

Artificial Intelligence: Panacea or Non-Intentional Dehumanisation?

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It goes without saying that Artificial Intelligence (AI) is at the pinnacle of our technological advancements. We have created intelligent systems that are held to vastly outperform certain human capacities, and it is clear that this will only increase as time passes. In many ways this is very promising, but the forms that technology and AI take in our society has also sparked many concerns of dehumanisation. The intentional form dehumanisation has started to receive some recognition as of late, a view that propagates that dehumanisation would be gone if only we rule out the underlying malicious intentions for oppression. Yet, such a view glosses over the fact that dehumanisation might also occur when a seemingly positive goal is perfectly reached. As such, we propose the notion of “non-intentional dehumanisation” to describe this alternative side of dehumanisation, of which naive AI usage is a paradigmatic case. We further elaborate it to take two forms; not only does AI risk dehumanising the “used-upon” (a denial of humanness), but also the user (a deprivation of humanness). The present paper will end by synthesising a model that lists (and exemplifies) the potential causes and effects that pertain to this phenomenon. This conceptual model of non-intentional dehumanisation could prove useful to bring awareness to the counter side to our ready acceptance of AI solutions.


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In recent years, Artificial Intelligence (AI) has become a topic central to public debate. It is a discourse between advocates of AI on the one hand, that frame it as a “silver bullet” to alleviate us from our labour and complex social problems (Leufer, 2020), and its con-

tenders on the other. Here, light is shed on its potential to oppress people (Crawford, 2021; Kerr, 2021; Sartori and Bocca, 2023; Erscoi et al., 2023), or simply that it will move beyond our control (such as with the paperclip maximiser, see e.g. Murphy, 2018). Oftentimes the label “dehumanisation” is attributed to this negative side of AI consequences. Nevertheless, this notion is notoriously ambiguous (Haslam, 2006). As such, the present paper is at once a response to the “panacea” (a “cure-all”) view of AI that some of its proponents advertise, and an effort to make this notion of dehumanisation, with particular regard to AI, more transparent.

To accommodate the latter objective, we argue that it is necessary to differentiate dehumanisation into two distinct forms; that which is intended and that which is not. Two contemporary artificial facial feature-detection systems can serve as examples to illustrate these contrasting forms. In the case of AI-enabled per-

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secution of ethnic minorities (e.g. Byler, 2019), we often judge that the dehumanisation of people with certain racial characteristics is indeed intentional. However, when AI is used to predict high-risk travellers for border-control purposes (e.g. Biddle, 2018), the underlying intentions may be classified as “good”, but dehumanisation may still be at hand due to a high rate of false positives. In this case, dehumanisation is clearly a side-effect that was itself not intended. A recognition of this difference is important, because it illustrates that we should look for entirely different domains of causes, if we seek to remedy or counteract either form of dehumanisation. The potential of AI for intentional dehumanisation — in the form of an explicit oppression of humans — has started to receive recognition as of late, but the alternative side has not yet attracted much methodical treatment. It has remained a mystery what shape this secondary form of dehumanisation takes, and why it tends to come into existence in the first place. In an effort to fill this gap, this paper will put the phenomenon of “non-intentional dehumanisation” on view.

Non-intentional dehumanisation pertains to those forms of dehumanisation that occur as a side effect when a predefined goal is perfectly attained. It is strictly accidental to certain goals; the goals themselves may be desirable, but this does not mean that all its implications and requirements are thereby too. The consequences that stem from algorithmic mistakes, or inaccuracies, (such as certain forms of bias), that might also be considered to be occurring non-intentionally, fall out of the scope of the notion discussed in this paper. This is because, to some degree, we already know that unrepresentative (“bad quality”) data brings forth dehumanising effects. For certain forms of data we do indeed have the means to augment it. True non-intentional dehumanisation tends to stay wholly undetected. Its conception attests that data without “mistakes” may also induce dehumanisation. Thus, with the notion of non-intentional dehumanisation we aim to shed light on the dehumanising consequences that remain hidden under the veil of a positive appreciation of the ability of AI to accomplish our goals.

Importantly, non-intentional dehumanisation has an inherent connection to the neutrality of technology usage. It has a relation to the specific way in which AI, or other technology, effectuates our goals. Does technology merely yield what we set for it to produce, or does

it also have a part to play in the way that these goals are conceptualised in the first place? This conception of neutrality has definitely been on the radar in the past — oftentimes it is presented as being analogous to the degree of human control over technology. But, not all conceptions of neutrality can adequately explain non-intentional dehumanisation.

On this neutrality, Pfaffenberger (1988) elaborates how our cultural notion of technology culminates in two views; technological somnambulism, that holds that we are fully in control, such that it is thereby neutral, and technological determinism, that states that technology development propels beyond our doing, effectively rendering it as non-neutral. Consequently, he argues that both views overlook the hidden social relations that underlie technology usage. From this view, it is advocated that technology should rather be seen as non-neutral, because it enacts our oppressive human control. Such an intentional view of technology can also be seen in Munn’s (2022) account against the “myth of automation”, as he states that this great promise conceals its interests. Still, if one takes their argument to their logical conclusion, this non-neutrality suddenly disappears, as the discussed dehumanising consequences are linked to algorithmic mistakes, such as bias, or abusive human control; nothing is related to the truly accidental-non-intentional side of our usage of technology.

On a different note, the case has also been made that modern technology is a sort of lens that (unnoticeably) shapes the way that the world is presented to us (Heidegger, 1977). In this sense, Heidegger was one of the first to fully disentangle neutrality from control, because a perfectly functioning technological tool could also induce side-effects that are non-neutral. In our reading of this view, we effectively transpose it into a philosophy of non-intentional dehumanisation. To adequately account for the source of non-intentional dehumanisation, we argue that it is indeed necessary to look into the essence of technology, since the trap that risks being sprung originates from something in the technological object itself. In other words, technology has repercussions that cannot always be seen in advance, and that do not stem directly from our intentions. Contemporary philosophy of technology, however, strives to move away from this unitary essence of technology in general, as it is held that each particular application should be seen in their uniqueness only (see for exam-

ple Verbeek, 2001). While it is undeniably important to listen to each and every specificity, we nonetheless assert that, especially with AI, it is categorically fruitful to take it (also) as a whole.

Thus, it will be argued that AI could be conceptualised as a paradigm that risks inducing non-intentional dehumanisation, because there might still be negative consequences, even if we are in control and have solely “good” intentions behind its deployment. To explore this phenomenon of non-intentional dehumanisation, its occurrence will first be linked to a portrayal of AI as being constitutionally reducing. Secondly, we will elaborate that it has a two-fold form; we should attend to the phenomenon not only on the side of the used-upon, but, unconventionally, also on the side of the user. As such we end up with a synthesised model of non-intentional dehumanisation, of which its potential causes and two-sided effects are listed. Finally, these causes of its manifestation will be exemplified using concrete contemporary AI applications, in order to show how cause and effect are related.

1 The Relation Between AI and Reduction

Standing firmly embedded in the forefront of scientific and technological developments, AI is an epitome of technology (cf. Crawford, 2021; McCorduck, 2019; Monett, 2021; Erscoi et al., 2023). Yet, we cannot regard all technology as being the exact same. Especially with regard to modern AI systems, we seem to have the largely shared intuition that it is more than just a simple tool. To bring these intuitions into clear daylight, we will have to investigate what it is in AI systems that separates them from other technological applications. More importantly, if we are to conceptualise how and why non-intentional dehumanisation emerges through our AI usage, we will have to investigate what principles inherent to AI are enabling the onset of this phenomenon.

1.1 The Essence of Technology: Enframing

A well-known critique of modern technology was put forth in *The Question Concerning Technology* (Heidegger, 1977, published in 1954 in German). Here he attacked our everyday conception of what technology is. Under this view, technology is not simply a means to an end, employed in human activities. Rather, its

true essence is that of a more mysterious “revealing”. This revealing can be seen when a hammer is used to build a wooden bridge, or when a smartphone is used to readily access information. This shows us that there is something inside the technology that is beyond a mere human doing, because it allows us to see things that were not there on their own and that we could not have brought about ourselves. Crucially, this revealing is far from neutral, since it is not at all evident what effects it brings about.

It is especially with modern technology that this revealing is held to take a negative turn; the original, more creative, type of revealing suddenly unfolds itself into a more demanding and challenging form. This is because modern technology has a connection to modern science, which strives to render the world fully predictable. This now measurable world is ready for modern technology to commandeer. Consequently, the world is completely reframed as being nothing but resources, or “standing-reserves”. Heidegger illustrates this difference, by comparing how we now challenge a plot of land to produce the same crops over and over, whereas before we simply let nature take care of our production. This new form of revealing, the essence of modern technology in particular, is “enframing”. It is a paradigm of efficiency, which does not only challenge nature in this sense, but also ourselves; we are in control over technology, and yet some part of us is enslaved by it. We lose ourselves in it, we are entranced by the technological mindset, as it were.

This conception of enframing allows us to completely reshape the way we think about the consequences of technological usage; perhaps it is not evil intent that poses the biggest risk, but rather that we are set up to perceive and act in an entirely reducing way, all while thinking that we know what we are doing. It should be noted, however, that while any such standpoints on technology are useful, they need to be approached carefully. With his sympathy for Nazism, Heidegger was notoriously insensitive to (Nazi-induced) human suffering (Rockmore, 1992). Thus, what he failed to see, or an avenue that he refused to take, is that reduction should be of note, only in the sense that, and if, it causes harm. His own form of reduction remains highly abstract, which potentially allows for subversive (irredentist) ideologies to occur, as he uncannily equates the gassing of human beings to the mechanised

food industry (see e.g. Rockmore, 1992, p. 241; Wolin, 2023, p. 61). Therefore, we must place his critique of technology under a new perspective; one that calls attention to its dehumanisation instead.

1.2 AI and Enframing

Before we manoeuvre to a characterisation of the related dehumanisation, we must first examine how these forces of reduction take shape in the domain of AI in particular. In the preceding paragraphs it was shown that technology usage induces reduction because it endorses us to view the world through a lens of enframing. It could be said that the heart of the problem is the setting of technology-enabled goals that are inherently reducing. With respect to the technology of the internet, Carabantes (2021) has shown that it might be considered to be a paradigmatic case of this enframing; information is its standing-reserve, or resource, which is to be challenged into existence and commanded around. Datafication is thereby a lens through which the world is revealed as a mathematical and datafied form. Such confusions or conceptual mergers between machine and human or model and modelled are even apparent in modern psychological, neuro-, and cognitive sciences (Guest & Martin, 2023).

From this, the step to AI is only a small one, since it also deals with data, even on the internet — one only needs to think of large language models, personalised news feeds and artwork generators —, but AI does present something additional to this scene. At root its algorithms are governed by an optimisation function to achieve the desired accuracy (such as in reinforcement learning and in deep learning). Reduction is therefore apparent — especially so in “narrow AI” — in precisely this maximising of “something”; it challenges the presence of one aspect, while, and by means of, disregarding all others. Datafication reduces the world to its “interesting parts”, and these optimisation algorithms challenge the presence of particular data over others. Thus, AI indeed pertains to this enframing.

What’s more, AI can be argued to bring novel ways in which this phenomenon is aggravated. Förster (2019) argues how AI delivers more invisibility, or opaqueness, in what it brings about than other technologies, since it is a black-box that is removed from sight using increasingly speedy microprocessors. Furthermore, she elaborates how AI also increases the capacity for the predic-

tion of human behaviour, thus heightening the risk of controlling and challenging humans. This latter point is also advocated by Carabantes (2021), as he connects this novel possibility for predicting human behaviour by data gathering their data to the capitalism of AI-using companies. On a different note, Stolterman and Fors (2004) point out that information technologies, such as “smart”-devices, tend to create a full interconnect-edness in our world, which effectively means that the phenomenon will be omnipresent and multiplied, as one application sends its data to another. Finally, Vrontis et al. (2022) notes that with the introduction of AI, technology is able to overrule previously uniquely human tasks, such as communication and interaction, allowing for an easy comparison between humans and machines. This list is not exhaustive, but it shows how AI may be liable to bring about unique forms of reduction, as compared to other technologies.

Technological critiques often hinge on the principle that it is only possible to have a free relation to something if one knows what that something truly is. Thus, without a certain distance to the machine, its usage poses the inherent risk of machine-like thinking. This is even apparent empirically, in the way that the “state-of-the-art” label, which relates to non-humane technical values, dominates the contemporary research scene as it has become legitimisation for research on its own, as shown by Birhane et al. (2022). Zawieska (2020) affirms this condition to be present in the field of robotics too; she speaks of an “engineering ethos” in which technical functionality supersedes a more human-oriented approach to the design process of robots. As such, she argues that a “tacit” dehumanisation is inherent to the current field of robotics. Yet, however much in line this reappraisal of the human over the technical is with the purpose of the present paper, these accounts cannot yet adequately explain why the technical mindset is also human, in that we employ it to attain certain desirable ends. The values of performance and efficiency are our values that we employ. The problem is rather that the naive belief that these values are neutral has the inherent tendency to overrule other human values in an almost completely concealed fashion. We argue that AI is an embodiment of this problem; a radical belief in its neutrality is precisely a non-intentional method of reduction of the humane. To understand what this forms this architecture for non-intentional dehumanisation takes,

we will need to unfold it first.

2 A Two-Fold Model of Non-intentional Dehumanisation

2.1 A Perspectival Account of Dehumanisation

In the analysis of the previous section it became clear how modern technology, and AI in particular, has inherent ties to reduction. This reduction comes in two forms; not only does it show how humans can be re-described as mere resources, it also diminishes our very experience of a rich world. It is a two-fold of dangers: not only can we be on the receiving of this technological view, but we are also at risk of “over-extending” ourselves through our supposed mastery over the planet (Zovko, 2020, p. 6). Technology “mediates” our experience, as Verbeek (2001) puts it, but this experience should not only be noted in terms of our own experience, but also in the way that one is experienced by another. As such, technological objects present a perspective, through which one can look and through which one can simultaneously be looked at. Technology should therefore not only be viewed for its potential to reduce what we might call the used-upon, but also for its potential to reduce the experience of users.

With this distinction in mind, it becomes necessary to further elaborate on the exact nature of this reduction. As we have already addressed, the imposing danger naturally pertains to us humans as a loss of what it means to be human, such that we arrive at the notion of dehumanisation. Since this reduction takes two forms, the dehumanisation at hand must be separable into similar kinds. Nevertheless, popular conceptions, such as by Haslam (2006), do not relate the concept to “users” at all, reading it only as something that can be acted upon someone by human individuals. We argue, however, that especially in the context of technology, where its usage is not always in an interpersonal context, these two forms of dehumanisation should take a prominent place in contemporary discussion. Otherwise, we risk hearing only half of the story. To shed light on these phenomena, we will have to investigate how both forms are non-intentionally apparent with technology. To characterise the two, we will link the dehumanisation of the used-upon to a “denial of humanness”, and the dehumanisation of the user to a “deprivation of humanness”. As such, AI can be connected to both of these forms

of non-intentional dehumanisation (see Figure 1 for an illustration).

2.2 Non-intentional Denial of Humanness

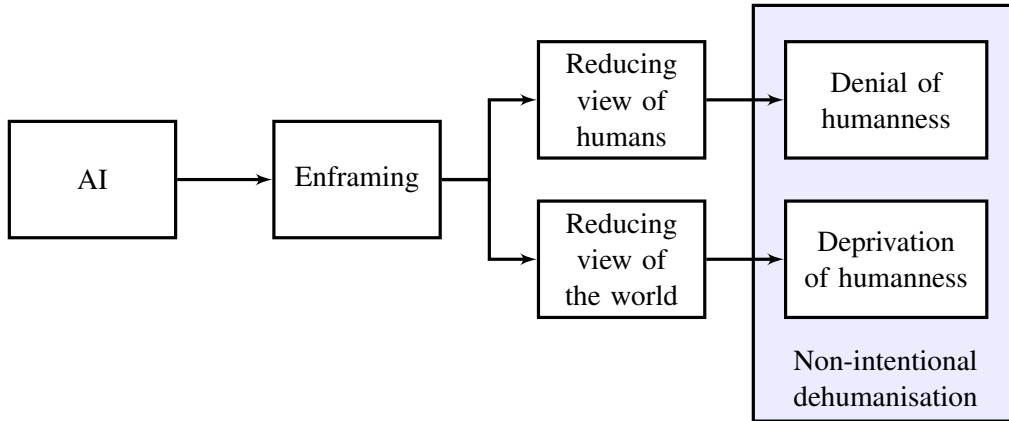
Haslam (2006) devises his conception of dehumanisation in two forms; those that are intentional, and those that are not. Both are linked to a denial of humanness, where each denies a different aspect of this humanness at hand. He elaborates how traditional conceptions of the word “dehumanisation” refer only to the intentional form, i.e. a denial of “uniquely human characteristics”. This dehumanisation is “animalistic”, in the sense that it denies humans those aspects that distinguishes them from other animals. Generally speaking, it is effected when people are likened to a lack of refinement, civility, cognition, morality — all things that naturally relate to a reasonable, equal, human being. It can be linked to genocidal conflicts, as it forms a legitimisation for one group or person to be cruel to another.

Diverging from this traditional form, Haslam notes an alternative occurrence that allows for a non-intentional kind of dehumanisation to be identified as a conceptual subspecies. This second type is defined as a denial of “human nature”, which is argued to pertain to those characteristics that are inborn, rather than cultural or acquired. It is “mechanistic”, in that it entails a likening of humans to machines. Here, people are disregarded for their warmth, agency, depth, and emotionality; it is induced by a psychological distance, i.e. a general lack of care for the personal. Curiously, Haslam (2006) already links this abstraction of humans to be a cognitive bias as induced by technology, as he states that treating humans as machines “involves the robotic pursuit of efficiency and regularity, automaton-like rigidity and conformity, and an approach to life that is unemotional, apathetic, and lacking in spontaneity.” (pps. 253–254) Thus, rather than a conscious (malicious) displacement of another, it refers to a more unconscious indifference to this “another” to begin with.

2.3 Non-intentional Deprivation of Humanness

Contrasting with denial of humanness, Borgmann (1987) starts from the side of the user, such that the issues with technology that he presents are essentially analogous to a deprivation of humanness. In his book *Technology and the Character of Contemporary Life*,

Fig. 1. A high-level schematic showing the proposed relationship between AI and non-intentional dehumanisation. This form of dehumanisation is constituted by a denial and deprivation of humanness, which are respectively caused by the reducing views on ourselves and the world — two products of enframing.



he stresses the importance of “focal practices” and “focal things”, which impart those experiences that we consider part of a good human life. Borgmann characterises technology by availability such that “devices”, which are made to provide only a single functionality, easily replace “things” that yield more ambiguous results. Of course, that what maximises our readily access to certain commodities most is kept, while the other, the replaced, is disregarded. This ready replacement by devices is Borgmann’s device paradigm, and crucially, through it, focal things and many of their related practises are lost.

Furthermore, this availability is connected with several other causes: “The concealment of the machinery and the disburdening character of the device go hand in hand. [...] A commodity is truly available when it can be enjoyed as a mere end, unencumbered by means.” (Borgmann, 1987, p. 60) He exemplifies how a hearth requires maintenance, therewith distributing distinct social roles in a family as well as harnessing a variety of needed skills, while a central heating system, which is better in its function to render heat available, is found to be “debilitating”. To this Zovko (2020) adds that the “[l]oss of one’s mobile phone or laptop on a train or plane means that we have also lost communication with others”, which suggests that, in some occasions, we might now be worse off when one a device has broken than when we did not have it in the first place. In sum, technology has the potential to non-intentionally bring shallowness to its users, rendering them dependent, deskilled, and dissociated from social and bodily

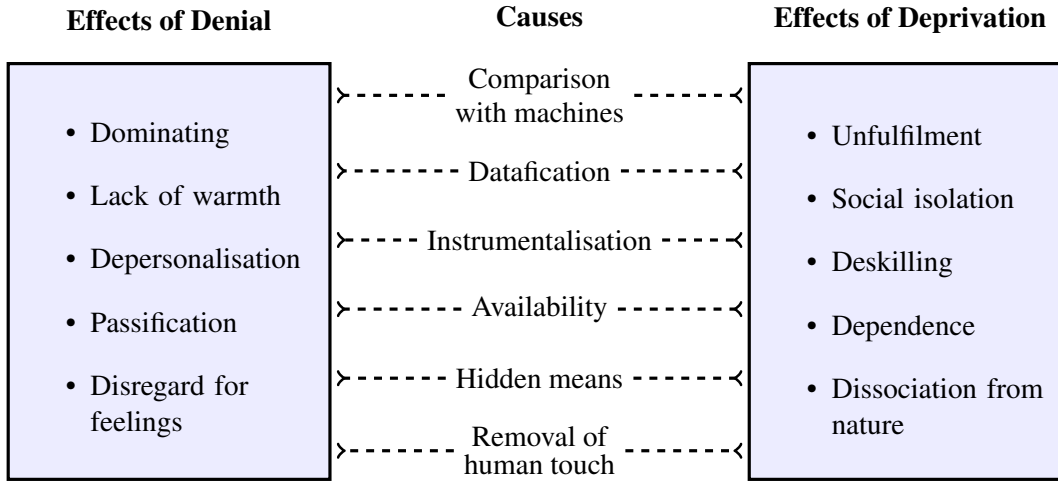
engagement.

2.4 A Synthesis of Both Accounts

Denial and deprivation of humanness are respectively characterised by a disregard for, and a hollowing out of the humane. They are the two sides of the same coin; the former pertains to the effects of perceiving a human being (as an object), while the latter regards the effects on a human being’s perception or experience directly. Both forms of dehumanisation are needed, because without either of them, the model cannot adequately account for all the dehumanising phenomena of technological reduction. Before we can identify some of the causes of non-intentional dehumanisation, we must first touch upon a few challenges.

It is important to realise how, with any technology, the side of user and used-upon is by no means necessarily set in stone. Generally, a technological application is seen as something that can be applied by the user, onto the used-upon. In some cases, however, a single person could be described as maintaining both roles with regard to the same technological object, e.g. when its usage is dictated by someone else. Still, a denial of humanness necessarily requires two people, it is interpersonal, whereas a deprivation of humanness does not. Were we to state that an AI system denies someone’s humanness, it is necessarily because another human being has set for this AI to induce these effects. Thus, depending not only on the context of use, but also on the framing of the scene, the reducing aspects of a technology application could potentially relate to people both

Fig. 2. A zoomed-in view on the many-to-many relationships between potential causes and effects of both denial and deprivation of humanness, recall [Figure 1](#). The causes relate to the goals that we set for AI to achieve, and the effects display various appearances of non-intentional dehumanisation.



in the form of a denial and in the form of a deprivation of their humanness.

What's more, a similar challenge is at hand with the distinction between intentional and non-intentional dehumanisation. In some occasions, these two forms may be heavily intertwined with each other, when, for example, a person has knowledge of his disregard for other individuals, and nevertheless refrains from taking action to resolve the situation. Perhaps it can also be said that non-intentional dehumanisation partly lies at the basis of intentional dehumanisation, because it is more basic in its form. Similar to the way in which a gun allows for dehumanisation by readily providing a power for physical harm, AI might enable certain forms of oppression to occur that could not have been (as easily) there without it. Additionally, because AI is often linked to a responsibility gap, the non-intentional effects may also be argued to conceal any explicit intentions for dehumanisation. While the line between intentional and non-intentional dehumanisation is blurred in some occasions — they are often co-occurring —, we still maintain that awareness of the non-intentional side is valuable in that technology plays an irreducible role in which both implicit (non-intentional) and, as we have just argued, explicit (intentional) forms of dehumanisation are brought forth.

With these considerations in mind, we can now synthesise a model that contains potential causes and effects of non-intentional dehumanisation. The causes

have a strong connection to the goals for which we develop and use AI; oftentimes they are the necessary means by which AI achieves these goals. Since non-intentional dehumanisation is two-fold, the effects also lie in two corresponding domains. These effects are respectively drawn from the views of Haslam and Borgmann. In [Figure 2](#), the causes and effects are depicted. Notably, these lists are not exhaustive — they are devised to give words to, and characterise the type of properties that one could think of. The points above have shown that specific causes and effects are never necessarily connected (a many-to-many mapping). It depends on the framing whether the people surrounding a technological application are users or used-upon, and similarly, the onset of specific effects depends on the context in which the application is used. In sum, the model can be used to bring awareness to the detrimental effects of these causes in general, but it requires concrete examples and careful deliberation to reveal how non-intentional dehumanisation is induced in actuality. The ticking of the causal “boxes” does not necessarily yield dehumanisation, but the identification of their presence should at least request inquiry into the situation.

3 Exemplifying the Model

In this section, the thus synthesised model (embodied in [Figures 1 and 2](#)) will be illuminated by bring-

ing it into contact with the concrete world. Each of the causes (comparison with machines, datafication, instrumentalisation, availability, hidden means and removal of human touch) will be exemplified in order to delineate what they mean more explicitly, and furthermore how they may help to bring light to some of the effects. These examples will display that the occurrence of either form of non-intentional dehumanisation is a matter of degree, a spectrum; some are more unilateral in their effects, while others show both types. The focus is not to assess the value of these AI applications in their totality — there may be many more sides to the points that we touch on. Each of the discussed applications indeed actuate a certain desirable goal, but exactly thereby they display (sometimes devastating) forms of non-intentional dehumanisation.

- **Comparison with machines:** With the introduction of AI in the sphere of human resource management, company decisions focus more than ever on the maximalisation of performance output, as Vrontis et al. (2022) argues. Although artificial management is not strictly necessary to induce a comparison between humans and machines, it reveals a general paradigm where machines are favoured simply because they yield increased revenue. In some way, such a one-dimensional comparison may be a welcome one; AI could indeed increase certain company processes (lower costs, increase quantity or quality of production), without explicitly (intentionally) dehumanising those who are affected by it. Still, whether human employees are fully replaced or merely augmented in their tasks, this comparison on output stands at risk of weakening their sense of belonging, self-esteem and feelings of meaningfulness (Selenko et al., 2022) — all illustrations of a denial of humanness. This example also displays a particularly blurred line between intentional and non-intentional dehumanisation, in that it can be questioned whether those who choose to effectuate these comparisons know that they are disregarding human employees solely on the basis of profit.

- **Datafication:** To exemplify how datafication may lead to non-intentional dehumanisation, Karches' (2018) powerful analysis of medical instruments may be used. He writes how the electronic health record is used to track patient's data and provide the physician with recommendations. Record-keeping AI may indeed improve (some aspect of) healthcare, but again we can

see that such a tool implicitly induces dehumanisation. In his comparison between the stethoscope and the electronic health record, Karches argues that while the former brings the patient's body into closer examination, the latter leads to no such proximity at all. In fact, he links such a health record to a drastic depersonalisation, as medical advice is now derived from demographic data (cohorts of similar combinations of sex, race, and other commonalities), rather than from the unique individual. As datafication decomposes the actual into mere quantitative components, a hollowing out the datafied subject (a denial of humanness) is at hand.

- **Instrumentalisation:** Now, a sole insignificance of the personal is not the only thing that stands at risk with the adoption of an electronic health record. Karches (2018) proceeds by arguing that as efficiency places demands on healthcare, insignificance of the individual can suddenly transform into that of mandating. Although a matching of people to certain risk-groups allows for an efficient directive of e.g. certain preventive screenings, which may help to reduce healthcare costs and a maximisation of the amount of people cured or rendered healthy, there are nevertheless various side-effects at hand. For one, people's medical characteristics are now framed as a problem-set to be solved, of which Karches writes that external powers (e.g. the state, or insurance companies) could demand riddance of specific diseases based on monetary reasons. This transforms any care of the individual to be performed instrumentally. Additionally, it might also be stated that such an external dictation denies the patients of their responsibility and agency (Dawson, 2021). Dawson writes that, in a roundabout way, the system is now prioritised above the individuals. With instrumental healthcare, the managing has become more important than the managed — a direct example of a denial of humanness.

- **Availability:** With the introduction of smart homes, and their constituent applications, a ready availability of comfort is brought into our domestic world. Wilson et al. (2015) write that AI has enabled to make every surface in our homes smart, by connecting data from one device to another, all of which is hidden from view. Effectively, general users are given control over their mundane tasks, and health-related users (vulnerable people such as the elderly or disabled) could receive greater independence and safety. Still, while the

latter may be seen as perfectly humanising, the former category of users is argued to merely use smart home applications for the reason of access to comforting resources. Wilson et al. shed light on the paradoxical nature of the control that smart homes promise. Since it is now the homes that are believed to be able to fulfil most optimally one's needs, rather than the users themselves, smart home applications risk infringing on people's relationships and domestic roles. Similar to Borgmann's demonstration of the exclusion of focal practices, the promise of automatic comfort implicitly hides a potential for a deprivation of humanness.

- **Hiding of means:** In courts, AI algorithms are increasingly used to aid in legal adjudication processes, changing not only the dynamics of this adjudication, but also altering the adjudicatory values held by the public, legal professionals, and scholars (Re & Solow-Niederman, 2019). Again, for the sole reasons of reducing costs, heightened efficiency, and standardisation — by means of its ability to circumvent human weaknesses such as bias and inconsistency —, these algorithms are starting to be heavily relied upon. Yet, they elaborate that with this promise, negative side effects are closely at hand. The largest problem of these artificial adjudicators is their opaqueness, or incomprehensibility, which, in this case, consequent in both forms of non-intentional dehumanisation. For the prosecuted, this results in a scenario where the judgement is no longer compassionate or understandable, such that they cannot comprehend the process of the prosecution, and no arguments can be given to alleviate their sentence. Without an understanding of the law, the individual is left disempowered and vulnerable (a denial of humanness); harms that are distinct from the contents of the prosecution itself. What's more, with this improvement to the courts, it is argued that in consequence, “non-quantifiable values, like mercy” (Re & Solow-Niederman, 2019, p. 247), are left out, posing the risk of (further) alienating both the layperson and the professional from the (potential) reasonableness of the law (a deprivation of humanness).

- **Removal of human touch:** In contrast to the direct denial of humanness as present in the transition from human to algorithmic management in companies, as addressed earlier, Fritts and Cabrera (2021) show that recruitment algorithms do not always result in feelings of a denial of humanness for the applicants. The ease or promise of such algorithms to bringing quick, pre-

dictive, incredibly complex, superbly accurate, and objective judgements is argued to come at the price of being inherently diminishing of the employee-employer relationship. Thus, in this case, dehumanisation occurs because the human presence itself is eliminated. Since there are fundamental differences between the values of a human recruiter and the values embedded in these artificial recruiters, an activity that was once an intricate balance of a multiplicity of complex values is suddenly simplified to values that are artificial. Consequently, Fritts and Cabrera, elaborate that the applicants are no longer able to truly convince anyone with their personality or skills, yielding to nothing but “hollow victories”. This shows that the removal of a human being from the scene is liable to induce a deprivation of humanness for those who are left.

4 Discussion

In this paper, we shed light on the consequences of non-intentional dehumanisation that pertain to AI usage. For this, we had to construe a different species of dehumanisation entirely, one that is distinct from the more well-known intentional form. Non-intentional dehumanisation was argued to be inherent to AI and the goals that we set for it to attain; implicitly, it induces a reduction of the humane. Following from this point of view, we have explored the dual nature of this reduction, such that non-intentional dehumanisation was argued to occur in a two-fold perspectival fashion. Firstly, there is the side of denial of humanness, that can be induced upon others, i.e. the used-upon. Secondly, there is the side of deprivation of humanness, that can, in essence, be the result of bringing forms of reduction to one's experience of the world, i.e. the user. A potential list of causes of these two forms of non-intentional dehumanisation was identified to be comparison with machines, datafication, instrumentalisation, availability, hidden means and removal of human touch. Depending on the context, these causes are liable to consequent negative effects to both of these groups of people that surround AI usage. In total, this model could be used to bring awareness to the counter side of, and to scrutinise, the ready acceptance of AI.

4.1 Considerations and Limitations

There are various considerations to be discussed with our work, which we group in two categories: criticisms of the philosophy of reduction (and the phenomenon non-intentional dehumanisation), and potential criticisms of the synthesised model.

With regard to the inherent relation between AI and reduction, two critiques have already been mentioned. Firstly, we acknowledge fact that every technological application is unique, such that a critique on technology in its totality might be too simplistic. However, as we have argued, to understand the phenomenon of non-intentional dehumanisation it is important to see how it has an inherent relation to the way that (almost) all AI systems are structured. AI *is* a whole, if only for its tendency to be electronic learning algorithm that optimises the presence of certain values over others. Secondly, a critique on the connection between Heidegger's reduction of technology and irredentist ideologies has been explored. This connection is something to remain wary of, but, with a transposition to the phenomenon of dehumanisation, we hope to rid this problem.

An entirely new, and not unrelated, point is the fact that framings of dehumanisation can be dehumanising themselves. Therewith, also the current framing of non-intentional dehumanisation, which has separated from the socio-political dimension of technology usage at its conception, might stand at risk of removing alternative perspectives from the agenda entirely. We do not intend for this non-intentional framing of AI to overrule and dismiss other sides of dehumanisation that are at least equally harmful, such as bias and explicit oppression of minorities. In other words, seeing technology itself as the sole driving force of dehumanisation absolves humans and social groupings — in the case of AI, especially of private companies and of nation states — of our responsibility, both collectively and individually, to act to reduce such harms.

There are also some considerations to be described that pertain to the heart of the synthesised model and its applicability in the real world. To start, the difficulty of evaluating the totality of an AI application might be addressed. Indeed, the line between desirable and undesirable AI applications is thin, and its evaluation is highly dependent on the specific context and reasons of its use. Similarly, one could also raise the issue of value-comparison here, as it is invariably hard to cross

the positive effects of an AI application off against its negative effects, whether intentional or not. Borgmann also explored this side, in that he acknowledged that some technologies could potentially enhance current or enable new focal practices, by delivering the required time, equipment and instruments. In effect, this positive side of humanisation of AI applications needs to be weighed against, contra-posed to, its potential side effects of non-intentional dehumanisation, and we acknowledge that this is a burdensome (and perhaps even intractable) compromise. What troubles the waters even more, is that some forms of dehumanisation are a necessary evil to achieve greater goods (the dehumanisation is outclassed), such as inflicting pain to heal a patient (Palmer & Schwan, 2022). Such dialogues on the potential or effective dehumanisation that a technology poses likely are required to remain ongoing between the various relevant experts and society as a whole, as a function of the changing embedding of the techno-social relationship.

Relatedly, one might have objections towards the contents of the synthesised model itself. We acknowledge that the list of causes that the model upholds might be incomplete, and that they might not be mutually exclusive. In fact, as the techno-social relationships change with the shifting sands of time, it is possible that these causes and effects manifest in radically different ways in the future. Our model would require updating, and we propose that this is ultimately part of the intent of our critique of AI. Here, one might also raise an issue pertaining to the heart of the model; how useful is it if cause and effect are not deterministically related in the abstract? On this, we propose not only the obvious — more work is required, our work is never done, definitionally —, but also that the model is not one that should not be taken without a concrete AI application, exactly for the reasons outlined above.

In short, if we are to circumscribe the phenomenon of non-intentional dehumanisation as accurately as possible, these points will have to be taken into account in order to refine and meliorate the proposed conceptual model.

4.2 The Way Forward

Now that we have settled on our proposal for a conception of non-intentional dehumanisation, we can consider what future may lie ahead. Its first main purpose

is to analyse socio-technical interactions in concrete applications, as to aid in their particular evaluation. As backlash has the nature of revealing itself only afterwards, a model as proposed, that focuses explicitly on the causes that develop these non-intentionally dehumanising effects, could be used as a guideline to identify a possible onset of this hidden, and devastating, side of novel AI applications. A second purpose is that the model could provide us with the perfect opportunity to question for what principles we wish to develop and apply AI technology in the first place. What stands most central to the phenomenon of non-intentional dehumanisation is that we should rigorously reflect on the goals of efficiency and performance that we hold dear, and what reducing consequences are inherent to these goals that we set for AI to achieve. Since we set these goals ourselves, we are in control of its onset, and it is up to us to reflect on these issues if we wish to address them.

Heideggerian, as well as irredentist perspectives broadly construed, would direct us back to the premodern world to simply avoid the causes that modern technology seems to trigger. But, do we really wish to give up the immense technological and scientific advancements in crucial sectors such as healthcare and agriculture? One cannot forget, as we have mentioned, that with the rise of modern technology, new forms of buttressing the very humanness that we wish to protect were made possible in the first place. Hence, we should not be too simplistic about a topic as complex and multifaceted as technology. The conceptual model of non-intentional dehumanisation hopes to bring this obfuscated form of dehumanisation to light, which may help us steer away from a ready acceptance of potentially harmful AI solutions, and provide us with the opportunity to select AI applications that are actually valuable and virtuous.

References

- Biddle, S. (2018). Homeland security will let computers predict who might be a terrorist on your plane - just don't ask how it works. Retrieved July 4, 2023, from <https://theintercept.com/2018/12/03/air-travel-surveillance-homeland-security/>
- Birhane, A., Kalluri, P., Card, D., Agnew, W., Dotan, R., & Bao, M. (2022). The Values Encoded in Machine Learning Research. *ACM International Conference Proceeding Series*, 173–184.
- Borgmann, A. (1987). *Technology and the Character of Contemporary Life*. University of Chicago Press
- Byler, D. (2019). China's hi-tech war on its muslim minority. Retrieved July 4, 2023, from <https://www.theguardian.com/news/2019/apr/11/china-hi-tech-war-on-muslim-minority-xinjiang-uighurs-surveillance-face-recognition>
- Carabantes, M. (2021). The Internet as a Heideggerian paradigm of modern technology: an argument against mythinformation. *AI and Society*, 36(3), 695–703.
- Crawford, K. (2021). *The atlas of AI: Power, politics, and the planetary costs of artificial intelligence*. Yale University Press.
- Dawson, J. (2021). Life & times medically optimised: healthcare language and dehumanisation. *British Journal of General Practice*, 71(706), 224.
- Erscoi, L. A., Kleinherenbrink, A., & Guest, O. (2023). *Pygmalion Displacement: When Humanising AI Dehumanises Women* [SocArXiv].
- Förster, Y. (2019). Artificial Intelligence: Invisible Agencies in the Folds of Technological Cultures. In A. Sudmann (Ed.), *The democratization of artificial intelligence* (The Democr, pp. 175–188). transcript.
- Fritts, M., & Cabrera, F. (2021). AI recruitment algorithms and the dehumanization problem. *Ethics and Information Technology*, 23(4), 791–801.
- Guest, O., & Martin, A. E. (2023). On logical inference over brains, behaviour, and artificial neural networks. *Computational Brain & Behavior*, 1–15.
- Haslam, N. (2006). Dehumanization: An integrative review. *Personality and Social Psychology Review*, 10(3), 252–264.
- Heidegger, M. (1977). The Question Concerning Technology. In G. Vattimo & R. T. Valgenti (Eds.), *The question concerning technology and other essays* (pp. 3–35). Harper Torchbooks.
- Karches, K. E. (2018). Against the iDoctor: why artificial intelligence should not replace physician judgment. *Theoretical Medicine and Bioethics*, 39(2), 91–110.
- Kerr, A. D. (2021). Artificial Intelligence, Gender, and Oppression. In W. L. Filho, A. M. Azul, L. Brandli, A. L. Salvia, & T. Wall (Eds.), *Gender equality* (pp. 54–64). Springer.

- Leufer, D. (2020). Why We Need to Bust Some Myths about AI. *Patterns*, 1(7), 100124.
- McCorduck, P. (2019). *This Could Be Important: My Life and Times With the Artificial Intelligentsia*. Lulu.com.
- Monett, D. (2021). Coming to terms with intelligence in machines [Accessed: 2022-06-18].
- Munn, L. (2022). *Automation is a Myth*. Stanford University PRes.
- Murphy, J. (2018). Artificial Intelligence, Rationality, and the World Wide Web. *IEEE Intelligent Systems*, 33(1), 98–103.
- Palmer, A., & Schwan, D. (2022). Beneficent dehumanization: Employing artificial intelligence and carebots to mitigate shame-induced barriers to medical care. *Bioethics*, 36(2), 187–193.
- Pfaffenberger, B. (1988). Fetishised objects and humanised nature: towards an anthropology of technology. *Man*, 23(2), 236–252.
- Re, R. M., & Solow-Niederman, A. (2019). Developing Artificially Intelligent Justice. 242, 242–289.
- Rockmore, T. (1992). *On heidegger's nazism and philosophy*. University of California Press.
- Sartori, L., & Bocca, G. (2023). Minding the gap(s): public perceptions of AI and socio-technical imaginaries. *AI and Society*, 38(2), 443–458.
- Selenko, E., Bankins, S., Shoss, M., Warburton, J., & Restubog, S. L. D. (2022). Artificial Intelligence and the Future of Work: A Functional-Identity Perspective. *Current Directions in Psychological Science*, 31(3), 272–279.
- Stolterman, E., & Fors, A. K. (2004). Information Technology and the Good Life, Information Systems Research: Relevant Theory and Informed Practice. *Information Systems Research. IFIP International Federation for Information Processing*, 687–692.
- Verbeek, P.-P. C. C. (2001). Don Idhe: The Technological Lifeworld. In H. Achterhuis (Ed.), *American philosophy of technology: The empirical turn*. (pp. 119–146). Indiana University Press.
- Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., & Trichina, E. (2022). Artificial intelligence, robotics, advanced technologies and human resource management: a systematic review. *International Journal of Human Resource Management*, 33(6), 1237–1266.
- Wilson, C., Hargreaves, T., & Hauxwell-Baldwin, R. (2015). Smart homes and their users: a systematic analysis and key challenges. *Personal and Ubiquitous Computing*, 19(2), 463–476.
- Wolin, R. (2023). *Heidegger in ruins*. Yale University Press.
- Zawieska, K. (2020). Disengagement with ethics in robotics as a tacit form of dehumanisation. *AI and Society*, 35(4), 869–883.
- Zovko, J. (2020). Expanding hermeneutics to the world of technology. *AI and Society*, (1979).