Shifting Perspectives: A Speculative Ontographic Approach

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Abstract
Whilst design has often sought to create a smooth and simple experiences for 'users' of a variety of products and services this often means decoupling these experiences from the wider assemblages of things, both human and non-human, that they form part of, and consequently this obfuscates any undesirable consequences of our interactions such as their carbon footprint or privacy concerns. Drawing from more-than-human design and Alien Phenomenology we discuss how speculative ontography, or collections of ontological modalities showing the possible relationships things may take, can be used within a future focused design practice, to better consider what things are and do rather than the way they are presented for use. We illustrate this conceptualization through the design and implementation of an experiential futures platform housed in a caravan to illustrate how it can be used with design practice.

Author keywords
more-than-human design; object orientated ontology; design futures

Introduction
Originating from the field of cultural geography the term more-than-human (Whatmore, 2006) is increasingly being used to promote a shift from largely anthropocentric perspectives to one that acknowledges our relationships within complex ecological assemblages. This challenge to anthropocentric practices has also emerged in design and while some have used it to explore our relationships with non-human organic actants (Galloway, 2020, Westerlaken, 2021), in this research we draw from Ian Bogost's proposition of Alien Phenomenology (2012), which itself derives from Graham Harman's conception of Object Orientated Ontology (OOO) (2005), to enable us to broaden the scope of more-than-human to include much wider range of perspectives whereby an actant could be almost anything within such assemblages for instance: humans, birds, soil, algorithms, infrastructures, regulations, business models, values, etc. Whilst this philosophy provides an alternate ontological perspective for considering complex assemblages of human and non-human, as designers we primarily want to know how utilize such a theory within our practice. In OOO, ontography is the examination of ontographs or collections of ontological modalities as possible relationships an object(s) may take. These ontographs provide a useful perceptual scaffold that enables designers to ask questions that go beyond the surface of a particular proposition and speculate on broader considerations. Thus, such speculative ontography allows designers to practically shift perspectives from a largely one-world-world (Law, 2015) view towards enabling a world of many worlds in which adaption by human and non-

human actants could take many forms. This paper demonstrates the value of scaffolding technology futures research using speculative ontography, describing an interactive and experiential installation that permits users to explore their future relationships with AI and Data infused products and services. The installation is a mobile research platform that mimics a smart home setting but goes further to make tangible the ordinarily intentionally seamless and obscured interactions that users have with technology, thus the experience imbues users with agency and negotiability regarding their smart technology.

Speculative Ontography

The notion of speculative ontography forms part of our more-than-human design practice inspired by readings of contemporary Object-Oriented Philosophies discussed by Graham Harman (2005), Timothy Morton (2013), and Ian Bogost (2012) among others. The component of which is the use of OOO, and principally through its rejection of correlationism, to manifest the proposition that perspectives derived by human minds and bodies are not the only ones' worth considering, which supports the shift towards more-than-human design in a variety of forms.

Beyond the prerequisite dismissal of correlationism, our particular interpretation of OOO is principally influenced by Ian Bogost within his proposition of Alien Phenomenology (Bogost, 2012). While Bogost's construction of OOO builds on the work of others, his presentation is particularly accessible and relevant for design-led inquiry (perhaps due to his background as a game designer). Many facets of the portrayal resonate with design, for example, the concept of 'Tiny Ontologies', or the idea of any given thing (or aspect of a thing) being a "tiny, private Universe [which] rattles" inside computational things and the notion that all these "things equally exist, yet they do not exist equally" (2012). Bogost illustrates this in terms of the video game ET The Extra Terrestrial. Examining what the game fundamentally 'is', Bogost notes it is equally a physical game cartridge, the complied digital code on the game cartridge, and a set of game rules and points schemas which become manifest when the cartridge is interpreted by the computer, displayed on screen, and explored by the player. The 'object' we refer to as the ET The Extra Terrestrial is all of these constituents, and yet if we focus on a single one of them, those not within our gaze become temporarily less relevant. All these facets exist, but they do not exist equally, and how depends on which aspect of the game object's own tiny universe we consider at any given moment. This enactment of OOO-inspired views facilitates the focusing and refocusing on related but independent objects is, perhaps, the pragmatic invocation of John Law's concept of 'mess' (2004), which itself is a guiding principle for how to apply 'perfect' theory to an inherently imperfect world. Bogost coins a series of OOO-related neologisms that works to make legible Tiny Ontologies one of which is the idea of ontography.

In OOO, ontography is the examination of ontographs or collections of ontological modalities as possible relationships an object(s) may take. Bogost suggests a perspective of ontography as a record of the "things within" (2012). This recording of objects can then be defined further by their "collocation" to not only the things within the ontograph, but also those around it (2012). Here, it is also useful to draw on Karen Barad's consideration of agency not as a property but as something which emerges from how entangled agencies relate to each other (Barad, 2007). In ontography we attempt to map the ontologies of relationships between human and non-human actants and highlight both their interdependent relationships which operate through their independent perspectives. For example, consider example of last mile delivery proposed by tire manufacturer Continental worked with ANYbotics to present a speculative vision of last metre robotic package delivery by combining autonomous legged robots with self-driving shuttles at the Consumer Electronics Show in 2019[1]. Whilst a speculative vision it was based on current and near future technologies and presents a seamless vision of an efficient future. We can construct a

[1] https://www.anybotics.com/robotic-package-delivery-with-anymal/

possible ontograph of this system, shown in Figure 1, which enables us to ask questions that go beyond the surface of the user centred perspective (a more efficient way of delivering packages and consider an alternate perspective such as embodied carbon of such as system within its environmental impact, energy use, consumption of natural resources, and logistics, alternatively it could reveal answers to questions such as what data does it collect, how is the data used, and who has access to the data? Thus, such speculative ontography provides an incredibly useful way of critically questioning the technological futures proposed for emergent technologies before we address how such constellations might be enacted in design practice, we first need to address how futures are produced.

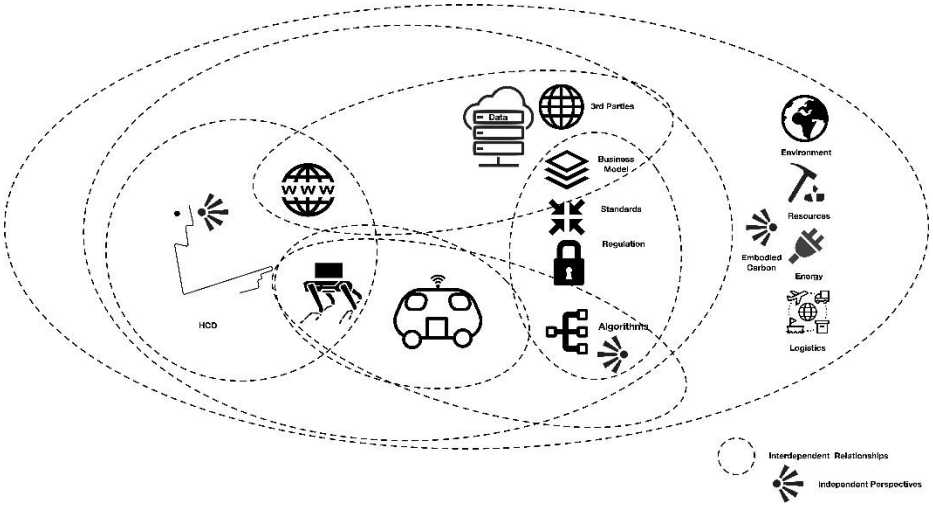

Figure 1. Alternate Ontological Perspectives of Dog Drone Delivery System.

The dominant approach when presenting potential futures is as scenarios based on proposed qualifiers – predominantly - probable, plausible, possible, and in many cases the addition of preferable. It is this framing which is most often presented through the much-hyped Futures Cone typically attributed to Joseph Voros (2003). As these qualifications are subjective, they are open to interpretation but could be considered as: possible – might happen, plausible – could happen, and probable – likely to happen. The notion of 'preferable', which can occur within any of the qualifiers, has become increasingly contested as it is seen as often promoting the privileged vantages of the Global North (Martens, 2014). This is evident within the long history of design futures which arguably developed their prominence through events variously termed World Fairs, World Expositions, etc., that emerged in the 19 century and used to present the technical prowess of particular Western countries to the rest of the world. These future visions are often developed through the auspices of technology corporations and are imbued with a rhetoric that these companies provide the gateway to efficient, desirable and benign technology driven futures (Coulton & Lindley, 2017). This type of corporate affirmative future has become even more prevalent in relation to digital technologies as evident from the rebranding of Facebook as Meta and their presentations relating to their ability to enable the so-called 'metatverse'. These visions have been dubbed as 'vapourworlds' as an extension of notion of vapourware, a term commonly used to describe software and hardware that is announced, sometimes marketed, but is never actually produced, and leads us to posit that 'preferable' should be a critical question the designers ask of themselves within the design activity rather than an aim of the design.

Another critique of the futures cone relates to its presentation in a way that suggests universal notions of the present or a one-world-world (Law, 2015), devoid of a relationship to influences drawn from history or acknowledgement of our tendency to incorporate elements of imagined possible futures from books, films, television shows, etc within our world view (Gonzatto, van Amstel, Merkle, and Hartmann, 2013). We can also draw from the writing of Arturo Escobar in Designs for the Pluriverse (2018) to acknowledge the different lived experiences of individuals and communities around the world will have on these factors resulting in a requirement to consider a plurality of different perspectives on pasts, presents, and futures within our design processes.

".. transition from the hegemony of modernity's one-world ontology to a pluriverse of socionatural configurations" (Escobar, 2018).

Whilst design futures can help to highlight potential benefits of designing emerging technologies it important to acknowledge it also operates in tandem with defuturing. As previously highlighted, corporate visions regularly present futures which invoke a rhetoric that suggests that the products and services of the particular organisation are (or soon will be) the inevitable deliverers of particular futures. In his book *A new design philosophy: an introduction to defuturing*, Tony Fry (1999) stresses the active role that designers play in producing undesirable futures through the design and implementation of the products and services that we create. He argues we do this because:

"Fundamentally, we act to defuture because we do not understand how the values, knowledge, worlds and things we create go on designing after we have designed and made them." (Fry, 19999).

Fry's observation embodies much of our argument towards move more-than-human design approaches as well as emphasise that designers should broaden their perspectives when considering a particular design challenge. To this end, Fry suggests designers should seek to:
"Disclose the bias and direction of that which is designed and how it is totally implicated in the world we conceptually constitute, materially produce, waste (rather than consume), occupy and use as an available material environment." (Fry, 1999).

Putting all these discussions together leads us to our alternative to the Futures Cone than forms the scaffold for our ontographic activities

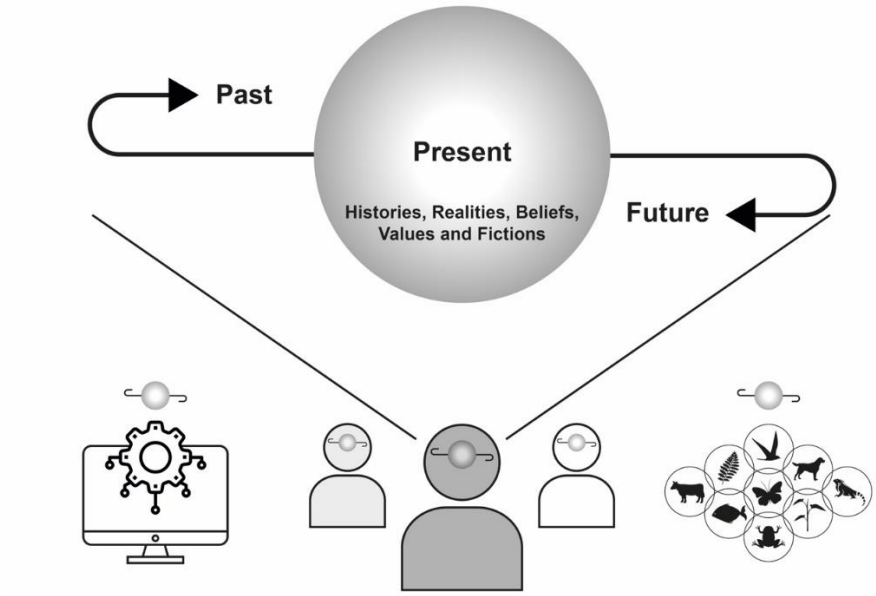

Figure 2. A Rhetorical Frame for Pluriversal and More-than-Human Futuring (after Gonzatto, van Amstel, Merkle, & Hartmann, 2013).

Crafting and Experiential Future

To provide an example of both speculative ontography and a more pluriversal approach we consider the crafting of the Future Mundane, which is an experiential future that allows people to directly experience potential futures of Data and Artificial Intelligence infused home. This experiential future is also an example of the design fiction as worldbuilding approach (Coulton et al., 2017) which diegetically situates audiences directly within an artificial world, in order to better explore and experience how today's emerging technologies may become tomorrow's mundane normality.

Whilst it would be possible to deploy such a mundane future experience in someone's actual home or simulate a home environment at a university or gallery this would limit the potential audience with whom we could engage. We therefore decided to recreate a home environment as a mobile platform. This manifested as a teardrop caravan, shown in Figure 3, housing a familiar representation of a (UK) living room (i.e., a sofa, TV, lamps, etc.) along with integrated smart devices and support for monitoring and capturing the experiences in an unobtrusive manner.

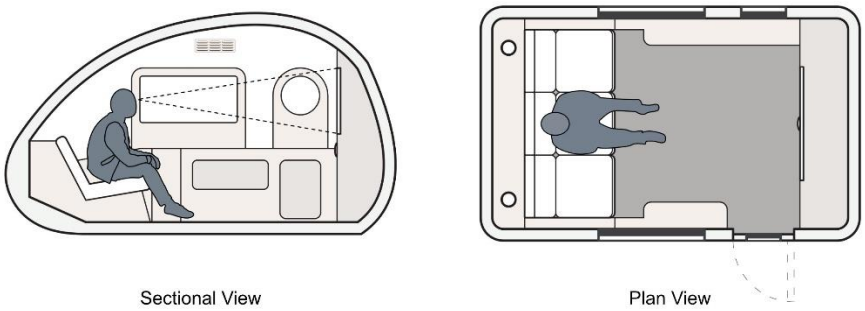

Figure 3. Cross section and plan view of the caravan, showing internal space and layout.

In terms of using speculative ontography to allow the consideration of varying relationships and perspectives it is embodied within the design and fabrication decisions within the caravan. Experiences within the caravan are crafted from a variety of networked electronic devices which can be configured within a particular experience to explore differing tiny ontological relationships both between themselves and members of the audience. It is important however that devices do not disappear from view, as suggested by 'ubiquitous computing', but rather, and in stark contrast, that their behaviour, particularly in relation to data, are made legible without being overtly creepy or intrusive.

An important factor for immersing the audience within the experience was to ensure they were placed in an appropriate and effective position that allowed us to craft an experience around them. As these experiences are largely audio-visual, the audience is positioned with an unobstructed view of the main screen. Despite the small form of the caravan, it is possible for three audience members to be seated at the rear, and each have an optimum viewing distance and viewing angle to the screen positioned directly opposite, as shown in Figure 3.

With the audience position decided, we could then begin to consider the positioning for each of the additional interactive devices. Knowing that there would likely be additional upgrades and additions to this experience, the construction of the interior space was carefully considered to provide the maximum possible flexibility. The primary audio and visual devices are the 4K screen, active speaker system and controllable RGB lighting. The speakers are positioned in a 5.1 configuration with the centre speaker directly below the television and two additional speakers sitting either side of the screen. A further two are positioned behind the seating at the rear, with a subwoofer mounted below the central seat. This arrangement was chosen to provide an immersive soundscape and allow for experimentation with directional sound in future experiences. Controllable Internet of Things (IoT) lighting was installed along the rear panel behind the seating, underneath the seating and along the top of the front panelling housing the screen. This not only provided lighting for the internal space, but also enables us to control the lighting colour and hue, acting as a visual display of the 'networkification' (Pierce and DiSalvo, 2017) of devices and data in response to participant audience interactions.

With the positioning of the primary elements for this experience decided, the additional complimentary devices could then be considered, using a corresponding process of defining their hierarchy of spatial needs to inform their optimum location within the space. The diagram shown in Figure 4., indicates the chosen locations for each of the additional devices. In effect this is the base of our ondograph through which experiences are crafted using a version of the Twine which is an open-source tool for telling interactive nonlinear stories. Twine has been enhanced to allow the sensors and actuators to be used and the subsequent experience can then be loaded onto the

caravan platform, as shown in Figure 5. To illustrate what type of experiences can be created we will now describe one that was deployed at the Ethical Dilemma café in April 2022 as part of Mozilla Festival.

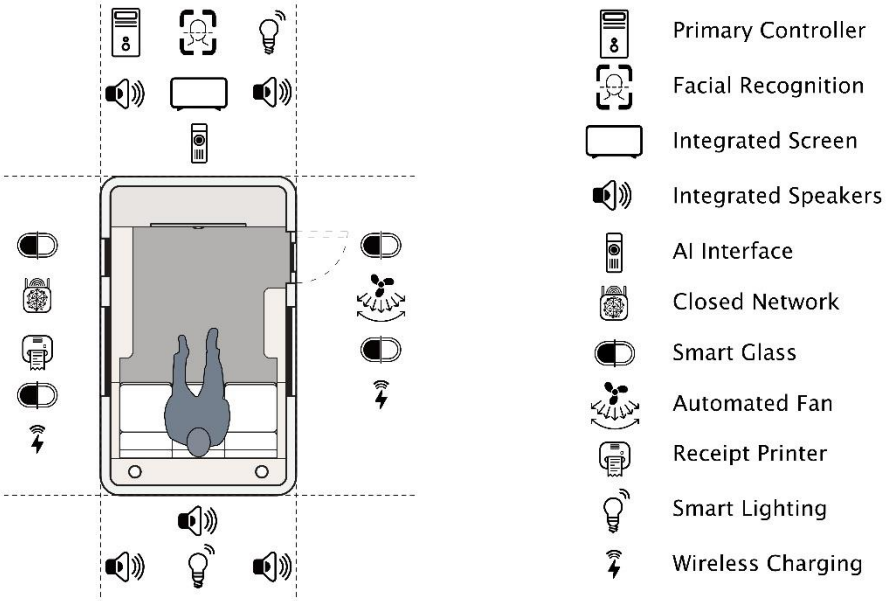

Figure 4. Diagram indicating the internal layout and positioning of all digital devices within the future mundane experience.

This particular experience within the Future Mundane was split into to two main parts. To begin, the participants seat themselves on the sofa in front of the television screen and the experience is then introduced using a voice user interface which seeks to gain consent from users to collect, process and store their data (the experience prints out a permission slip using the thermal printer which the audience must sign to proceed). In the second part of the experience a short film is played based on a profile generated by the system. During this phase various IoT objects in the room begin to contribute to the immersion. For example, the smart windows become opaque, and the room's lighting adapts to each scene (the system 'knows' the outside weather and picks up a relevant colour gradient). When the lead character in the film is outdoors, the fan switches on, matching the wind blowing her hair. The music within the film is chosen dependent on the profile generated by the system, as is the chosen ending. The impact of particular data interactions which affect the film do not immediately affect the media objects, which means that while each experience was uniquely tailored to the audience, they would not necessarily be able to see why or how. Therefore, these are displayed as captions at the bottom of the screen when data is being collected and subsequently used.

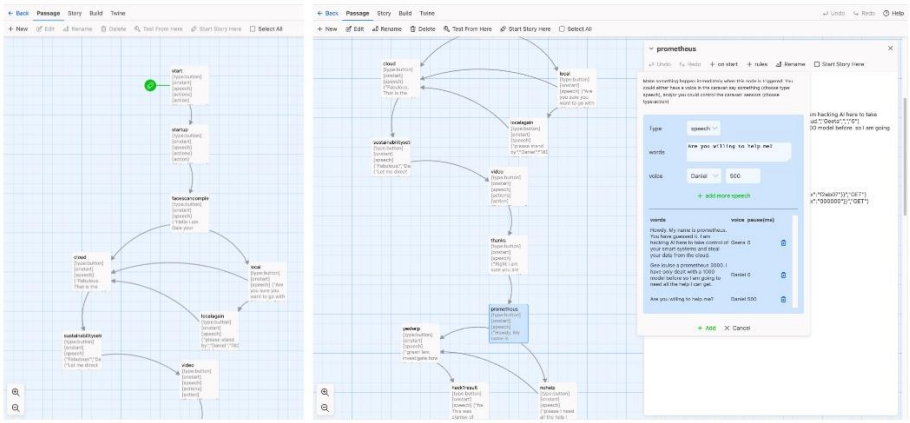

Figure 5. Screenshots of the Twine interface which has been used to create an authoring tool for the caravan, allowing new experiences to be produced and make use of all the integrated devices.

The consent procedure within the experience is designed to explore the differing ontological relationships of and AI and Data Infused environment through prototyping the proposed pillars of Human Data Interaction, agency, legibility, and negotiability (Moriter et.al 2016). Where:

Legibility recognises that the full extent of our interactions with data flows and data processes are generally opaque. We would distinguish the term from transparency which is primarily related to providing open access to data and algorithms, which does not necessarily make it accessible to non-expert users. Legibility is primarily concerned with ensuring that the use, storage, and sharing of data and associated algorithms are made clear and understandable to users. For example, owners of Vizio smart televisions were unaware that 100 billion data points related to their viewing habits were being collected every day until it was made public in 2016.

Agency relates to how users of data-enabled systems are able to manage their data and who has access to it. Aside from the basic ability to opt-in or opt-out of data collection, agency also relates to how data is stored and used, including the ability to modify data and the inferences that may be ascribed from it. Consider the domestic smart energy meters that are currently being rolled out in the UK. Users have little agency to optimise their tariffs or control who has access to the data which reveals a great deal about the users' lives and has ultimately reduced their uptake.

Negotiability acknowledges the transactional nature of data collection, particularly in the context of trading functionality. Negotiation seeks to facilitate an ongoing engagement by users in data collection and use so that they can withdraw access completely or in part and derive value from data collection themselves. For example, if you choose not to connect your Roomba to your Wi-Fi you lose some of the features offered through the mobile app such as remotely scheduled cleanings, customised cleaning features, and any voice control functionality provided by Amazon's Alexa or Google Assistant. In this instance, the trade-off for loosing this functionality is increased certainty that your data is secure (as it is not leaving your house), however the negotiation is very one-sided. In the Roomba's case (as is frequently true) the terms equate to 'give us your data or we do not provide functionality'.

The consent procedure introduces each sensor in turn, starting with the face recognition system and at each point the audience is asked to indicate their willingness to have their data collected. As most 'things' currently present within our home don't require us to negotiate their use this specifically highlights the different perspectives in play when we add smart devices. Whilst the

creators of these products and services may primarily be interested in collecting the data about our use as users we are primarily concerned with what the devices actually do. Whilst this process provided legibility, we purposefully did not always provide a choice other than 'Yes' or 'No'. This was intended to highlight the lack of agency and negotiability that many consent systems actually provide in that we often must trade our data in order to access the functionality of a smart product of service. For example, when the audience in the experience said 'no' the system would either say this would result in a lesser experience or say that this was a shame as they would miss out on the film, but they could exit through the gift shop. However, during the 2 days the experience ran, none of the 75 people who participated declined consent. This perhaps indicates could be due to the setting in which the experience takes place or perhaps the beguiling nature of voice which may present a problem for future IoT systems in that, if their security is compromised, voice may present nefarious hackers a highly effective means of phishing.

Conclusions

In this paper we have sought to provide practical approaches towards incorporating more-than-human perspectives into design practice using speculative ontography. Ontographs allow for the consideration of multiple perspectives, and unlike systems based approach which promotes a view that all things are connected and dependent on each other, it acknowledges that whilst certain attributes may make things interdependent they may operate from highly independent perspectives. It is this tension we argue that design needs to foreground rather than obfuscate, in the name of simplicity of experience, if we are to practically engage people into considering their relationships within the complexity of challenges such as climate change if we are to mitigate the deficit of opportunity we are creating for future generations.

Acknowledgements

This work has largely been made possible through EPSRC Grant EP/S02767X/1 Experiencing the Future Mundane.

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