In conversation with ghosts

Towards a hauntological approach to decolonial design for/with AI practices

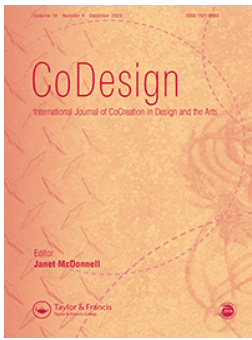Patil, Mugdha; Cila, Nazli; Redström, Johan; Giaccardi, Elisa

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In conversation with ghosts: towards a hauntological approach to decolonial design for/with AI practices

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ABSTRACT

This is a critique of how designers deal with temporality in design to speculate about socio-technical futures. The paper unpacks how embedded definitions and assumptions of temporality in current design tools contribute to coloniality in designed futures. Based on this critique, we reject the notion that it is only AI that needs fixing, as design practice becomes implicated in how oppression extends from physical systems to global digital platforms. To make these issues visible, we dissect the Futures Cone model used in speculative design. As an alternative, the paper then presents hauntology as a vocabulary that can aid designers in accommodating pluriversal histories in anticipatory futures and reorienting their speculative tools. To illustrate the benefits of the proposed metaphors, the paper highlights examples of coloniality in digital spaces and emphasizes the failure of speculative design to decolonize future imaginaries. Using points of reference from hauntology, ones that engage with states of lingering or spectrality, and notions of nostalgia, absence, and anticipation, the paper contributes to rethinking the role that design tools play in colonizing future imaginaries, especially those pertaining to potentially disruptive technologies.

1. Introduction

At times, it may appear as if design is haunted by its past, even as we try to break free and do things differently considering the big challenges we face. One of these challenges is the impact that AI has in seemingly amplifying and rendering more oppressive the colonial effects of technology development and its design practices. The power distributions and biases in the creation and implementation of AI systems are well-documented issues of discussion (Buolamwini and Gebru 2018; Eubanks 2018; Kapania, Taylor, and Wang 2023; O'Neil 2016; Perez 2019). From the fundamental issues of the digital divide between the 'developed' and 'developing' worlds (Mohammed 2021; Yu, Rosenfeld, and Gupta 2023) to the creation of a 'digital underclass', and how the cost of our

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major digital innovations is borne by underpaid, overworked, and exploited workers in the Global South, there is a cause for concern (Arora 2016; Crawford 2018; Gray and Suri 2019; Ross et al. 2010).

When we begin to consider how AI comes to be colonial, one may be urged to contend with the more general economic and political system in which this happens (Kwet, 2019b; Couldry 2022). Similar to how industrial capitalism was made possible by the power structures and exploitation pipelines built and sustained to subjugate the colonised world, the 'data colonialism' of today paves the way for a new stage of capitalism that exploits data as a resource to be appropriated (Couldry and Mejias 2020; Dahiya 2023; Mejías 2020). In the age of algorithms, this control and domination occur not through brute physical force but through invisible and nuanced mechanisms, such as the control of digital ecosystems and infrastructure (Birhane 2020; Nothias 2023). However, both traditional and algorithmic colonialism share the same desire to dominate, monitor, and influence social, political, and cultural discourse through the control of core communication and infrastructure media (Birhane 2020; Browne 2023; Magalhães and Couldry 2021).

As an immensely resource-intensive technology, AI is not something that can be created without significant financial and infrastructural support. This means that only a few nations and entities (most of them based in the Global North) are in an economic position of being able to lead the production and deployment of AI (Anderson 2022; Chan et al. 2021; Özkaya and Demïrhan 2023). This leading position is aggressively maintained by filling in production gaps through privileged access to resources in 'developing nations' and the exploitation of poor working conditions and labour laws (Crawford 2018, 2021). In other words, the coloniality that is encountered, reflected, and perpetrated in and through algorithmic spaces is a designed manifestation of real socio-political and economic systems of oppression in our physical lives. For example, the Dutch Childcare Benefits scandal, where the algorithm used by the Tax and Customs Administration was later deemed to have a designed bias that led the algorithm to flag foreign-sounding names (Henley 2021; Ten Seldam and Brenninkmeijer 2021). The wrongful issuance of tax penalties not only resulted in financial losses but also in families being ripped apart (NL Times 2022; European Parliament 2022). This is a clear example of how the design and building of the technology used can have devastating effects on those most vulnerable. It also acts as a cautionary tale to understand the intricate histories of the contexts in which these technologies are placed and the imaginaries of efficiency, fairness, and accuracy portrayed through the use of AI in the given context.

Another path for addressing the coloniality of AI is to focus instead on how these colonial effects of technological development are amplified and made more oppressive through design. Design practices that emerged during the industrial and post-industrial eras in Europe and the Global North carry their own assumptions and worldviews regarding the role of design in a rapidly changing world. Examining the history of design, particularly in the 1950s and the 1960s, reveals its alignment with popular Western notions of modernity and technological progress shaped by the social, political, and economic dynamics of the post-war period (CHOI Design Group 2022; Müller 2021; Hajiyev et al. 2020). These ideas are directly reflected in the embodiment of design tools.

In recent years, especially with the popularisation of speculative design, designers have played an increasingly significant role in the creation of digital future

imaginaries. Numerous governmental bodies and local authorities have established designated roles for designers, often creating design-focused units such as the UK Government's Policy Lab, MindLab in Denmark, and Helsinki Design Lab in Finland, or collaborating with design studios to translate policy into service implementation (Kimbell 2015; The Scottish Government 2019; Wilson and Zamberlan 2015). However, futuring practices have been criticised, most of which focus on the way design understands and relates to the notions of temporality in and through its tools and practices. The main critiques of temporality reflected in the design process are attributed to the inception of design as a byproduct of Western industrialisation, propped up by large-scale hijacking of resources from the colonies and supported by ideas of modernism and progress (Lindström and Ståhl 2020; Mignolo 2011; Riquarte n.d.). The conjunction of modernity and coloniality is implemented through temporal frameworks aimed at not only regulating historical narratives but also generating economic and political strategies designed to disconnect the marginalised from their historical heritage and recollection. This disconnect imposes the universal claim that 'the present is the only site of the real, dismissing the past as archaic' (Hunfeld 2022; Vázquez 2009, 2).

When we look at design, we argue that speculating in relation to AI is as much about writing futures as it is about making sense of the present in the context of an assumed past. Computational technologies, including AI, possess an inherent temporal dimension with their inception and purpose rooted in providing supposedly informed predictions. To a large extent, the essence of machine learning revolves around anticipation of and readiness for future outcomes by drawing from past occurrences. In this context, AI can itself be characterised as a notably 'historical' technology. While it is true that data coloniality is spawned from traditional capitalism, and the two systems of oppression are sustained and maintained in symbiosis (Mezzadra and Neilson 2017, Magalhães and Couldry 2021; Thatcher, O'Sullivan, and Mahmoudi 2016), in this paper, we focus on how coloniality is manifested in design tools and their outputs in particular. We seek to unpack critiques of how and by what mechanisms the adoption of a Western, modernist notion of temporality propagates coloniality in design tools, in particular the 'Futures Cone' (Hancock and Bezold 1994; Voros 2003).

We position this paper as an attempt to ponder how one may begin to imagine the relations between design, the systems it works with and within, and the ghosts of the past by which it is haunted. There is a need to rethink not only the role of design but also the roots of design tools to truly decolonise future processes. In what follows, we first discuss our critique of the Futures Cone and how coloniality is supplied through such design tools and methods. We will then lay out some conceptual and methodological foundations for how design might begin to contend with the trauma of the past and/or the absence of the present (i.e. the 'ghosts', as we will refer to them here) by introducing 'hauntology' (Derrida 1994; Fischer 2005) in the context of AI and Design. We conclude the paper by proposing how absence, spectrality, and uncertainty can be used as phenomena and design materials for speculating on future imaginaries. Our intended contribution is to establish how the adoption of hauntology offers new vocabulary and metaphors. These can help designers integrate and mobilise conflicting histories into futures, enabling them to contend with things (or 'non-things') that are in transition and in various stages of incompletion.

2. How (speculative) design is failing to become decolonial

With calls to decolonise design (e.g. Abdulla et al. 2019; Tlostanova 2017) and HCI (Awori et al. 2016; Bidwell 2016; Garcia et al. 2021; Lazem et al. 2022; Mohamed, Png, and Isaac 2020), reaching a crescendo in the past decades, various methods have been proposed to make decolonial design practice a reality. The Manifesto for Decolonizing Design (Abdulla et al. 2019), for example, lays a path to go beyond ideas of representation and diversity and imagine more fundamental epistemic alternatives to mainstream schools of thought and processes. The authors' aim is to transform the very terms of present-day design studies and research: designers should 'put to task their skills, techniques, and mentalities to designing futures aimed at advancing ecological, social, and technological conditions where multiple worlds and knowledge, involving both humans and non-humans, can flourish in mutually enhancing ways' (p. 2). The Manifesto for a Decolonizing Agenda in HCI Research and Design (Garcia et al. 2021) lays forth decolonial pathways that designers and researchers should focus on to tackle coloniality in their practice by asserting that it is crucial to establish a connection between design methods, tools, and their colonial past. It highlights the troubling resemblance of design research to colonial practices characterised by the extraction of materials and knowledge, which are then employed for self-serving purposes by representatives of the Western canon.

Similarly, forays into Afrofuturism (Holbert, Dando, and Correa 2020; Yaszek 2006) and Indigenous Futurisms (Dillon 2021; Lempert 2014) through projects such as Blackspace ((BlackSpace n.d.; Mitrović 2020) and The Black Speculative Arts Movement (The Black Speculative Arts Movement n.d.) provide methodologies and narratives of the future that are based on the knowledge of black communities. Furthermore, work by practicing designers, such as We Must Topple the Tropes and Cripple the Canon (Tejada 2018), conveys the urgency of including different visions and perspectives in design against the dangers of a single story. The Decolonizing Design Reader (Tejada n.d.-b., 2019) and projects such as Dreaming Beyond AI (Dreaming Beyond AI (n.d.)) are attempts to bring together artists, academics, and practitioners to make such decolonial practices. In parallel conversations focused more on present technological developments, the Decolonial AI Manyfesto (Krishnan et al. n.d.) identifies some of the main changes needed in big tech. These include challenging dominant language, rejecting Western-normative approaches, recognising the interwoven nature of the social and the technical, promoting decolonial governance and reparations, fostering decolonial imagination, addressing AI coloniality and material extractivism, and creating resonant forums for exchange. Escobar (2018) further questions the notion of separating design from its inherent modernist, unsustainable, and defuturing (Fry 1999, 2020) practices by posing the question, 'can design be disentangled from its embeddedness in such practices and redirected toward alternative ontological commitments, practices, narratives, and performances?' (p. 15).

Even with these strides in questioning contemporary narratives and promoting decoloniality in design, the ontological roots of most design tools used remain unquestioned (Lewrick, Link, and Leifer 2020). As mentioned in the introduction, to follow a decolonial approach for speculating futures, especially when designing in complex socio-technical contexts such as AI, there is a need to critique the tools that we design.

Contemporary designers across the globe often employ traditional design tools such as the double diamond, 'a universally accepted depiction of the design process', according to the Design Council (2005) (Saad et al. 2020) and the Futures Cone. Both tools project similarities in the way they approach the design process in relation to time and context.

We focus our analysis on the Futures Cone. Although speculative design encompasses a wide and nuanced umbrella of practices, such as critical design (S. Bardzell et al. 2012, 2013), design fiction (Blythe 2014; Dunne and Raby 2014), and design fabulation (Rosner 2018), the Futures Cone remains the most widely adopted visualisation of futures thinking in professional design practice. This tool is considered helpful in fostering discussions about what futures are projected (Hancock and Bezold 1994; Voros 2003). However, the visualisation of the Futures Cone comes with its own sets of assumptions relating to time, space, and causality (Coulton and Stead 2022). Scholars such as Mazé (2019), Howell et al. (2021), Kozubaev et al. (2020), and Kunjo (2016b) repeatedly critiqued the notions of temporality expressed by the Futures Cone as linear and progressing towards an ideal or probable future without any links with the past. The present is depicted as a single dot, flattening a multitude of diverse lived experiences, that is, 'a simplified representation with a Western, English-speaking bias' (Kozubaev et al. 2020, 5). Moreover, the past is dangerously absent from the model even though history provides the building blocks from which the future is made (Kozubaev et al. 2020).

Although there is a purposeful move towards decoloniality, the way designers visualise and understand temporality in speculative design remains inherently geared towards the futures to come. This reading of temporality does not fundamentally question the making and unmaking of the future as a function of contending realities (both in the present and in the past). There have been only a handful of attempts to challenge anticipatory regimes and engage with diverse notions of temporality. For instance, Howell et al. (2021) argue that diverse perspectives and imaginations are needed to unfold potential futures in the plural. They open up alternative approaches to designing the future, moving outside of the prevalent notions of technological progress. By placing agents in different relations with time to focus on alternative temporalities, they explore the interconnected, cyclical, and relational nature of temporality. In their critique, speculation is seen as an informed projection that questions the reality it is based on and grounded in prior knowledge, emerging trends, existing technologies, and human behaviours (Howell et al. 2021). This reading challenges implicit biases and reveals the inherent flaws of this speculative process. Studios like Superflux address this criticism by means of 'High Fidelity Futures' (Superflux 2023) that feel relatable and blend everyday experiences with the extraordinary. Their approach involves horizon scanning and capturing weak 'signals' from the technological, political, and cultural landscape by reconfiguring these signals into temporal frames that range into far and near futures to help their clients understand the potential consequences and opportunities of future scenarios in their contexts.

Futuring is as much about creating and imagining the 'not yet' as it is understanding the 'no longer' (Fischer 2005, p.16). In the context of heritage studies, Thomas (2004) and Lowenthal (2006) shed light on this aspect to understand how people construct meaningful imaginaries in the context of their own lives and ways to interact meaningfully with their past and shape a vision of the future (Lowenthal 2006; Thomas 2004). Fairclough (2009) argues that we should not concern ourselves by simply protecting

the material and temporal fabric of the things we value but learn to change socially and politically so that we can be allowed to express and perform 'constantly evolving values, beliefs, knowledge, and traditions' (Council of Europe 2005, from Art. 2). As we move to use AI in order to help us remember and 'make place', associations and histories are increasingly made and unmade by algorithms too (Giaccardi and Plate 2017). In the following section, we discuss how this making and unmaking occurs using Futures Cone, which acts as an instrument of coloniality in the context of speculating imaginaries in the AI context.

3. Dissecting the futures cone: the point, the line, and the plane

Contending with the complexities that designers encounter when futuring can be a very challenging task. It is essential to gather the focus of this paper on fundamental issues in design tools that need interrogation, reimagination, or reconfiguration. In this section, we unearth the embedded hegemonic and Western presumptions within the Futures Cone, with a specific focus on the manner in which design visualisations, in particular, manifest as instruments of coloniality. We undertake an analysis of how every element – be it a point, line, or plane – within the Futures Cone serves as a site of deliberate decision-making that lends itself to legitimising certain knowledge over others, preferring certain narratives over others, and representing a certain group over the other.

3.1. The point: a singular story

Design discourse, particularly speculative design, intentionally distinguishes between historical past, present, and future. In the case of the Futures Cone, this differentiation is represented by a single starting point embodying the assumption of a singular narrative shaped by the designers' understanding of the world and their imagination (Adichie 2019). This point represents the "now" and it is clear that this now is not one. As Redström (2017) questions: 'How could now ever be a point?' (p. 127).

This stage of the design process aims to comprehend the intended recipients of the design, often employing personas that have been criticised by scholars for their adverse impact on inclusivity in design. These personas are constructed with their own biases and informed by designers' imaginations when envisioning user journeys (Cabrero, Winschiers-Theophilus, and Abdelnour-Nocera 2016). However, as Tonkinwise observes (in Kunjo, 2016a), the dystopian scenarios proposed by Western designers in speculative exercises, which they perceive as distant future possibilities, are often already harsh realities in various parts of the world. For example, the event 'Refugee Run: A Day in the Life of a Refugee' was organised during the annual meeting of the World Economic Forum in Davos in 2014. This exercise was designed to simulate the daily experiences of individuals residing in refugee camps, offering a 'participatory' and 'immersive' encounter with the challenges faced by displaced populations (a Day in the Life of a Refugee n.d.). The event sought to expose participants to simulations of attacks, encounters with minefields, experiences of hunger, illness, limited access to education, exposure to corruption, and uncertainty regarding shelter and safety. Participants could also be subjected to simulated marches under guard, ambushes, and, ultimately, an opportunity for resettlement where they were tasked with rebuilding their lives. Such examples highlight a fracture in the

practice and outputs of design processes. While cultivating empathy remains a crucial aspect of the design process (Kouprie and Visser 2009), in this instance it places significant reliance on stakeholders who lack firsthand experience of those traumatic situations, prompting them to construct mental scenarios of what life as a refugee might entail. It is reasonable to speculate that such endeavours perpetuate narratives authored by individuals unaffected by those challenges and enable them to shape decisions for those who are profoundly impacted by those crises- crises potentially initiated by those in similar positions of authority.

These singular points act as sites of inconsistencies in how imaginaries are built. They reveal a limited grasp of embracing multiplicity and a narrow understanding and visualisation of worldviews and lived experiences. They reinforce the misconception that design is neutral and detached from the political, temporal, and contextual dynamics it occupies. Such tools flatten plurality, manifesting coloniality as a disregard for diversity and multiplicity of life. When applied in the AI context, which inherently introduces its own generalisations, it further perpetuates the alienation and marginalisation of certain groups.

3.2. The line: linear, constant, and irreversible

A fundamental way to understand coloniality in systems is to unpack how we understand histories and make sense of historic time. Shahjahan (2015) speaks of how the notion of time as being linear, constant, and irreversible was weaponised by the colonisers to categorise people into opposing groups such as intelligent/slow, lazy/industrious, saved/unsaved, believer/heathen, developed/undeveloped, and civilised/primitive. He drew on the work of scholars like Fabian (2002) and Tuhiwai Smith (2001), who illustrated how colonisers justified their endeavours by depicting the 'others' as having deficient notions of time.

Lines, by their nature, condense multiple perspectives into a unified, all-encompassing sequence of steps that lead to clear-cut outcomes (Desjardins and Key 2020). Ingold (2016) states, 'In Western societies, straight lines are ubiquitous. We see them everywhere, even when they do not really exist. Indeed, the straight line has emerged as a virtual icon of modernity, an index of the triumph of rational, purposeful design over the vicissitudes of the natural world'. If we consider the example above of the Refugee Run, the organiser's promotional materials emphasise its potential to 'cultivate empathy' among world and industry leaders, although they may overlook their potential involvement in contributing to crises. Following these lines, (that is, the lines drawn by the hegemonic narratives around humanitarian futures (Spitz 2021) fall short in addressing current issues, as it does not critically engage or present counter alternatives to the dominant 'savior-victim' canon (Marrer 2020). Here, participants are usually those with considerable power and are invited to live the plight of victims (ie. those with the least amount of power), thus strengthening the same narratives and emboldening the lines that have historically been drawn for such narratives to proceed.

Looking at this from a decolonial perspective requires designers to move away from a linear notion of time, productivity, and progress. Subscribing to such a view limits the avenues in and through which designers can address how timelines are instead warped and how futures are made in conjunction with fractures and events that linger and

remain. Manifesting a linear model of temporality in AI narratives fails the decolonial design discourse not just by choosing Western normative definitions of relative concepts of time and progress but also by lacking metaphors, concepts, and vocabularies that acknowledge and convey states that are non-absolute. Coloniality within systems has enduring effects that extend far beyond the intended impacts of those systems. The existence and manifestations of such events present designers with a question about things that exist in different stages of being and not being. Going beyond the dichotomies of presence and absence, relating to events of the past that obscure, disarrange, and rearrange this linearity requires a new vocabulary, one that can help designers engage with the temporalities of a given context in relation to space and deal with historic absences and traumas.

3.3. The plane: 'spacetimemattering' in context

The Futures Cone is very much representational in nature. Its visualisation portrays a singular, two-dimensional portrait of the speculation process. Many have presented alternative ways to contend with the future beyond the two dimensions. Barad (2014, 2012) talks about the co-existence of past, present, and future in quantum terms or 'spacetimemattering', arguing for 'empirical evidence that the past is always open (as is the future), where indeterminacy goes all the way down' (p. 181). Time, when thought of beyond 'clock time, is relational, organic, and meant to be understood in conjunction with space and people. Durkheim (1912) placed time at the centre of social epistemology stating that it was 'the rhythm of social life that forms the basis of time' (p. 488). Since then, many researchers have attempted to explain and explore our relationship with time.

Elias, Loyal, and Mennell (2007) proposed that time is not an entity at all; it is a relationship formed between a group of beings endowed with the capacity for memory and synthesis and two or more continua of changes. Later in the century, Nowotny (1992) took into account the different views on social time and surmised that 'time is not only embedded in symbolic meaning or intersubjective social relations but also in artifacts, in natural and in culturally made ones'(p. 446), pointing to the environmental risks caused by human actions and advocating for a more-than-human turn in temporal studies. In Hindu and Buddhist mythology, 'samay' or time, has been explored as being akin to a wheel, cyclical in nature. In these mythologies, karma is how one connects the actions of the past to things that are yet to be (Maas 2020). Pschetz and Bastian (2018) in their work on temporal design suggest shifting how time is approached within the realm of design, transitioning from considerations of speed, direction, and personal perception to an examination of time as a product of the interplay among cultural, social, economic, and political influences. This pluralistic view of time has the potential to clarify challenging experiences and foster a more inclusive comprehension of temporal dynamics.

Trinh (1988) argues that 'every gesture and every word involves our past, present, and future. (…) My story, no doubt, is me, but it is also no doubt older than me. Younger than me, older than the humanized. (…) Each story is at once a fragment and a whole; a whole within a whole. And the same story has always been changing, for things which do not shift and grow cannot continue to circulate'. (p. 3–4). If heritage studies emphasise how meanings and values are always the results of repeated and ongoing experiences in the lived world of ordinary people (Byrne 2008), data technologies connect these

experiences to people's lives and settings in ways that powerfully change how time is experienced through the making and unmaking of places and identities (Giaccardi 2011, 2012).

In contrast to these understandings, the current visualisation of the Futures Cone follows the logic of representationalism (n.d.), which stipulates that our ideas are derived from the sense data (or imaginaries) of a real, material, external world. If indeed the saying 'we cannot be what we cannot see' is true, the current representation of the Futures Cone builds up invisible boundaries through the imaginaries it inspires (or more aptly, the imaginaries it does not inspire). If the Futures Cone was applied to a context whose brief involved increasing empathy in the minds of 'donors' at the World Economic Forum to participate and contribute to humanitarian causes, one can easily arrive at proposals such as the Refugee Run (Refugee Run | a Day in the Life of a Refugee n.d.). This outcome seems to be plausible. For the reasons outlined above, i.e. the presence of the point in the form of restrictive personas of a refugee and the presence of the line in the form of continuing the 'saviour-victim' narrative, it is imperative to note that the use of design interventions is not solely a design decision. It is rather the result of considerations made by designers to cater to specific client needs and target audiences. While this may be sensible, each of these decisions acts as a fork in the road where certain narratives, people, and circumstances are favoured over others. Spacemattering (i.e. seeing these decisions in a plane, in correlation with other issues) allows the designer to be cognisant of the politics of the decisions they make.

Using tools such as the Futures Cone in its current form further bifurcates and taxonomizes the practice of building imaginaries by presenting a visualisation that implies current design issues and histories as being independent of the politics being practiced in the context. What designers need in the speculating process, is to understand the dimensionality and scale of their work in relation to other issues. Design does not take place in a vacuum, and adopting a two-dimensional visual representation of the process simplifies the nature of the complexities of systems that we imagine futures for. What is needed here is a visualisation of the futuring process that recognises the layered and multidimensional nature of issues plaguing a community and the interdependencies they share with other temporalities and ways of being.

4. Towards a hauntological approach for decolonial design practices in AI

Following the anti/decolonial, method-making approach laid forth by McKittrick (2021) and Wynter (2003), we look to other disciplines for inspiration on how to deal with more nuanced and contested notions of time, to present an argument that stands 'across-with-outside-within-against disciplinary boundaries of normative disciplines in the hopes of seeking liberation within our present system of knowledge' (McKittrick 2021, 9).

When we examine the issues highlighted earlier in this paper, we focus on a new wave of digital coloniality. This wave is sustained by an already oppressive socio-cultural and economic infrastructure that thrives on post-colonial fissures. A significant correlation can be discerned between the dynamics of oppression and the practice of prediction. Both phenomena are intricately entwined with the notion of control and reducing uncertainty rooted in the underlying presumption that particular sociopolitical structures are either destined to persist or must be forcibly

maintained. This connection underscores how the exercise of control, whether through oppressive or predictive strategies, hinges on the perpetuation of established frameworks. This finding highlights the shared fundamental belief that these structures are essential and immutable. What is clear is the spectral nature of these colonial manifestations of oppressive structures that remain in place and linger, even in the absence of 'the oppressor'. Absence can take the form of either nostalgia or anticipation (Fisher 2014, 21). Fischer describes haunting as the spectre of the 'no longer' and the 'not yet'. What should haunt us, he says, 'is not the no longer [...] but the not yet of the futures that popular modernism trained us to expect, but which never materialized. These are the specters of lost futures' (Fisher 2014). This lingering, perpetual, and invisible yet prominent role that absence, nostalgia, and anticipation play, in the case being made in this paper, and that concerns the formation of AI narratives and imaginaries is something that remains to be studied. Creating new imaginaries in such a context, using the Futures Cone, for example, means that certain privileged imaginaries are more represented than others. Future imaginaries, given the critiques highlighted in the previous section, manifest as a function of assumptions in design in the form of points, lines, and planes that need to be challenged. Given that the discipline's fundamental understanding of temporality comes from a Euro/Anglo-centric way of relating to time, one might say that design is haunted by the ghosts of coloniality, fuelled by the idealism of modernity and progress. Decolonisation of time requires engaging with complex perceptions that must be fundamentally rethought and reframed. In the context of this critique, we begin to unpack how we might equip designers with tools that allow them to explicitly engage with and accommodate the plurality of lived experiences, address the traumas that history leaves, and frame their context through a lens of absences, that is, the ghosts that haunt these future imaginaries.

Derrida (1993) introduced the term hauntology – a pun on ontology – which is a branch of metaphysics dealing with the nature of being. He opined that everything that exists is possible only on the basis of a whole series of absences, which precede and surround it, allowing it to possess the consistency and intelligibility that it does. In the context of decolonial design thinking, especially when speculating on future imaginaries, the idea of absence becomes very important. Here, we explicitly speak of speculating future imageries in the absence of values and definitions embedded in a mainstream design methodology, which intentionally or unintentionally end up enforcing colonial tendencies and creating 'ghosts' that keep haunting. Absence and uncertainty thus become the design materials to be worked with and designed for. As highlighted in the section above, there is a need to propose metaphors, vocabulary, and visualisations that allow these materials to be adopted in speculative design practices. In what follows we point out how using haunting as a metaphor provides a new lexicon to deal with states of non-absoluteness and engage with uncertainty in future imaginaries. The aim here is to provide a theoretical schema of how the language designers use and the points of reference they have imbue a certain flavour of coloniality in their imagined outputs. Using points of reference provided by hauntology, those that engage with states of lingering or spectrality, notions of nostalgia, absence, and anticipation can help rethink the role that design tools play in colonising future imaginaries, especially those pertaining to potentially disruptive technologies.

4.1. Unresolved traumas: ghosts as absence and metaphor

Hauntology is a study in spectrality (Fisher 2009, 2014). This is an ongoing conversation with a 'ghost'. Gordon (1997, 22) explains that following ghosts 'is about putting life back in where only a vague memory or a bare trace was visible to those who bothered to look ... to understand the conditions under which a memory was produced in the first place, toward a counter-memory, for the future'. Metaphorically speaking, spectres or ghosts, in and of themselves, embrace plurality and ambiguity. The ethereality of a ghost, the images, and associations that it conjures in one's mind, are often entities that float between the past and the present, the shape of which could be anything from amorphous smoke to a very specific person/entity. Thinking of ghosts not only gives the designer a different way of measuring time and space but also lends itself to going beyond existing dichotomies, past and future, 'the real and the unreal, the actual and the inactual, the living and the non-living, being and non-being (Derrida 1994, p. 11). Here, absence and haunting become tools to help designers contend with the pluriversality of the lived experience. Attempting to reveal what haunts a given context and how it interacts with different groups of people would not only help build empathy with stakeholders but also allow designers to understand that different groups who have gone through a historic event together may perceive these events differently.

When designing with AI, using spectrality and absence as a material raises questions about the provenance of the 'ghostly entity', its intention, and its limitations. As Ricaurte (2019) argued, technologies are assembled into complex systems that include institutions, norms, practices, and values that define certain ways of living, working, interacting, and ultimately existing in the world. If we consider future AI imaginaries constructed with the existing Futures Cone, the ghost of coloniality haunts these technologies and their imaginaries through the tools of design used to construct them, as explored previously. However, it also haunts these technologies and imaginaries through very particular manifestations of coloniality in the socio-technical systems we occupy. In the construction of this paper, we acknowledge the main distinction between critical work that looks at the colonial effects of AI technology development and work that looks at the colonial provenance and implications of design tools and processes in the creation of future imaginaries. As we unpack these complexities, here we begin to highlight how the former acts as a contaminated colonial canvas for the latter. Before we turn our focus to how these systemically unresolved traumas are functions of the colonial ghost haunting emerging sociotechnical imaginaries, we establish the nuances in how we define coloniality for the purpose of this inquiry.

Coloniality, distinct from colonialism, operates as a system of oppression independent of the presence of a coloniser (Atuire 2023). Coloniality is systemic, spans from the local to the global, and is not necessarily bound to geographical boundaries and powers. In recent years, several studies have surfaced and laid bare the physical costs of our digital worlds. One such studies is Kate Crawford's mapping of the anatomy of an AI system, which visualises the case study of Amazon Echo as an AI system made of human labour and surfaces the power imbalances, hierarchies, and politics of this space (Crawford 2018). Another contribution is Caroline Sinders' tool for calculating and spotlighting the unjust labour and costs of the

machine learning pipeline (Sinders 2020). Decolonial research into theorists such as Mignolo (2011), Mazlish (2015), and Yashaswi (2022) have argued that Western modernity imposes itself in our sociotechnical imaginaries through 'a triple mutually reinforcing and shaping imprisonment' (Atuire, Sustainable AI Conference – Keynote Speech, 2023). Atuire highlights these three mechanisms to be coloniality of power ('ecocide'–relating to the economic and ecological degradation caused by the making and implementation of technologies such as AI), coloniality of knowledge ('epistemicide' or the power to deem legitimate one form of knowledge over another, in this context, stemming through pedagogical understanding and tools of design), and coloniality of being ('genocide' or exclusion of peoples and communities from institutions of power and influence)'.

We will dive into cases that highlight how these points, lines, and planes that each scenario is built on and how, with the help of hauntological tools such as absence, nostalgia, lingering, or 'spectrality' and anticipation, we can reimagine these scenarios. We would like to stress that absence here is a material manifestation that can be understood theoretically as the 'lingering of presumably "failed" ideas'. Fink, Kohl, and Siegert (2018) describe how the issues we face in the present can be seen as being embedded in the presence of ghosts and spectres, and the traces of imaginations of different times and spaces may become visible and doable.

Consider this example of coloniality in an algorithmic space. A leak of Facebook's company documents in 2021 reported numerous instances of Facebook's failure to address harmful content and hate speech against minority groups and the press in India, Ethiopia, and the Philippines (Pahwa 2021; Lima 2021; Perrigo 2022; Akinwotu 2021; Al; Jazeera 2021; ABC News 2021; Bhatia 2020). Studies by Facebook's own employees reveal that the company consistently moves into countries without understanding the cultural, political, and social nuances of the potential impact that their services might have in such contexts. This phenomenon highlights the perils of a singular story. 'The point' here is the assumption that a design product, the Meta platform, can be applied to a multitude of contexts without giving equal attention to adaptations or changes that are required to be made to reduce harm. The lack of contextual knowledge is a clear example of how the point manifests in the real world; it discards nuances and understanding, instead copy-pasting the same products with only aesthetic changes (offering the product in multiple languages, for instance) and not a fundamental investigation of the users' socio-technical relations to their surroundings. Paired by this lack of knowledge and expertise, the company also provides little to no support to prevent or detect these harmful effects in developing countries. Even though only 10% of its daily active users reside in the US and Canada, Facebook spends nearly 87% of its content moderation budget in these two countries, leaving the rest of its users significantly less protected and exposed to more harm (Frenkel and Alba 2021). Furthermore, in 2020, when content moderators working for Meta claimed that looking at violent, graphic, and disturbing content in the service of keeping the platform 'clean' had led to severe psychological consequences (including PTSD), the company paid its US workers 52 million USD in settlement, but entirely left out their counterparts in India and the Philippines who had the same complaints (Elliott and Parmar 2023; Ians 2020). This audacious foray into emerging or the 'developing' market, without providing an equal amount of safety and contention apparatus, is the economic and social function of

a colonial outlook, a manifestation of the ghost of coloniality. It arises from real design choices paired with executive decisions that put profits over the safety of its users.

While these discussions pertain to questioning the speculative process on theoretical grounds, they open up spaces and avenues for alternative forms of knowledge to shape the way futures are thought of in the discipline. Using hauntology in this example would mean summoning the ghosts of the countries' socio-political turns in the last couple of decades, the increasingly tense and fraught relations between communal groups, issues surrounding press freedoms, and so on. For example, to curb or at least identify nodes of misinformation and 'fake news', WhatsApp (owned by Meta) added a feature to their product that labels messages as being 'forwarded many times' (Hern 2020). Messages categorised as such, texts that have been transmitted through a sequential chain involving five or more individuals, can only be forwarded to a single individual. This measure was implemented with the intention of mitigating the rapid dissemination of information on the platform to create a more equitable environment for both accurate and deceptive content. The number of forwarded messages on the platform has decreased by 25% after the implementation of this feature (Newton 2020). Although the exact social ramifications are yet to be studied, this does show that these 'ghosts' can be addressed in part through design. Using hauntology as a tool could have allowed designers to be more cognisant of uncertainties by understanding the nature of social, cultural, and political movements in the context in which they were being deployed.

Dealing with these underlying values in the context of speculating future imaginaries could allow designers to not only deal with temporality in a different way but also expand their vocabulary to engage with complex contexts and issues that span historic times, such as coloniality. By presenting tools and lexicons, such as 'spectrality' and 'haunting', concepts that go beyond dichotomies and break normative disciplinary boundaries, we can attempt to contend with things (or 'non-things') in transition and various stages of incompletion. This uncertainty becomes a material to design for and design with. In the following section, we attempt to understand the nature of uncertainty using hauntology as a tool.

4.2. Warped timelines: uncertainty as a space for reflection

Fischer, building on Derrida's work, explained the emotions that he associates with haunting (Fisher 2014). The first is loss: the feeling of yearning for what was and what used to be. What Frederic Jameson refers to as 'formal nostalgia', the feeling of losing out on the events of the gold rush, the desire to go back to when things felt comfortable. This emotion, the pull towards the past, a certain imaginary of the past, is clearly evident in our socio-political environments, spilling into our digital spheres. The second is the emotion of anticipating what is yet to come. The future is as much inspiration for changing the present as the past is its pretext. Positive anticipation or negative anxiety about the future can be framed in two ways.

In a similar vein, the recent rolling-out and widespread use of ChatGPT has seen public conversations on the effects, provenance, and limitations of such technology. These conversations shed a spotlight on how Open AI, the parent company to ChatGPT, hired workers in Kenya and paid them less than 2 USD per hour to label some of the most toxic pieces of data in order to bolster ChatGPT's toxic language

detection system (Perrigo 2023). While this is not the first example of predatory out-sourcing (Zhang 2019), it highlights how old colonial power structures – those based on exploitation and appropriation of material and labour – are still very much in place. Roberts writes how former colonies have become top choices for outsourcing because of their proximity to Western understanding paired with bilingual education (Roberts 2016). Coloniality here manifests in ways that are removed from the violent ways of the past, representing how post-colonial dynamics, be it economic or cultural, are embedded in the design of business and service flows. Göransdotter (2021) proposes the concept of 'transitional design histories', which highlights the historicity of design and can lead to a shift in perspective, allowing for a more diverse understanding of the present and thus, a wider range of potential futures. Similarly, Hendon and Massey (2019) opine on the importance of acknowledging the 'designed' nature of history. Simon (1969) proclaimed that 'everyone designs who devises courses of action aimed at chan-ging existing situations into preferred ones'. This making and 'designing' of histories has been acknowledged in historiography that historical accounts are inherently selective and formative. The design of history is just as critical as the history of design. This emphasises that changing the stories we tell about the past and the present can influence the actions and choices made in the design. As design forays into the innovation economy with practices such as business design (Quinn 2018), there is a risk of, as Tarvainen puts it, the colonial 'eternally returns' under the cloak of 'newness' (Tarvainen 2022). This cyclical nature of coloniality imposed in different formats pushes the need to understand the tendency of systems to fall into a state of nostalgia.

Consider the social media platform WhatsApp as an example. Even after India banned Facebook's controversial Free Basics mobile programs (Goel and Isaac 2016, Facebook (now Meta) effectively controls communication in the country via WhatsApp (487 million users) and Instagram (229 million users) (Bhat 2023; Valitova 2023). WhatsApp, with its features such as WhatsApp Business and WhatsApp University, acts as a major source of communication, as well as a payment and business platform. Any major decision or disruption made in Meta's Silicon Valley board room lands with a louder thud in the country located thousands of miles away. For example, as users across the world were reporting on Twitter that WhatsApp was down (#whatsappdown) in India and other parts of the world, users in remote areas of the country lost access to their loved ones, businesses lost access to their customers, and even payments were disrupted (Bagchi and Das 2022; Jagga 2022). As data becomes a non-exhaustive resource to be mined, its appropriation by large corporations places a new coloniality of power that overlaps with historical and already oppressive power dynamics in both our physical and digital worlds. These examples highlight how the past can never be separated from the present realities and future imaginaries of a place. This urge to return to systems that have worked for those in power for ages is a potent form of nostalgia that drives a majority of systems around the globe economically as well as epistemically.

The evoking of these emotions in the context of temporality in speculative design is interesting. Both nostalgia and anticipation are potent phenomena that affect the production of imaginaries (Fisher 2014) and highlight the lines and planes referred to in the previous section. For example, while the acquisition of WhatsApp by Meta has been an issue of high contention in many countries, including India, it follows the linear pattern of technological utopian narratives

stemming from and ending in Silicon Valley (March-Russell 2020). While these issues are not strictly design issues to be 'solved', they represent the social, economic, and cultural climate in which design happens. The uncertainty, in this case, stems from how the desire of companies such as Meta to expand their operations into foreign contexts without many safeguards in place acts as the ghostly entity that has haunted the socio-technical context in India for more than a decade. With a hauntological understanding, these events can be viewed in the context of the warping of timelines, creating and falling into where the past (in the form of nostalgia) and the future (in the form of anticipation) concurrently work together as forces that shape current realities. Such a reading of temporality allows space for reflection on the tensions that exist within such complex systems, for uncomfortable conversations, and silent spaces to unmake and make futures while unravelling history. Hauntology allows designers to spend more time making sense of the present as a function of the past – being haunted by ghosts of the past and the future. All the power imbalances (economical, epistemic, human) that the above examples demonstrate superimpose almost perfectly on top of fractured (post-colonial) dynamics. However, how might we move from drawing parallels to historic colonialism to understanding coloniality as a system with and within which design works? While the colonial implications of digital systems are not solely products of bad design, any design work done within systems laden with and responsible for maintaining these dynamics of oppression must be studied and critiqued.

5. Conclusions

As we speculate on future imaginaries in a socio-technical context that is consistent with its own pasts, it is crucial that designers make space and time to pause and reflect on the source of our contention and its manifestations in practice. This paper was conceived to provide pause and ask questions about design's foundational understanding of temporality and how prevalent perspectives contribute to coloniality when building future imaginaries. Because what stories we tell in design matters.

In this paper, we have engaged with work that investigates and questions how the contemporary tools and processes of speculative design continue to reproduce colonial tendencies. Our own critique adds to the previous work of Coulton and Stead (2022) and Mazé (2019), Howell et al. (2021) and Kozubaev et al. (2020). We have unpacked the assumptions that the notions and representations of the point, the line, and the plane in the Futures Cone convey. We then traced how these assumptions have led to a generalised notion of temporality made in a Western normative fashion, which tends to flatten the multiplicity of human experiences and a taxonomized view of systemic issues. This understanding of design temporality does not meaningfully engage with (other) histories (other than its own) and their legacies. To design otherwise, we suggest hauntology as an alternative to open plural modes of engagement with these issues. We view hauntology as a conceptual and theoretical resource that invites designers to think about alternative metaphors, lexicons, and

visualisations to attend to absence, uncertainty, and plurality in their work and to open their work to decolonial approaches in their practice.

As this work is still in its nascent stage, we have presented it as a primarily theoretical provocation. It is, however, part of a design-driven inquiry into the potential futures of practice, in which the unfolding of this research is meant to result in frameworks, models, and tools to be used in design by designers. As such, the concepts laid forth here relate not just to practice but importantly also to pedagogy: what concepts we may need to both learn and unlearn designing.

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