are limitations to punishing a company, given that it is not a natural person. For example, unlike a natural person, companies cannot be sentenced to a term of imprisonment, caning or be subjected to the death penalty.<sup>80</sup> Hence, in order to control corporate wrongdoing or omissions, a number of provisions in the UK Companies Act 2006 subject directors of a company to criminal offences for the company’s failure to comply with statutory obligations.<sup>81</sup> Breaches of these obligations may result in a fine, disqualification or imprisonment. In many common law countries, the legislation clearly recognises the incorporated company as a ‘body corporate’.<sup>82</sup> While a company is a separate legal entity, it is incorporeal and has to exist through human agents who give it its physical presence.<sup>83</sup> There is a distinction between a natural person and an artificial entity. Hence, it is not an entirely far-fetched notion that an avatar could be clothed with legal personality since it would similarly need to act through its human host in Roblox’s iteration of the metaverse.<sup>84</sup>

<sup>76</sup> For instance, the section 19(5) of the Singapore Companies Act (Cap 50, 2006 Rev Ed) recognises the incorporated company as a ‘body corporate’.

<sup>77</sup> Horst Eidenmueller, “The Rise of Robots and the Law of Humans” (26 March 2017) Oxford Legal Studies Research Paper No. 27/2017, Available at SSRN: <https://ssrn.com/abstract=2941001>, at p 13.

<sup>78</sup> Daniel S Osborne, “Personhood for synthetic beings: legal parameters and consequences of the dawn of humanlike artificial intelligence” (2021) 37(3) Santa Clara High Technology Law Journal 257–299.

<sup>79</sup> See for e.g. Erin L Sheley, “Tort Answers to the Problem of Corporate Criminal Mens Rea” (2019) 97(4) North Carolina Law Review 773–841.

<sup>80</sup> James McHugh, “What is the Difference Between a ‘Person’ and a ‘Human Being’ within the Law” (1992) 54(3) The Review of Politics 445 at 458.

<sup>81</sup> Andrew Keay and Michelle Welsh, “Enforcing breaches of directors’ duties by a public body and antipodean experiences” (2015) 15(2) Journal of Corporate Law Studies 255–284.

<sup>82</sup> In Singapore, for instance, under section 19(5) of the Companies Act (Cap 50, 2006 Rev Ed).

<sup>83</sup> Pearlie Koh, *Company Law* (Lexis Nexis, 3rd Ed, 2017) at p 24; see also Tan Cheng Han SC, *The Law of Agency* (Singapore: Academy Publishing, 2017) at para 05.087.

<sup>84</sup> Madana Prathap and Prabhjote Gill, “The metaverse may change the way you earn money, shop or even chill with friends in the future” (1 October 2021) Business Insider India <<https://www.businessinsider.in/investment/news/the-metaverse-may-change-the-way-you-earn-money-shop-or-even-chill-with-friends-in-the-future/slideshow/86677906.cms#slideid=86678755>> (accessed 6 October 2021).

An avatar may be incorporated in a similar way to how an entity is incorporated under company law and given a registration number.<sup>85</sup> A natural person or a corporate entity that ultimately has ownership of the avatar would have their registration details entered on a register existing in the metaverse.<sup>86</sup> Where UK companies are concerned, a quick search through Companies House would reveal the controllers behind the company. But there are arguments that where avatars are concerned, there should be some variations on whether the identity of the avatar should be disclosed as of right.<sup>87</sup> If it is a human person behind the avatar, and the person clearly has no intention of associating his real-life identity with the avatar, then unless a serious breach of the law has occurred, that veil of anonymity should be recognised. The key reason for this is to reassure “users that they can experiment with what it means to be a digital citizen without fear of repercussions”.<sup>88</sup> However, if it is a real-world company behind an avatar and the company intends to use the avatar to generate revenue and profits from sales and marketing, there is a strong case that such a user cannot hide behind the cloak of anonymity.<sup>89</sup>

### 3 Limiting the liability of avatars

From a natural person’s perspective, the natural person would rely on artificiality of the virtual world to argue that they should not be responsible for acts or omissions of an avatar in the metaverse, as everything in the metaverse is not real *vis-à-vis* the real world since everything in the metaverse does not exist in the real world, similar to how the Gucci bag bought in Roblox is not a non-fungible token (‘NFT’) and this has no value, use or transferability outside the Roblox world.<sup>90</sup> From a developer’s perspective, separate legal personality for the avatar relieves developers from unlimited liability and this would incentivise them to continue innovating within the metaverse. Indeed, Pryor has argued that for the metaverse to thrive, there must be a careful balance between protecting the rights of various

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<sup>85</sup> On incorporation choices, see Lucian Arye Bebchuk and Alma Cohen, “Firms’ Decisions Where to Incorporate” (2003) 46(2) *The Journal of Law & Economics* 383–425.

<sup>86</sup> It is suggested that a regulatory body similar to the US Delaware Division of Corporations, UK Companies House, or the Singapore Accounting and Corporate Regulatory Authority be established for maintaining a register of avatars in the metaverse.

<sup>87</sup> Doug Antin, “Does Pseudo-Anonymity Matter in the Digital Future?” (10 June 2020) Medium <<https://medium.com/predict/does-pseudo-anonymity-matter-in-the-digital-future-831d10224764>> (accessed 6 October 2021).

<sup>88</sup> Doug Antin, “Does Pseudo-Anonymity Matter in the Digital Future?” (10 June 2020) Medium <<https://medium.com/predict/does-pseudo-anonymity-matter-in-the-digital-future-831d10224764>> (accessed 6 October 2021).

<sup>89</sup> Jesse Lake, “Hey, You Stole My Avatar!: Virtual Reality and Its Risks to Identity Protection” (2020) 69(4) *Emory Law Journal* 833–879.

<sup>90</sup> Jake Silbert, “Gucci’s purses are worth more in Roblox than IRL” (25 May 2021) Highsnobiety <<https://www.highsnobiety.com/p/gucci-virtual-purse-roblox-resale/>> (accessed 3 October 2021).

stakeholders without impeding technological growth and development, which would be a difficult juggling act for lawmakers.<sup>91</sup>

The process of incorporating an avatar and granting it a separate legal personality would bring to mind the seminal case law decision of *Salomon v Salomon* (*‘Salomon’*),<sup>92</sup> where such an approach, if applied to avatars in the metaverse, may attract similar criticisms that were raised in *Salomon* where the company as an entity benefiting from separate legal personality is concerned.<sup>93</sup> The *Salomon* decision permitted one-man companies to be created and has been criticised as being “artificial and somewhat silly” as the transactions were between Salomon and himself.<sup>94</sup> Drawing upon arguments raised by supporters of liability shields for robots,<sup>95</sup> it may be possible to argue that there is “nothing objectionable in itself about actors pursuing selfish ends through law”, but recognition of legal personhood for avatars could lead to unscrupulous natural persons carrying out immoral or illegal activities. Veil piercing, which allows peeking through the corporate form to impose liability on the real actors, is recognised in many legal systems, including civil law systems.<sup>96</sup>

### 3.1 Veil-piercing solutions in the metaverse

There are various situations in which an avatar interacts with other avatars in the metaverse and an avatar’s actions could affect (a) another avatar, (b) an infrastructure in the metaverse, (c) the natural person behind the avatar, or (d) third parties in the real world. If harm occurs in the metaverse, or worse, if such harm extends into the real world, liability could be imposed on (i) the avatar itself, (ii) the inventors and developers of the metaverse or (iii) the natural person behind the avatar.<sup>97</sup>

One way of imposing liability on an avatar that has been granted legal personhood is through piercing the corporate veil, similar to how it is done in company law.<sup>98</sup> Granting artificial legal personality to an avatar would be one way to analogise veil piercing principles in company law to impose liability on the system to apply.<sup>99</sup> If

<sup>91</sup> Gregor Pryor, “The metaverse: real world laws give rise to virtual world problems” (25 March 2021) CityAM <<https://www.cityam.com/the-metaverse-real-world-laws-give-rise-to-virtual-world-problems/>> (accessed 3 October 2021).

<sup>92</sup> *Salomon v A Salomon & Co Ltd* [1897] AC 22.

<sup>93</sup> Gonzalo Villalta Puig, “A Two-Edged Sword: Salomon and the Separate Legal Entity Doctrine” (2000) 7(3) Murdoch University Electronic of Law 32.

<sup>94</sup> See Allan Hutchinson and Ian Langlois, “Salomon Redux: The Moralities of Business” (2012) 35 Seattle University Law Review 1109, 1113.

<sup>95</sup> Joanna Bryson et al., “Of, for, and by the people: the legal lacuna of synthetic persons” (2017) 25 Artificial Intelligence and Law 273, 285–286.

<sup>96</sup> Hui Huang, “Piercing the corporate veil in China: where is it now and where is it heading?” (2012) 60(3) The American Journal of Comparative Law 743–774.

<sup>97</sup> Raymond Lavoie et al., “Virtual experience, real consequences: the potential negative emotional consequences of virtual reality gameplay” (2021) 25 Virtual Reality 69–81.

<sup>98</sup> Stephen Bull, “Piercing the Corporate Veil—in England and Singapore” (2014) Singapore Journal of Legal Studies 24–40.

<sup>99</sup> Simon Chesterman, “Artificial Intelligence and the Limits of Legal Personality” (2020) 69 ICLQ 819–844.



the avatar enjoys limited liability protection because it has separate legal personality, and arguments are made for inventors and developers to not be deemed responsible for actions of avatars since these are controlled by the user, then it may be necessary to lift the corporate veil to either pursue a claim against the natural person or real-world company behind the avatar.<sup>100</sup>

### 3.2 Types of harm an avatar could cause in the metaverse

‘Real crimes’ are crimes that occur entirely in the physical world.<sup>101</sup> Every society has both civil rules that define property rights and criminal rules that prohibit violating these property rights and prescribe sanctions for doing so.<sup>102</sup> Sanctions include retribution, incapacitation, rehabilitation and deterrence.<sup>103</sup> Not all types of harm in the metaverse should be prosecuted because they do not cause physical harm. In the earlier section, it was demonstrated that future avatars in the metaverse may become highly advanced to the extent that a neural link would be able to transmit physical pain experienced in the metaverse to the brain of the human person. In that case physical harms ought to be prosecuted. However, it is anticipated that the most common types of harms experienced in the metaverse would be psychological and emotional.<sup>104</sup> An example of this would be psychological harm of the kind that took place in Roblox, where an avatar of a child had ended up being ‘gang-raped’ by others in the online game.<sup>105</sup>

Relying on traditional criminal law principles to prosecute crimes in the metaverse would be challenging because ‘crime’ requires four distinct elements: (a) *actus reus*, (b) *mens rea*, (c) causation and (d) harm.<sup>106</sup> There must be a coincidence of all these factors which, at times, may prove problematic to prove even for conduct in the real world.<sup>107</sup> One must also acknowledge that it is impossible to eliminate all harm within a society.<sup>108</sup> The law exists to control the infliction of harm so that society would be able to maintain a baseline of social order. In the physical world, hard harms that cause tangible, egregious injuries to person or property would include

<sup>100</sup> Stephen Bull, “Piercing the Corporate Veil—in England and Singapore” (2014) *Singapore Journal of Legal Studies* 24–40.

<sup>101</sup> Susan Brenner, “Fantasy Crime: The Role of Criminal Law in Virtual Worlds” (2008) 11(1) *Vanderbilt Journal of Entertainment and Technology Law* 1, 4.

<sup>102</sup> Orin S Kerr, “Criminal Law in Virtual Worlds” (2008) 1(11) *University of Chicago Legal Forum* 415–429.

<sup>103</sup> Albert W. Alschuler, “The Changing Purposes of Criminal Punishment: A Retrospective on the past Century and Some Thoughts about the Next” (2003) 70(1) *The University of Chicago Law Review* 1–22.

<sup>104</sup> Susan Brenner, “Fantasy Crime: The Role of Criminal Law in Virtual Worlds” (2008) 11(1) *Vanderbilt Journal of Entertainment and Technology Law* 1, 61–70.

<sup>105</sup> Rachel Stonehouse, “Roblox: I thought he was playing an innocent game” (30 May 2019) *BBC News* <<https://www.bbc.com/news/technology-48450604>> (accessed 5 October 2021).

<sup>106</sup> Susan Brenner, “Fantasy Crime: The Role of Criminal Law in Virtual Worlds” (2008) 11(1) *Vanderbilt Journal of Entertainment and Technology Law* 1, 2–3.

<sup>107</sup> Chan Wing Cheong, “The Requirement of Concurrence of *Actus Reus* and *Mens Rea* in Homicide: *Shaiful Edham bin Adam v PP*” (2000) *Singapore Journal of Legal Studies* 75–91.

<sup>108</sup> Joseph Raz, “Legal Principles and the Limits of Law” (1972) 81(5) *The Yale Law Journal* 823–854.

murder, assault, rape, arson, theft and robbery.<sup>109</sup> On the other hand, soft harms could fall under ‘morality’, which would include gambling, obscenity and indecency, or ‘affectivity’, which would include defamation and harassment.<sup>110</sup>

In MMORPGs, the end-user license agreement between developers and user are primarily there to deal with “in-game threats, harassment, stalking ... [as well as] in-game scams, cheating and impersonating a real person without permission”.<sup>111</sup> Indeed, game developers typically have a hierarchy of in-game penalties, which range from a warning with accelerating suspensions to a final warning, and then account closure as the ultimate sanction. Account closure would lead to serious ramifications because the player would lose everything in the virtual world.<sup>112</sup> Not surprisingly, player killing is part of the game and does not constitute harassment.<sup>113</sup>

Where there is a blurring of the real world and the metaverse because real-world funds are imported into the metaverse, then this constitutes in-world cybercrime and not fantasy crime. However, if the avatar only uses virtual currency derived from the metaverse without any importation of real-world funds, the effects of any losses would only occur in the metaverse. But the line between this is significantly blurred today with the rise of NFTs.<sup>114</sup> An NFT can be any type of digital assets and starts with registering ownership of a digital asset on a blockchain, usually on an ethereum network. This digital asset can then be sold, with changes in ownership and the cryptocurrency payment received registered on the blockchain.<sup>115</sup> Furthermore, a key similarity that an avatar and a company has is that both are not at risk of death or physical injury.<sup>116</sup>

These are some of the harms that would exist in the metaverse and may provide a *raison d’être* to lift the veil similar to veil piercing in company law, especially in situations where the harm extends to the real world, in order to impose liability on the person behind the avatar.

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<sup>109</sup> Susan Brenner, “Fantasy Crime: The Role of Criminal Law in Virtual Worlds” (2008) 11(1) *Vanderbilt Journal of Entertainment and Technology Law* 1, 6–8.

<sup>110</sup> Susan Brenner, “Fantasy Crime: The Role of Criminal Law in Virtual Worlds” (2008) 11(1) *Vanderbilt Journal of Entertainment and Technology Law* 1, 8–16.

<sup>111</sup> Susan Brenner, “Fantasy Crime: The Role of Criminal Law in Virtual Worlds” (2008) 11(1) *Vanderbilt Journal of Entertainment and Technology Law* 1, 27.

<sup>112</sup> Susan Brenner, “Fantasy Crime: The Role of Criminal Law in Virtual Worlds” (2008) 11(1) *Vanderbilt Journal of Entertainment and Technology Law* 1, 27.

<sup>113</sup> For an opposing view, see Helen Ryland, “Getting away with murder: why virtual murder in MMORPGs can be wrong on Kantian grounds” (2019) 21 *Ethics and Information Technology* 105–119.

<sup>114</sup> Caleb L Green, “An introduction to intellectual property and non-fungible tokens (NFTs)” (5 May 2021) *Washington Business Journal* <<https://www.bizjournals.com/washington/news/2021/05/05/an-introduction-to-intellectual-property-and-non-f.html>> (accessed 5 October 2021).

<sup>115</sup> Michael Dowling, “Is non-fungible token pricing driven by cryptocurrencies?” (2021) *Finance Research Letters* <<https://doi.org/10.1016/j.frl.2021.102097>> (accessed 5 October 2021).

<sup>116</sup> Susan Brenner, “Fantasy Crime: The Role of Criminal Law in Virtual Worlds” (2008) 11(1) *Vanderbilt Journal of Entertainment and Technology Law* 1, 65–66.

### 3.3 Foreseeable problems created by avatars in the metaverse

There are multiple problems that an avatar in the metaverse may create, especially in the area of intellectual property law, which is outside the scope of this article,<sup>117</sup> but for the purposes of this discussion we will analyse four potential consequences through the lens of piercing the veil of incorporation.

#### 3.3.1 Fraud

In *Lee v Lee's Air Farming Ltd*,<sup>118</sup> it was held that there should be a distinction drawn between acts a person does in an individual capacity and those performed in a corporate capacity. Going by this tenor, it should be possible to distinguish between the actions of an avatar in the metaverse and the actions of an individual in the real world. Between the individual in the real world and the avatar in the metaverse, a relationship is created, whereby the avatar carries out dealings for the real-world person behind the avatar, just as Lee had made a contract with his own company to work for the company.<sup>119</sup> Provided that the incorporated avatar is not a sham, then the capacity of that incorporated avatar to make a contract with another avatar or infrastructure in the metaverse should not be imputed to the real-world person merely because the incorporated avatar is an agent of the real-world person vis-à-vis contractual obligations occurring in the metaverse.

However, there could be situations where an avatar is used to perpetrate fraud.<sup>120</sup> In such a situation, it may be possible to draw upon remedies found in company law if legal personality is granted to an avatar. Many different terms have been used throughout the years to describe the situation where the separate legal personality of a company as established in *Salomon*<sup>121</sup> is set aside, such as veil lifting/piercing/peeping. Recently, Dignam and Oh suggested that the better terminology to represent this situation would be 'corporate disregard'.<sup>122</sup> They argue that 'corporate disregard' is an elegant way of expressing whether the presumption of separate corporate personality as established in *Salomon* should be upheld or disregarded.<sup>123</sup>

There have been varying treatments by the courts where corporate disregard is concerned. For instance, in the Singapore courts, the older cases such as *The Saudi Al Jubail*<sup>124</sup> and *Alwie Handoyo v Tjong Very Sumito and another and another appeal*<sup>125</sup>

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<sup>117</sup> Eugene C Lim, "Meet my artificially-intelligent virtual self: creative avatars, machine learning, smart contracts and the copyright conundrum" (2021) 16(1) *Journal of Intellectual Property Law & Practice* 66–78.

<sup>118</sup> *Lee v Lee's Air Farming Ltd* [1961] AC 12.

<sup>119</sup> See A Wilson, "Salomon's Case deters Attempts to lift the Veil: *Lee v Lee's Air Farming Ltd*" (1961) 3(1) *University of Malaya Law Review* 115–118.

<sup>120</sup> M Caldwell et al., "AI-enabled future crime" (2020) 9 *Crime Science* 14.

<sup>121</sup> *Salomon v Salomon* [1897] AC 22.

<sup>122</sup> Alan Dignam and Peter Oh, "Rationalising Corporate Disregard" (2020) 40 *Legal Studies* 187, 187.

<sup>123</sup> Alan Dignam and Peter Oh, "Rationalising Corporate Disregard" (2020) 40 *Legal Studies* 187, 187.

<sup>124</sup> *The Saudi Al Jubail* [1987] SGHC 71.

<sup>125</sup> *Alwie Handoyo v Tjong Very Sumito and another and another appeal* [2013] 4 SLR 308.

tended to be more sympathetic to veil piercing. However, recent decisions seem to suggest that the Singapore courts have been adopting a more restrictive approach, such as in *Simgood Pte Ltd v MLC Barging Pte Ltd and others*,<sup>126</sup> where veil piercing was not allowed on the façade ground and *Sun Electric Pte Ltd and another v Menrva Solutions Pte Ltd and another*,<sup>127</sup> where veil piercing was not allowed on the ‘alter ego’ ground. The current judicial position in the UK has also appeared to treat corporate disregard restrictively, as can be gleaned from *VTB Capital*<sup>128</sup> and *Prest v Petrodel*<sup>129</sup> and many other cases following it. One can observe that the likelihood of a court to pierce the veil in the absence of fraud has become increasingly narrow over the years. The decisions of the UK Supreme Court have indicated that the preferred basis would be to rely on other remedies, and piercing the veil would be a remedy of last resort.<sup>130</sup>

Say for instance, a natural person uses his avatar in the metaverse for the sole purpose of defrauding other avatars into transferring Bitcoin to his avatar, which he then withdraws in the real world without any intention of honouring his obligations (e.g. a contract for the provision of educational lessons in the metaverse).<sup>131</sup> In such a situation, the natural person would be using his avatar for an illegal purpose and this would be a sham transaction.<sup>132</sup>

The separate legal personality of an avatar in the metaverse should be preserved as far as possible but without precluding any recourse for injustice if the situation so requires. Thus, adopting the approach in *Salomon*,<sup>133</sup> avatars of natural persons, who ‘genuinely’ make use of the separate legal personality afforded to their avatars in the metaverse to limit their liabilities should have nothing to be worried about.<sup>134</sup> It is suggested that this is the same approach that should apply where avatars are concerned, and that if the avatar is heavily manipulated to perpetrate fraud through malicious acts on behalf of the person behind the avatar, then the natural person cannot enjoy the protection afforded by separate legal personality arising from incorporation.

<sup>126</sup> *Simgood Pte Ltd v MLC Barging Pte Ltd and others* [2016] SGCA 46.

<sup>127</sup> *Sun Electric Pte Ltd and another v Menrva Solutions Pte Ltd and another* [2019] SGCA 51.

<sup>128</sup> *VTB Capital plc v Nutritek International Corp and others* [2013] UKSC 5.

<sup>129</sup> *Prest v Petrodel Resources Ltd* [2013] UKSC 34.

<sup>130</sup> *Prest v Petrodel Resources Ltd & Others* [2013] UKSC 34 at [62] per Lord Neuberger and at [103] per Lord Clarke; see also *VTB Capital plc v Nutritek International Corporation* [2013] UKSC 5 at [128] and [145].

<sup>131</sup> See e.g. *CLM v CLN and others* [2022] SGHC 46.

<sup>132</sup> See e.g. *Gilford Motor Co Ltd v Horne* [1933] Ch 935.

<sup>133</sup> *Salomon v A Salomon & Co Ltd* [1897] AC 22.

<sup>134</sup> See also Marc Moore, “A temple built on faulty foundations: piercing the corporate veil and the legacy of *Salomon v Salomon*” [2006] JBL 180 at 199.

### 3.3.2 Identity theft

In the metaverse, identity is even more important. With account takeover for example, someone could be using a person's avatar and pretending to be that person.<sup>135</sup> Essentially, this would not only be a risk to one's reputation but it could even incur liability for the real-world person. Such problems are fuelled by a growing sense of impunity among bad actors, who feel they can use the anonymity afforded by the metaverse to get away with anything. Registering, i.e. the process of incorporating, one's avatar could be a potential solution to make an avatar responsible for their actions in the metaverse.

There are other potential solutions that may not involve the process of incorporation and lifting the veil. MMORPGs have terms of service that purport to govern user conduct contractually, allowing remedies for violation such as banning from the platform and confiscation of in-world assets. Confiscation of in-world assets may be serious because these in-world assets may be traded with other players, and players may be able to cash out these assets. For example, the virtual worlds Fortnite and Roblox both require users to accept terms of service before entering the game.<sup>136</sup>

Another solution to combat identity theft would be for metaverse platforms not to store personal data. This means building a peer-to-peer network for authentication purposes. When a person logs into the metaverse, it is a peer-to-peer network that validates that person. This works by mapping a person's prior use of the internet across multiple points, be it a ridesharing service, video streaming outlet or gaming platform—to paint a clear picture of their activities online and verify whether or not the person trying to access a virtual reality platform is who they claim to be.<sup>137</sup> This means not relying on one point of reference but relying on consensus which guarantees one's identity much more than any one-time validation will do. That is one way to build identity moving forward, without relying on huge data pools that can then be hacked. A provider-based system of data protection is too vulnerable to threat actors to be effective, hence it needs to be providerless—it cannot be centralised.

### 3.3.3 Defamation

As alluded to earlier, the metaverse would remove all barriers to freedom of interaction, and one of the downside of this, as can be seen with social networking sites, is that it provides people (colloquially known as 'internet trolls') with an unfettered ability to post unnecessary and false statements about a person (or an entity) and in

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<sup>135</sup> Akram Atallah, "What Does the Metaverse Mean for Your Digital Identity" (18 January 2022) Forbes <<https://www.forbes.com/sites/forbestechcouncil/2022/01/18/what-does-the-metaverse-mean-for-your-digital-identity/?sh=438d2a697ba6>> (accessed 26 March 2022).

<sup>136</sup> Tom K Ara, Mark F Radcliffe, Michael Fluhr and Katherine Imp, "Exploring the metaverse: What laws will apply?" (22 February 2022) DLA Piper <<https://www.dlapiper.com/en/us/insights/publications/2022/02/exploring-the-metaverse/>> (accessed 26 March 2022).

<sup>137</sup> Damien Black, "Identity 3.0? How to guard privacy in the metaverse" (3 March 2022) Cybernews <<https://cybernews.com/privacy/identity-3-0-how-to-guard-privacy-in-the-metaverse/>> (accessed 26 March 2022).

the process, result in harm to their reputation and goodwill. In such a situation, the veil should be pierced by analogising the relationship between “the avatar and the user [...] to that between a non-living business entity and a sole shareholder, where the entity is essentially an alter ego of the controller, and thus an action [for defamation] may be sustainable on that basis”.<sup>138</sup> If we adopt the view that avatars have no separate consciousness and that they merely provide a conduit for individual persons to carry out their activities in the metaverse, then this would be an acceptable proposition as they would be no different from an ‘alter ego’ of a company.

Say for instance, if an avatar of a real-life head of state has been defamed by another avatar in the metaverse in a way that ultimately affects the head of state’s standing, and the metaverse community recognises that avatar as belonging to the head of state in the real world, then this would satisfy a claim for defamation in the real world as the avatar is merely an alter ego of the real-world person. The main hurdle to be overcome would be whether “despite the differences between the physical characteristics of the avatar and herself, she and the avatar are one and the same for the purposes of a defamation inquiry”.<sup>139</sup> Another inquiry would be whether real-world harm was caused to any individual or entity existing in the real world through a defamatory statement made against an avatar in the metaverse.<sup>140</sup> Statutory remedies may also be enacted to deal with defamation in the metaverse. For example, in cases involving corporate claimants in the UK, there is a corporate right to sue under the UK Defamation Act 2013 if companies are able to prove serious financial loss under section 1(2).<sup>141</sup>

However, that is possible only if the wrongdoer avatar has legal personality. This is because if a person behind the avatar intends to use the avatar to defame someone else in the metaverse, the real-world person would have taken great pains to ensure they cannot be identified. The problem with online defamation is that online perpetrators are usually anonymous. In the Singapore court decision of *Qingdao Bohai Construction Group Co Ltd v Goh Teck Beng*,<sup>142</sup> it was held that there must be conclusive identification of the defendant. The court held that anonymous perpetrators could be identified using forensic evidence and IP addresses. If there was insufficient evidence to prove the identity of the defendant, the action would be struck out. Hence, instead of piercing the ‘veil’ of the avatar to reveal the real-world person behind the avatar, a solution could be incorporating the avatar so that there would be a cause of action against the avatar itself. This would avoid the rather difficult task of having to prove the identity of the person behind the avatar through a pre-action discovery against the content host or internet service providers, which

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<sup>138</sup> Bettina Chin, “Regulating Your Second Life: Defamation in Virtual Worlds” (2007) 72(4) Brooklyn Law Review 1303, 1334.

<sup>139</sup> Bettina Chin, “Regulating Your Second Life: Defamation in Virtual Worlds” (2007) 72(4) Brooklyn Law Review 1303, 1338.

<sup>140</sup> Raymond Lavoie et al., “Virtual experience, real consequences: the potential negative emotional consequences of virtual reality gameplay” (2021) 25 Virtual Reality 69–81.

<sup>141</sup> Peter Coe, “The Defamation Act 2013: We Need to Talk about Corporate Reputation” (2015) 4 Journal of Business Law 313–333.

<sup>142</sup> *Qingdao Bohai Construction Group Co Ltd and others v Goh Teck Beng and another* [2016] 4 SLR 977.

may not yield any positive outcomes. In addition, real-world courts should retain a power to disregard the separate legal personality between an avatar and the real-world person in the interest of promoting justice.<sup>143</sup>

However, a pitfall of allowing incorporation for avatars is that real-world persons or companies could incorporate multiple avatars to benefit from this liability shield and the defamation can continue to persist indefinitely. Hence, there would be a need to establish rules within the metaverse to deal with the issue of multiple avatars as the metaverse develops in the future.<sup>144</sup>

### 3.3.4 Crime

Another scenario is where the natural person uses the avatar to commit crime in the metaverse. There are a number of acts and omissions committed in the metaverse that would be deplorable from a criminal law perspective, such as stealing something that belongs to another avatar through deception or harassing another avatar by continuously sending lewd images or videos.<sup>145</sup> In the metaverse of the future, this could be committing a violent act against another avatar such that the natural person behind that avatar experiences psychiatric harm (or even physical pain) through the neural link between the natural person's brain and his avatar in the metaverse.

Take for instance, if an artificial intelligence-enabled avatar autonomously contracts with another avatar in the metaverse to buy drugs such as heroin and have them delivered at a fixed place and time in the real world (similar to transactions taking place on a dark web), in a manner not reasonably foreseeable to the natural person (i.e. the avatar may have picked up bad habits from another avatar in the metaverse through deep machine learning), who should be criminally liable?<sup>146</sup> One similarity between the mind of the avatar and the corporate mind is that the avatar and the company are not natural persons, and the difficulty is with “assessing the mental state of the person” to impose liability.<sup>147</sup> This is the reason why corporate attribution rules have been developed to address this lacuna. In *Lennard's Carrying Company*,<sup>148</sup> the state of mind of the senior officers of the company were regarded as being the state of mind of the company. Subsequently, the *Meridian*<sup>149</sup> special rules of attribution were formulated to bring about a greater “degree of flexibility into

<sup>143</sup> Jeffrey D Pinsler, “The Inherent Powers of the Court” (1997) Singapore Journal of Legal Studies 1–49.

<sup>144</sup> Jill Carlson, “Me, Myself and My Multiple Avatars” (23 September 2020) CoinDesk <<https://www.coindesk.com/markets/2020/09/23/me-myself-and-my-multiple-avatars/>> (accessed 6 October 2021).

<sup>145</sup> Anastasia Powell et al., “Digital harassment and abuse: Experiences of sexuality and gender minority adults” (2018) 17(2) European Journal of Criminology 199–223.

<sup>146</sup> M Caldwell et al., “AI-enabled future crime” (2020) 9 Crime Science 14.

<sup>147</sup> John Lowry and Arad Reisberg, *Pettet's Company Law: Company Law & Corporate Finance* (4th edn, Pearson Education Limited, 2012) at p 36.

<sup>148</sup> *Lennard's Carrying Company Ltd v Asiatic Petroleum Co Ltd* [1915] AC 705.

<sup>149</sup> *Meridian Global Funds Management Asia Ltd v Securities Commission* [1995] 2 AC 500. On the development of the special rules of attribution in a common law jurisdiction such as Singapore, see Ben Chester Cheong, “Context is the most Important Factor: One-man Companies and Corporate Attribution in Singapore” Oxford Business Law Blog (12 June 2020) <<https://www.law.ox.ac.uk/business-law-blog/blog/2020/06/context-most-important-factor-one-man-companies-and-corporate>> (accessed 5 October 2021).



a difficult area of the law”.<sup>150</sup> If we were to attribute wrongdoings of the avatar to the manufacturer, this may seem grossly unfair as it would be unforeseeable how the avatar would react especially since deep learning would enable it to carry out acts beyond what could be foreseeable to its programmer.<sup>151</sup> Similarly, attributing liability for the actions of the avatar to the natural person in every situation would destroy the separate legal personality of the avatar and this would stifle the development of the metaverse or the widespread adoption of the technology.<sup>152</sup>

Yet, if avatars can be criminally liable, Eidenmuller’s suggestions for artificial intelligence could be extended to avatars such that if we were to accord legal personality to avatars, then sanctions could involve “revoking the legal capacity of the [avatar], detaining it for some time... or destroying it”.<sup>153</sup> The threat of destroying an avatar, putting the avatar in an online jail for a definite period of time or banning the natural person from the metaverse may be a solution, provided that the natural person does not exploit any potential loopholes to recreate another avatar in the metaverse.<sup>154</sup> There would also be instances where the criminal actions of the avatar would not be the fault of the person behind the avatar. One example would be the situation where an avatar becomes corrupted with a software virus in the metaverse that causes the avatar to commit a crime, for instance. In such a situation, the metaverse community would need to build up its corpus of legal defences to address the various factual permutations.<sup>155</sup>

Furthermore, sexual harassment is as much of an issue in the digital world as it is in the physical world. In fact, there are already a concerning number of reported cases of sexual harassment in the metaverse. For instance, a victim of sexual harassment in the metaverse was a beta tester for the Horizon Worlds, a virtual reality platform owned by Meta, whose avatar was groped by a stranger.<sup>156</sup> Meta’s internal review regarding this incident reached the conclusion that the beta tester should have used a tool called ‘Safe Zone’, which essentially places avatars in a protective bubble that prevents other avatars from interacting with them until they are out of the bubble.

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<sup>150</sup> LS Sealy, “The Corporate Ego and Agency Untwined” [1995] CLJ 507, 509.

<sup>151</sup> Alexander Sarch and Ryan Abbott, “Punishing Artificial Intelligence: Legal Fiction or Science Fiction” (2019) 53 UC Davis Law Review 323, 326.

<sup>152</sup> Stefania Lucchetti, “Why Artificial Intelligence Will Need a Legal Personality” (22 May 2017) LawCrossBorder <<https://lawcrossborder.com/2017/05/22/why-robots-need-a-legal-personality/>> (accessed 26 January 2021).

<sup>153</sup> Horst Eidenmueller, “The Rise of Robots and the Law of Humans” (26 March 2017) Oxford Legal Studies Research Paper No. 27/2017, Available at SSRN: <https://ssrn.com/abstract=2941001>, at p 12 (accessed 27 January 2021).

<sup>154</sup> Jill Carlson, “Me, Myself and My Multiple Avatars” (23 September 2020) CoinDesk <<https://www.coindesk.com/markets/2020/09/23/me-myself-and-my-multiple-avatars/>> (accessed 6 October 2021).

<sup>155</sup> Audrey Guinchar, “Crime in Virtual Worlds: The Limits of Criminal Law” (2010) 24(2) International Review of Law Computers & Technology 175–182.

<sup>156</sup> Tanya Basu, “The metaverse has a groping problem already” (16 December 2021) MIT Technology Review <<https://www.technologyreview.com/2021/12/16/1042516/the-metaverse-has-a-groping-problem/>> (accessed 26 March 2022).

### 3.4 Potential statutory remedies in the metaverse

Avatars and the metaverse would create novel issues requiring detailed policy deliberations and legislative enactments in order to determine where liability should fall for each possible situation.<sup>157</sup> While courts have been reluctant to pierce the corporate veil, it may be observed that where there have been wrongdoings by company directors that led to the company's insolvency, actions have been brought by liquidators to recover monetary compensation from the directors for misfeasance, fraudulent trading or wrongful trading under sections 212–214 of the UK Insolvency Act 1986 or under sections 238 and 239 of the Singapore Insolvency, Restructuring and Dissolution Act 2018. However, the benefits of such an action would have to be analysed in further detail. In the context of companies, the difficulty caused by the insolvency provisions would be whether these statutory remedies would be effective if the cost of bringing proceedings far outweigh the prospects of a successful outcome.<sup>158</sup> Similarly, in the context of avatars in the metaverse, statutory remedies could be put in place to allow the person behind the veil of incorporation of the avatar to become statutorily liable without relying on common law veil-piercing principles to impose liability on the real-world person.

Where real-world harm has been caused by avatars in the metaverse, it would seem that the first step in legal proceedings would be a pre-action discovery against an incorporated avatar to force the disclosure of the real person's identity behind the avatar in order to commence real-world legal proceedings.<sup>159</sup> In the event that the veil cannot be lifted to disclose the person behind the avatar, a litigation representative could be appointed to sue or defend an action on behalf of the avatar in the real world.<sup>160</sup>

Another form of a statutory remedy would be to impose minimum capitalisation and liability insurance on avatars in the metaverse to ensure that claimants or creditors would be adequately compensated, if necessary.<sup>161</sup>

### 3.5 Other potential legal issues in the metaverse

Apart from lifting the veil of the avatar to expose the real-world person behind the avatar, the metaverse may also give rise to other potential issues where a reframing of the existing law in the area could work. This paper will discuss possible reframing of existing law and other solutions in the areas of data protection and privacy and intellectual property rights.

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<sup>157</sup> Jeena Greene, "Reed Smith boldly goes where no law firm has gone before—the metaverse" (21 May 2021) Reuters <<https://www.reuters.com/business/legal/reed-smith-boldly-goes-where-no-law-firm-has-gone-before-metaverse-2021-05-20/>> (accessed 4 October 2021).

<sup>158</sup> John Lowry and Arad Reisberg, *Pettet's Company Law: Company Law & Corporate Finance* (4th edn, Pearson Education Limited, 2012) at p 46.

<sup>159</sup> David Culleton, "The Law Relating to Norwich Pharmacal Orders" (2021) 5(1) Irish Judicial Studies Journal 20–46.

<sup>160</sup> For e.g. in Singapore, it would be the Rules of Court (Cap 322, R 5, 2014 Rev Ed) O 76 r 3.

<sup>161</sup> Herbert Zech, "Liability for AI: public policy considerations" (2021) ERA Forum <<https://doi.org/10.1007/s12027-020-00648-0>> (accessed 26 January 2021).

### 3.5.1 Data protection and privacy

In the area of data protection and privacy, the metaverse will result in new categories of personal data for processing. It seems that virtual reality platforms will be invasive as companies will be able to monitor facial expressions, physiological responses and biometric data. Hence, the development of metaverse platforms raises many unanswered questions, such as responsibility for data processing, responsibility for lost or stolen data and consent for data processing. The EU's General Data Protection Regulation (GDPR) could arguably apply to the metaverse. In addition, through the use of 3D cameras, light detection and ranging sensors (LIDAR) sensors and microphones, virtual reality (VR) glasses will also process a range of data about users' private environment in the real world, for example about their private home or family members. Such data may also include special categories of personal data as defined in Article 9 of the GDPR, but either way require special care in processing. In particular, the principles of data minimisation and purpose limitation play an essential role in the processing of personal data in the metaverse, not only on compliance grounds, but also for reasons of trust.<sup>162</sup> The metaverse will only be accepted by users if they can and wish to be in the metaverse. Furthermore, the 'no-boundaries' nature of the metaverse means that while we may want to assume the GDPR will apply, the clauses dealing with transfer and processing of data outside the EU may need to be clarified. The GDPR applies based on the location of the subject when their data is processed, not on their home country or citizenship. Hence it may be necessary to look to the location based on either the person operating the avatar or at the avatar itself, since it is the avatar's data that will be processed.

### 3.5.2 Intellectual property rights

In the area of intellectual property rights, in the 'real' world, when it comes to purchasing a piece of art, property law dictates that ownership is two-fold. First, ownership can be attributed in the actual physical art work. And second, the buyer may or may not own the intellectual property of the art work, depending on the terms of the sale. But what kind of ownership is precisely included in a transaction of digital art? It may be argued that 'ownership' in the metaverse is nothing more than a form of licensing or provision of services. In such instances, true ownership still lies with the owner. This may mean, for example, that the buyer cannot sell the item without permission from the true owner.<sup>163</sup> Virtual real estate has also become an NFT, with individuals and companies spending enormous sums to own a 'property' in the metaverse. It is possible to argue that land law principles can be extended to the metaverse. A difficulty could be whether real-world legislation would cover

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<sup>162</sup> Michèle Finck and Asia Biega, "Reviving Purpose Limitation and Data Minimisation in Data-Driven Systems" (2021) *Technology and Regulation* <<https://arxiv.org/ftp/arxiv/papers/2101/2101.06203.pdf>> (accessed 26 March 2022).

<sup>163</sup> Ben Chester Cheong, "Application of Blockchain-enabled Technology: Regulating Non-fungible Tokens (NFTs) in Singapore" (January 2022) *Singapore Law Gazette* <<https://ssrn.com/abstract=4009972>> (accessed 26 March 2022).

trespassers on private land in the metaverse. Laws would also need to evolve if a real-world person decides to take out a mortgage on their virtual property. Platforms and services would need to build-in technical defences and contractual mechanisms, such as the terms of use, to protect their users. The issue, then, is how brands and individuals should protect their copyright as the metaverse expands. To give just one example, a digital artist, Mason Rothschild, created ‘MetaBirkins’, which were NFT versions of Hermes’ famous Birkin bags. Hermes then sent Rothschild a cease-and-desist letter.<sup>164</sup> As the metaverse provides new opportunities for misappropriation of intellectual property, content owners and licensors would need to consider the appropriate scope of monitoring such platforms and enforcing their rights.

### 3.6 Judicial interpretation for torts committed by avatars in the metaverse

There could also be situations where avatars may end up committing tortious harm on real-world persons, e.g. psychiatric harm.<sup>165</sup> In such a situation, a parallel may be drawn with the judicial approach taken in company law where tortious harms are concerned. In a string of UK cases such as *Chandler v Cape plc*,<sup>166</sup> *Lungowe v Vedanta Resources plc*<sup>167</sup> and, most recently, *Okpabi and others v Royal Dutch Shell Plc and another* (‘*Okpabi v Shell*’),<sup>168</sup> liability was attached to a parent company for the subsidiary’s tort.<sup>169</sup> The latest decision in *Okpabi v Shell* is part of a broader judicial trend whereby courts are increasingly more prepared to hold parent companies responsible for the acts of their overseas subsidiaries where the subsidiary has committed a tortious harm.<sup>170</sup> Sceptics would view such a decision as troubling because it would subject parent companies to liability for torts committed by their subsidiaries, and may also potentially create a new category of piercing the corporate veil.<sup>171</sup> However, this appears to be a positive development for the protection of tort claimants. Contrariwise, a parent company could avoid liability for its subsidiary by ensuring minimal interference in the subsidiary.<sup>172</sup> Applying this approach to avatars in the metaverse, if there is evidence to suggest that real-world harm has been caused to tort claimants and such actions arise from the avatar’s conduct in the metaverse, then the approach in *Okpabi v Shell* should be followed to hold the real-

<sup>164</sup> Danielle Garno, “Trademarks meet NFTs: Hermès sues NFT creator over MetaBirkins” (26 January 2022) ReedSmith <<https://www.adlawbyrequest.com/2022/01/articles/in-the-courts/trademarks-meet-nfts-hermes-sues-nft-creator-over-metabirkins>> (accessed 26 March 2022).

<sup>165</sup> Amer Mushtaq, “Part 1: Potential Tort Liability Arising From Virtual Reality—Roblox and Beyond” (11 August 2020) Formative Law <<https://www.formativelaw.ca/2020/08/part-1-potential-tort-liability-arising-from-virtual-reality-roblox-and-beyond/>> (accessed 6 October 2021).

<sup>166</sup> *Chandler v Cape plc* [2012] EWCA Civ 525.

<sup>167</sup> *Lungowe v Vedanta Resources plc* [2019] UKSC 20.

<sup>168</sup> *Okpabi and others v Royal Dutch Shell Plc and another* [2021] UKSC 3.

<sup>169</sup> See *Chandler v Cape plc* [2012] EWCA Civ 525 at [64]; see also *Lungowe v Vedanta Resources plc* [2019] UKSC 20.

<sup>170</sup> Samantha Hopkins et al., “Okpabi and others v Royal Dutch Shell Plc and another [2021] UKSC 3” (2021) 72(1) Northern Ireland Legal Quarterly 148–158.

<sup>171</sup> Francis Gore-Browne, *Gore-Browne on Companies* (45th edn, Jordans, 2013) at pp 7–11.

<sup>172</sup> Brenda Hannigan, *Company Law* (3rd edn, Oxford University Press, 2012) at p 54.

world person responsible for the tortious harm inflicted by their avatars on others in the metaverse.<sup>173</sup>

## 4 Conclusion

This article submits that the corporate law framework, while not a perfect solution, could be one of the many different laws referred to in order to deal with the issue of avatar rights and liabilities in the metaverse. The *Salomon*<sup>174</sup> principle, which safeguarded the separate legal personality afforded to companies, has helped to “grease the wheels of commerce”.<sup>175</sup> Similarly, rights that have been accorded to companies should also be extended to avatars in the metaverse due to the vast opportunities and impact on human quality of life by promoting the development of the metaverse. Safeguarding the protections in place for avatars in the metaverse, especially the cloak of anonymity, would encourage real-life individuals to participate in the development of the metaverse. Extending legal protections to avatars would encourage investment in business, reduce unnecessary litigation and promote creativity.<sup>176</sup>

In the shorter term, potential legal issues in the metaverse would include the areas of data protection and privacy, intellectual property rights and personal harm (in terms of harassment and injuries). Such issues may be resolved using existing intellectual property law as well as consumer protection law. However, the paper argues that there are longer-term issues to consider with avatars as the proliferation of the metaverse becomes more widespread.

There appears to be a case that avatars are ineligible to be persons based on the traditional arguments of personhood.<sup>177</sup> But this paper submits that artificial personality should be ascribed to avatars to allow rights and obligations to be adequately recognised in the metaverse. Cheng has previously argued that strict adherence to separate legal personality enshrined in *Salomon*<sup>178</sup> signifies that courts have to apply outdated common law principles that are not suitable for adjudicating corporate veil disputes and suggest that a new analytical framework should be developed instead.<sup>179</sup> The abuse of these rights afforded by the corporate veil by unscrupulous persons is the main trepidation with granting separate legal personality to avatars. Hudson has argued that the inquiry should focus on whether there has been an attempt

<sup>173</sup> See for instance, Rowena Rodrigues, “Legal and human rights issues of AI: Gaps, challenges and vulnerabilities” (2020) 4 Journal of Responsible Technology.

<sup>174</sup> *Salomon v A Salomon & Co Ltd* [1897] AC 22.

<sup>175</sup> Alastair Hudson, *Understanding Company Law* (Routledge, 2012) at p 38.

<sup>176</sup> Tiffany Day, “Avatar Rights in a Constitutionless World” (2009) 32(1) Hastings Communications and Entertainment Law Journal 137, 156.

<sup>177</sup> S. M. Solaiman, “Legal personality of robots, corporations, idols and chimpanzees: a quest for legitimacy”

(2017) 25 (2) Artificial Intelligence and Law 155–179.

<sup>178</sup> *Salomon v A Salomon & Co Ltd* [1897] AC 22.

<sup>179</sup> Thomas Cheng, “The Corporate Veil Doctrine Revisited: A Comparative Study of the English and the U.S. Corporate Veil Doctrines” (2011) 34 Boston College International and Comparative Law Review 329, 355.

to avoid personal obligations by individuals who have relied on the corporate veil unconscionably.<sup>180</sup> As demonstrated in this article, granting separate legal personality to avatars does not mean that individuals are entitled as of right to unconscionable behaviour. In a similar vein, legal personality should not be seen as a master rather than a servant.<sup>181</sup> Lai has argued that corporate personhood is divisible, and flexible remedies can be put in place to deal with the abuse of the corporate form.<sup>182</sup>

By incorporating an avatar and granting it separate legal personality of the same quality as the corporate veil in company law, this would kick-start the process to identify and address the different types of rights and corresponding liabilities that an avatar could possess in the metaverse. However, considerably many more years would be required before human beings would have a better understanding of what form the metaverse would take and how human beings would interact with the metaverse. The article is indeed forward-looking, and as the metaverse evolves in the next few decades, new laws and regulatory responses, explored through regulatory sandbox regimes in its infancy years, would need to be put in place to ensure an orderly metaverse community that would inspire confidence in its users.

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<sup>180</sup> Alastair Hudson, *Understanding Company Law* (Routledge, 2012) at p 38; see also *Prest v Petrodel Resources Ltd & Others* [2013] UKSC 34 at [92] per Lady Hale.

<sup>181</sup> Bryant Smith, "Legal Personality" (1928) 37(3) *Yale Law Journal* 283, 298; see also John Farrar and Brenda Hannigan, *Farrar's Company Law* (4th edn, Butterworths, 1998) at p 68.

<sup>182</sup> Alicia Lai, "Artificial Intelligence, LLC: Corporate Personhood as Tort Reform" (15 June 2020) Available at SSRN: <https://ssrn.com/abstract=3677360> (accessed 26 January 2021).