

# Dehumanisation and the Future of Technology

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## Abstract

Artificial intelligence and the world of cyber are inextricably bound. When logging on to the internet one can be susceptible to any number of manipulations by actors in cyberspace. Some have attempted to put in a myriad of controls that seek to provide safety but instead provide restriction and push negative forces into hiding. The methods in which manipulation is present in cyberspace are not widely well understood and so this paper explores how techniques such as anthropomorphism and humanlike technology can affect, and manipulate, people and their belief systems. As we have observed over the last few years, this can end in legal proceedings, or damage to society. Recently more serious effects of AI have been observed. Dehumanisation is the human reaction to overused anthropomorphism and lack of social contact caused by excessive interaction with, or addiction to, technology. This can cause humans to devalue technology and to devalue other humans. This is a contradiction of the use of 'social robots' and 'chatbots', indicating that the negative effects of this technology would outweigh any perceived positive effects. In cyberspace, anthropomorphism and similar techniques based on deep philosophical principles can be, and are, used to alter the behaviour of humans. To the authors knowledge the concepts within this paper have not been pulled together in this way to discuss the impact on humanity. As these types of techniques are becoming more widespread in the cyberspace area, it When we begin to represent abstract technology this way we begin to encounter the exact techniques that can mislead and exploit is clear that we are entering uncharted territory that holds a vast array of consequences for society.

## 1 Introduction

What a developer thinks of as AI and what the normal person considers to be AI might be completely different. According to Kate Crawford "we think of artificial intelligence as something floating above us, disembodied, suspended and without earthly costs or consequence" [1]. On the other hand a developer may consider AI to be an algorithm that performs a certain task. It can be difficult to explain abstract concepts to people and so using techniques to make the concept more relatable to us can help. One of these techniques is anthropomorphism. However, here are multiple consequences to using this technique.

Science can be hard work for people and fail to deliver satisfactory answers. As science is a relatively recent way in which to interpret the world, and it can be difficult to understand, a pseudo science can emerge which is a crossover between true scientific beliefs and a world view that may have been held pre science. This is because it "caters for a human need for explanation both on the logical – rational level and on the emotional – existential level [13]. This can occur where science is not well understood, especially around Artificial Intelligence. We cannot therefore be surprised that, a person who cannot make sense of complex abstract concepts may resort to a technique such as anthropomorphism to make the concept relatable to them. Anthropomorphism and belief systems can be seen as intrinsically linked because we are born with anthropomorphism and it can be used to form belief systems.

Anthropomorphism is achieved by ascribing human characteristics and behaviour to a complex concept such as robots or interactive technology. This can be further compounded if the marketing for the device or concept speaks about the device as if it is a person and not an object [2]. Humans are born with instinctive anthropomorphism, rather than solely developing it as a learned skill. This indicates the skill is inbuilt into deep belief systems upon birth. Clinical and developmental psychology research shows that humans start to anthropomorphize during infancy and carry it as a skill throughout their lifetime [3]–[5]. Anthropomorphism is a way for humans to communicate complex concepts in a way that can be understood by using common objects or commonly understood elements of human perception such as animals or feelings or even common objects in our current environment [6]. Anthropomorphism is the attribution of human characteristics to a non-human object [7]. The use of this technique can prompt consumers to form connections with brands and technology to the extent that they will be 'angry' with their computer or 'encourage' their phone [6]. Indeed, in studies anthropomorphism has been shown to yield a 7% increase on profits. Yuan et al. found that "simply displaying the product in anthropomorphised way without changing the product itself increased the amount consumers were willing to pay by 7 per cent" [8] and boosted the 'compare the meerkat' campaign [9]. Further examples include the study using Lexus cars with a perceived 'frown' and a perceived 'smile' alongside anthropomorphic narrative. The perceived 'smile' made the car more accessible to consumers and the happy connotation

increased the consumers positive perception of the product [2].

Puzkova et al. stated that "Brand Anthropomorphism is the process of imbuing brands with humanlike feature that enhance consumers attributions of mind to the brands"[10]. This process is not new and has been used for decades in consumer science. This is illustrated further with the most recent studies on mind attribution to 'humanlike' robots. Indeed, due to robots being constructed in the image of man, Zhao et al. state that a straightforward monotonic relationship between appearance and mind inference is plausible, i.e the more a robot looks like a human the more a human would think that it has a mind like a human [7]. Indeed, in the 2019 study Zhao et al. discovered that the more human like the appearance of the robot the more study participants allocated aspects such as emotional capacities, planning for the future, moral values and the ability to have self determination to the robot [7]. This type of anthropomorphism can cause humans to ascribe feelings, affect and mind to a robot. This can then induce humans to begin to establish feelings towards the device. This is seen in the recent paper by Fu & Xu where the findings of two experiments discovered negative effects of anthropomorphised devices where a person might be socially rejected. The person then may feel the need to use a brand or a product in order to belong or restore inter-personal relationships [11]. The brand and products themselves drive a narrative that one must be special or in a specific group to interact with them. This creates a division between the haves and have nots. One of the drivers of anthropomorphism of products is to create this sense of distinctness or belonging as this feeds into basic human belief systems [12]–[14]. This type of interaction is characteristic of dehumanisation. In this paper the human belief system is explored as a pre-cursor to an analysis of dehumanisation. The next section examines how dehumanisation as a concept can occur within the realm of modern technology and finally the impacts of this are examined. In the next section we discuss how Human Belief Systems work in relation to this complex concept.

## 2 Human Belief Systems

Cheshire states that "the term 'belief systems' is intended to describe collections of beliefs within human minds that belong to different classes of belief and in different proportions with the result that each belief system elicits particular behaviours"[13]. The ideas of 'belief' refers to what the mind accepts as its version of reality, in essence, what information the mind has been given that it accepts as truth [13]. People interpret information in different ways and this gives rise to varying belief systems both between individuals and on a macro level also. The mind creates a model of the world based on the evidence presented to it and this results in a set of beliefs, justified by evidence, that form a belief system [15]. The beliefs held within this system can be modified but the cost of acquiring new data is high and therefore the person may be liable to fall back on old beliefs [13]. According to Cheshire, chauvinism, bigotry and prejudice are examples of beliefs that a mind has formed or adopted from the close community and would not wish to

modify them because they work well for survival in the current environment. Not only is there little reason then, to modify these beliefs, but this may even have a negative impact on the individual in the given environment. Cheshire also states that even if the environment changes sufficiently for the belief to be updated, it may be more cost effective to retain the prior belief and feign modification [13]. An interesting example that Cheshire gives for belief system management originates in Madagascar. A taboo culture called *fady* exists on the island of Madagascar and exerts control over many aspects of daily life such as etiquette, food, manners and cultural customs. These customs can differ between regions and by personal decree. One explanation for this changeable system is that if someone declines to participate then they can be rooted out of the society quite quickly. Another reason is that an intruder or external person can be spotted immediately. Someone who has been absent for a length of time will also be highlighted by this system. This system shows why a belief system could be used to not only work towards survival of the society but illustrate how a belief system can be layered in such a way to convince a mind that this is the correct belief to hold. The intriguing point made by Cheshire is that "human populations are capable of adopting idiosyncratic behaviours because they become the norm within those populations" [13]. As a belief system becomes entwined in the behaviour this can lead to specific sets of moral and ethical codes that range in acceptability across populations.

As devices such as Alexa, Siri and Robots become ever more humanised, it is easier for people to understand but also to trust without a sound basis. It is easy to feel that one can build relationships with this technology as mental and emotional properties are ascribed to them. When they are 'just like us' why would we suspect exploitation or manipulation. The reality is more abstract and more technical. When we treat the system as a human and not as a system we forget that a technical system requires testing, verification and supervision to be accepted for implementation [16]. Alexa, Siri and Chatbots are algorithms powered by data, not humanlike. However, as Cheshire states, it would be very hard to update a prior held belief of the technology being humanlike when abstract concepts are difficult to understand and require much energy to do so. In some cases, the cost is too great. In Garvey et al. it is stated that "artificial agents may bypass human defences against interpersonal exploitation" [17]. This indicates that where a belief is formed it is rarely updated and this means that it can be exploited intensively and for long periods of time. We see this in the endurance of anthropomorphism as a marketing tool. In the next section the concept of dehumanisation in relation to AI is examined before moving on to issues of human – AI interaction.

## 3. Dehumanisation

Dehumanisation is a widely debated concept. Recently Harriet Over [21] has debated the falsification of the current dehumanisation hypothesis which has led to heated debate within the psychological community. There is debate across

disciplines as to the exact nature of this term and indeed dehumanisation is also used as a pseudo term to discuss the diminishing presence of a person, which although similar is not quite the same concept. No singular, shared dehumanisation hypothesis exists according to Over. The prevailing theory is that dehumanisation is the act of perceiving or treating people as if they are less than fully human and leads to discrimination against other individuals or entire groups [19]. Whereas Smith [20] eloquently describes dehumanisation as “a psychological lubricant for the machinery of violence”. Dehumanisation can be viewed as a form of discrimination but for this paper it is more applicable to discuss the theory in terms of division [21] as that is how it is used in an anthropomorphic way to drive sales [8] and how it is used to exploit those experiencing social issues [12].

Harriet Over states that dehumanisation theories are a group of interrelated theories. However one point that stands out as being descriptive of dehumanisation in the context of technology is “to dehumanize a group is to conceive of them as sub human creatures”[20]. While this definition may be strong it encompasses the creation of divisions between groups of humans such that they feel a division should occur. In this theory there are two or more groups normally labelled an ‘in group’ and an ‘out group’. Whilst one group could be perceived as superior with this label, it is from the groups perspective that this label exists. Therefore, the in group would allocate themselves as the in group. Furthermore, both groups could allocate themselves as in groups and at this point it is to the author to decide which should maintain the seemingly preferential label. For example, Nazi Propaganda from the 1930’s, Rwandan radio broadcasts before the 1994 genocide [22] and even Covid Vaccination narratives from the 2020’s all seek to establish an ‘in group’ and an ‘outgroup’. Those outside of the group can find themselves labelled with derisory terms by the in group. In Nazi Germany a Jew might be referred to as a “rat” or as a “louse”. In South America people who were enslaved were sometimes referred to as “ape-like”[21]. In 2020 and 2021 those refusing Covid vaccinations were labelled “Covid Karen” [23] or ‘Anti Vaxxer’ [24]. Thereby attaching an out group (Karen) to an already defined and established outgroup (Vaxxer). The aim of dehumanisation is to present a group as being ‘less than’ the self-perceived superior group and to force either increased division to justify an existing belief system, or create a belief system in order to distributed to the population or to force compliance of a perceived inferior group. This behaviour can routinely be observed on social media platforms.

Social media, being perceived as a popular type of media, can have negative consequences in forming and maintaining belief systems. Algorithms can create echo chambers to satisfy users that they are within a community that agrees with them, thereby reinforcing their beliefs. However, the platform also presents articles against the individual’s viewpoint to provide clickbait to create anger and frustration [25]. The user is then able to express any feelings on the presented viewpoint. This can inflate the individual’s belief

system leaving no space for either updating and creating new beliefs. This can be extremely damaging to a person and their progression in forming relevant beliefs. While social media participation may expose users to diverse viewpoints [25], “exposure to alternative views may actually encourage social media users to seek out sources that validate pre-existing beliefs rather than engage in deliberation and reasoned civil discourse” [26]. Indeed, studies of affective polarization support conclusions that members of political groups tend to emphasise the distance between their in-group and members of the out-group [27]. Harel et al. “examined social media communication (Facebook posts and comments) to illustrate how the discourse in a homogeneous enclave, or echo chamber reveals affective polarization and dehumanization” [27]. This danger of the algorithmic drive for individuals to be placed into echo chambers allows belief systems to be exploited as never before. Relying upon data gathered by an algorithm could place individuals into groups that may exacerbate their negative views. This could ultimately cause further dehumanisation and a fractured society both on and offline to emerge.

Recently, consumer researchers have begun to investigate the impact of social exclusion on consumers’ judgments and choice of products and brands. This line of research mainly focuses on how socially excluded individuals choose products so as to signal their intention and interest in building social connections with desired persons or groups [12], [29]. Socially excluded people might engage with products or brands to signal their belonging to a group or distinctness to re assert themselves in the social domain. Research on branding has suggested that products themselves can be the targets for relationship building, and that “consumers can establish relationships with products or brands in similar ways to which they form interpersonal relationships” [30]. Consumers may also think of brands as “relational partners, such as a trusted friend, business partner, or servant” [31]. For example, in a sports analogy a person might think of strength, speed or team spirit and so they might see Nike as athletic, strong, and fast, especially when examining the celebrity endorsements. Social exclusion increases consumer preference for an anthropomorphized brand as it is more relatable. In a study by Chen et al. participants who were induced to feel socially excluded (vs. included) indicated more favourable attitudes and were more likely to actually choose a real brand of candy when it was thought of as a person [12]. This indicates that social motivations may play a larger role in consumer decisions than we first thought. If indeed consumer decisions are based upon basic beliefs and desires such as distinctness and belonging as well as being part of a similar community, then the opportunity for manipulation becomes more apparent. Indeed, In a study by Fu & Xu, “people who were socially excluded and who had high self-esteem evaluated anthropomorphised products more negatively than did those with low self-esteem, and the distinctiveness motivation mediated the effect of this interaction of social exclusion and self-esteem on attitudes towards anthropomorphised products”[14] .

People use and display unique products to distinguish themselves from the masses [32] and discontinue using goods once their adoption becomes widespread [33]. The desire for distinctiveness is balanced by a need for belonging that motivates us to assimilate with others [33], prompting conformity. Individuals wish to be both distinct and part of a group at the same time. However, depending on the environment, it may only be possible to satisfy one or none of these. When people are out of sync with others, this means they are no longer part of the group and can be dehumanised. This can mean that they experience social exclusion [34], [35]. This can lead them to mimic the behaviour or consumer habits of others to restore feelings of belonging. Dehumanisation can also be internal and in response to social ostracism people tend to dehumanize themselves [36]. Dehumanisation is a complex but extremely damaging concept and by causing divisions and the creation of groups it can be seen that, in their desire for distinctiveness the in group will then orientate itself against perceived out groups. The perpetuation and encouragement of this in online scenarios such as gaming and social media platforms, for example, can lead to further societal impact in the real world,

## 4 The Relationship between People and Technology

AI has become one of the most anthropomorphised technological advances in recent history. This can be seen where human-like robots are built to mimic humans and platforms like Siri and Alexa are human oriented. [37]. Indeed, the “ascribing of qualities to devices such as Alexa or voice based interaction devices begins with the creation by the manufacturer of an “illusion of intimacy”. This, in turn, “helps fulfil a need for social integration” this can create trust without an evidence base [38]. Research on anthropomorphism shows that consumers can build human connections with nonhuman agents and ascribe to them feelings and intentions. For example, humans “give their in-car GPS system a name, denote Earth as their mother, and rail against at computers perceived as ‘petulant’ and not reacting or carrying out certain tasks as expected” [39]. The following two studies on smart devices and oxytocin examine how humans can interact with technology and the potential results.

### Study 1

In a study by Schweitzer et al. the relationship between consumers and voice controlled smart devices was examined. Consumers were asked to report on their interaction with the smart device and were interviewed about their experiences, feelings and whether they would re-use the device after the user journeys [39]. Several consumers changed their perspective of the smart device over the time of the study. In the beginning, “their earlier euphoric amazement turned into disappointment, partially due to the smart device’s repetitive and unsuitable answers”[39]. If the tasks during the experience journey did not go smoothly, they reacted in an emotionally charged way, almost seeming to take this failure personally. They regretted having wasted time trying to work

with the smart device, the wasted effort and time lost while trying to interact meaningfully with the smart device [39]. This indicates an expectation of the technology which was not met. The emotional and perceived investment was not returned by the reality of the technology. This is also clear in the simple example of “Bank terminals that ask ‘How may I help you?’ suggest more flexibility than they deliver. Ultimately the individual realises that the device makes promises that it cannot deliver, and the user may feel poorly treated. Morgan states that “This is an example of bad design with an unwarranted use of anthropomorphism” [40].

### Study 2

An equally powerful reaction is a biological one concerning hormones and how they work to help us form social bonds. A study by De Visser et al. investigated, for the first time, the effects of oxytocin on social interactions. De Visser et al. state that “Forming social bonds with other agents involves processes of motivation, interpreting social information, and creation of social memories. A fundamental driver of this social bonding process is oxytocin” [41]. De Visser examined whether oxytocin affects a person’s perception of anthropomorphism and the subsequent trust, compliance, and performance with automated agents [41]. Interactions were examined between humans and automation varying in anthropomorphic levels. For this purpose, a computer, avatar and human were used. The study consisted of a recognition task in which participants were assisted by an automated aid. The hypothesis was formed such that those who were not given oxytocin would have high levels of trust, compliance and team performance with the automated aid when interacting with a computer but lowest when interacting with a human. The interaction with an avatar was hypothesised to fall between the two levels [41]. De Visser et al. predicted that oxytocin would only increase response for anthropomorphised automation aids such as avatar or human. It was expected that no difference would be found for computer agents. The results of this study provide the first evidence that oxytocin affects trust, compliance, and team performance with non-human, automated agents [41]. It was found that oxytocin only augmented trust, compliance, and performance among non-human agents that appeared somewhat human. Therefore, “oxytocin does not increase trust in entirely non-human interaction partners” [42], and oxytocin “does not override important cues regarding an interaction partner’s untrustworthiness”[41], [43]. This indicates that a person may feel more positive reactions when engaging with an automated aid and indeed place trust where it is unwarranted.

Yuan and Dennis have questioned whether inducing anthropomorphism would increase positive perception [8]. Yuan and Dennis have stated computer users can identify human traits in computer behaviour [44], and they prefer computers that exhibit similar personality traits to themselves. They evaluate a computer as significantly better when they are told that they are teamed with a computer to work on a task than when they are told that they are working alone using the computer [45]. This indicates the link

between the drivers powering consumers, namely, to be part of a group or be distinct, and anthropomorphism.

## 5 Effects on human perceptions of technology

Although AI can be seen as a neutral tool to be evaluated on efficiency and accuracy, this approach does not consider the social and individual challenges that can occur when AI is deployed [52]. Smart devices such as Siri and Alexa are now in homes across the globe. Devices such as Alexa, Siri and Computers have been equipped with tools to 'listen' to environments in order to improve the voice recognition algorithm. However, this listening capability also enables AI systems to collect data about consumers and the environment in which they live. Consumers are able to provide information themselves, but data can also be collected without permission by the smart device. The consumer understanding of this system is not yet mature and has led to legal challenge after the fact [38], [46]–[48]. Consumers can ultimately end up sharing data when there is little or no uncertainty about how the data will be. Consumers also surrender data when this uncertainty is high [49]. It is problematic that data can also be obtained by AI from the data fingerprints consumers leave behind when they engage in daily activities, as in the case of a shopper perusing a store equipped with facial recognition technology [50].

Access to customised services also implies that consumers can enjoy the outcome of decisions made by digital assistants, which effectively match personal preferences with available options without having to endure the cognitive and affective fatigue that decision making can entail [51]. However, despite the apparent AI's ability to predict and satisfy preferences, consumers can feel exploited in data capture experiences, mainly because they do not understand AI's operating criteria [50]. To illustrate the power of this commerce, targeted ads based on personality characteristics inferred from the analysis of Facebook likes in combination with online survey questions can increase conversion rates by about 50% [52]. In 2018, Facebook's revenues from the sales of such tailored ads was close to \$56 billion [50]. Due to the above, consumer behaviour becomes increasingly compliant to the requirements of the technology. "AI can transform consumers into subjects who are complicit in the commercial exploitation of their own private experience, thereby undermining personal control and promoting the concentration of knowledge and power in the hands of those who own their information" [50].

The impact on consumers and their personal existence is also apparent in the following cases. In the case of children interacting with educational software: "the dual image of computer as executor of instructions and anthropomorphized machine may lead children to believe they are automatons themselves. This undercuts their responsibility for mistakes and for poor treatment of friends, teachers, or parents"[40], [53]. Furthermore, there are consumers who place the technology into an inferior 'outgroup'. "If an agent looks and acts a lot like a real person, and if I can get away with

treating it badly and bossing it around without paying a price for my bad behaviour, then I will be encouraged to treat other 'real' agents (like secretaries and realtors, for instance) just as badly" [54]. Puntoni et al. state that "strongly held goals may motivate consumers to accept greater risk of exploitation when the AI is seen as a conduit to goal completion, mitigating negative emotional responses" [50]. This indicates the very real problem that is faced within technology with smart devices and AI agents. Whether it be social media behavioural manipulation of belief system exploitation or smart devices and their effect on our deep beliefs and desires, as a society humans have out themselves at risk.

## 6 Conclusion

This paper has pulled together concepts from multiple disciplines in order to illustrate the deeper need for cybersecurity measures and why cyber security is essential to build a fair and free society. This negative driver can be exploited by companies and marketing to not only create false representations of technology but to exploit consumers and induce dehumanisation in the form of in and out groups. Brand and products hold the responsibility for this outcome as do developers and technology companies and it is crucial that these concepts be understood in order to mitigate harm on society. These concepts are only being observed in recent times and have caused huge divisions over the last few decades. Therefore, it is imperative to commission further research into potential impacts and outcomes as well as mitigations. It is however, understandable, given the problematic human belief system that finds science hard to digest and the cost to update beliefs too great, that companies, products and brands have been designed in a certain manner. Knowing the impact of dehumanisation and the issues highlighted in this paper there is an argument now for consumer education and transparency of technology to relieve the burden of science and updating of beliefs. We must ensure that, all are able to not only understand, but access and create technology in a responsible and ethical manner. It has been seen that it is a reasonably easy undertaking to exploit people using such a powerful tool, especially when humans are instinctively using anthropomorphism to understand complex systems and are reluctant to update beliefs they already hold. Where individuals are unhappy to accept new beliefs, it is difficult for them to adapt to issues such as risk or exploitation even when it is shown to exist.

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