

## **Apocalyptic Design in the Capitalocene: Every-day Geopolitics and Blockchain**

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### **Introduction**

*"We are not spectators of apocalyptic films, we are participants; their ecology is an invitation to feel the condition of the Anthropocene and what might lie beyond."  
Ginn 2015*

This paper introduces the concept of 'apocalyptic design', because much of what you (the reader) are doing now must be considered as apocalyptic in the context of the Anthropocene. Everything we do now, every act that is tied to the expenditure of carbon, must be seen (to some extent) to anticipate the end of the world. As Jason Moore argues, we can see oil-driven capitalism as the fundamental organising principle of nature and society (2016).

We propose the term 'apocalyptic design' in parallel to the wide genre of films that can be described as 'apocalyptic cinema' that foretell an end to the world. In particular we use Franklin Ginn's analysis of Béla Tarr's film *The Turin Horse* that reconfigures our relationship with a world that is ending by "measuring our sensitivity to the Earth (rather than measuring the Earth's sensitivity to human activities)" (2015). His paper 'When Horses Won't Eat: Apocalypse and the Anthropocene' discusses the representation of the Anthropocene through traditional apocalyptic Hollywood cinema, and draws attention to stark differences in the way that people, animals, resources and the landscape relate to one another in *The Turin Horse*. Our paper borrows this analysis to introduce a relationship between humans and more-than-humans within the Smart City that changes the power relationships in order to slow down the end of the world.

### **Geopolitical Imaginaries and the Smart City**

In understanding the complexity of contemporary design circumstances we introduce Emma. Emma is a character from a near future who travels through some of the territories in the G4S federated former European Union. Caught up in some very complicated geo-politics, which have moved far beyond the state-centric notions which underpin conventional understandings. Emma should be kept in mind at all times when reading this essay and we feature her here as a means of giving her an identity:



*Figure 1: Image taken from the UN's ID2020 project website that promises digital passports for refugees through blockchain technology.*

"One term, still used today to great advantage by politicians because of its political heft, is "national interest". By terming something the national interest a leader can rhetorically undercut any opposition, who by definition are then

against what is best for the country (subtly identifying the opposition as traitors is a time-honored tactic in democratic politics). However, that term elides a great many distinctions between the people of the nation... By adopting the state as the only frame through which geopolitical decisions can be legitimately made (a notion called state-centrism), less powerful groups and individuals are literally erased from consideration" (Dittmer, 2010).

Dittmer's explanations become valuable coordinates as we consider how design intervenes within geo-political crisis and often adopt sovereign rhetoric. Furthermore, as we consider Emma's friends and family that she is now separated from, Anderson asks us to consider the imaginaries that we have constructed toward the so called 'communities' that the imaginary of nation state evokes.

"It is imagined because the members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them, yet in the minds of each lives the image of their communion... It is imagined as a community because, regardless of the actual inequality and exploitation that may prevail in each, the nation is always conceived as a deep, horizontal comradeship." (Anderson 1991).

These imaginaries of other places are more than likely constructed through the spread of books and literature that describe foreign nations through the lens of our colonial histories; exotic places, faraway places (Dittmer 2010). Imaginaries for places that are still operating still today and sustained through tourist marketing, news media and the images associated with global charities, all of which perpetuate beliefs that these nations hold together communities. We would like to argue that the 'smart-city' has become a further instantiation of these imaginaries, a site that is defined by national interests and sovereign identity. A place in which it is likely that Emma isn't welcome because she has no identity.

Just as the imaginary of exotic destinations of Morocco, Turkey or Bali has been constructed and managed through marketing materials, so too has the image of the smart city. Predominantly 'blue' and electrified by stop frame photography that makes it appear super-fast, the smart-city is an imaginary constructed to make promises of near future of efficiency, cleanliness and the benefits of connectedness. In the imaginary of the smart city, the end of the world is prevented through the miracle of hyper connected systems that use energy to anticipate energy saving solutions. In the smart city, 'internets of things' converse to organise human lives that help us make informed decisions or make decisions for us to make our lives better.

### **The More than Human End of the World**

At this point it is worth turning to Franklin Ginn's essay, which questions how we represent both the condition of the anthropocene, but ultimately how we represent an apocalypse. Using the Hungarian film *The Turin Horse*, Ginn deconstructs the filmmaker Tarr's imagery to present an interpretation of the apocalypse which is very different to that of the very many Hollywood visions for the end of the world, from *The Day After Tomorrow* to *Armageddon*. IMDB (Internet Movie DataBase) provide a preface for Tarr's film that places the horse at the beginning of the end of the world:

"German philosopher Friedrich Nietzsche witnessed the whipping of a horse while travelling in Turin, Italy. He tossed his arms around the horse's neck to protect it then collapsed to the ground. In less than one month, Nietzsche would be diagnosed with a serious mental illness that would make him bed-ridden and speechless for the next eleven years until his death. But whatever did happen to the horse?" (2011)

Extremely bleak, the film moves toward darkness and through his essay on the work, Ginn draws our attention to a series of challenges that a father and his daughter go through. Many of which involve interactions with what can be described as 'more than human'. The first one is the loss of the horse, the horse will no longer eat or comply with its masters demands, the second (highlighted by ourselves and plays has particular importance for our research with Oxfam) is the uselessness of money. In the film money was traded for alcohol by a visitor, who cares less how much he pays for what appears to be moonshine. The third is the well that runs dry, a further shutting down of natural systems, before natures final refusal to interact with the human actors by a well of paraffin in a light refusing to ignite when introduced to a flame. The film closes with the father and daughter, sitting facing each other over their dinner table, staring at two inedible raw potatoes. Fading to black we can only assume that their world ends soon after.

No longer submitting to the will or demands of the human, the animals, artefacts and environments hold a more-than-human power over the destiny of the father and daughter. From the horse that will not obey which infuriates its master, to the paraffin that rejects its propensity to light when it encounters the flame, we find an alternative ontological framework in which the 'society of objects' (Harman 1997) is counter to one in which humans should expect particular intra-actions (Barad 2007). The breaking down of society in Tarr's vision of the end of the world is entirely reliant on his inversion of how things intra-act according to human expectations. The horse will not plough for us, the well will not give us water and the paraffin will not light for us. Tarr's 'smart city' is one in which the 'things' have decided to reject a future in which humans should live and in turn they begin to counter-intra-act.

The behaviour of more-than-human things in Tarr's apocalyptic world might follow Harman's explanation of the "relation between actual entities" (Harman 1997). Harman recovers Alfred North Whitehead's concept of "prehension" in which the definition of an object is subject to their interactions with others:

"What endures is not an individual object but a "society", a set of actual entities that combine to form what we know as a rock and retain this basic character more or less indefinitely, even if the rock-object actually dies away with the tiniest passage of time." (Ibid)

In reflecting on the representation of the end of the world, Franklin's text is helpful in reminding us of how the apocalypse is portrayed in films. From Avatar and the relentless mining of other worlds to sustain our own, to the climate of the Day After Tomorrow, most end with a glimmer of hope for humanity and few fade to the complete blackness as Tarr's vision does.

"For some, the Anthropocene signals a final enclosure of politics and culture within ecology: a new geopolitics in which Earth is the sovereign authority and humans are inmates of a planet-sized camp in a permanent state of emergency. For others, it is an occasion to double down on techno-hubris and call forth more fevered bouts of rationality and management." (Ginn 2015).

### **Blockchain as platform for the more-than-human**

Of course, amongst the most recent of technological panacea's that embodies a techno-hubris is the Blockchain, a recent turn toward something that might offer decentralised systems, solutions for a post-sovereign society and its most popular proposition, post-fiat currencies. With blockchain technologies we are starting to see a different type of geopolitics emerge, one which is outwith a nation state, outwith a national bank and instead something that is in the hands of publics who can log activities within an immutable, distributed ledger.

Organisations from banks, to anarchist communities are starting to speculate what a post-sovereign framework for recording identities might be like. In Price Waterhouse Cooper's continuum of smart contracts they describe the very simple digital value exchanges that owners of digital currencies might become involved to the left, in the middle Distributed Autonomous Business Units (DABUs) beginning to perform interactions according to more-than-human rules, and to right the potential for blockchain technologies to construct entirely new governance models that may lead to distributed autonomous societies (DAS), that our protagonist Emma might value becoming part of.



Figure 2 Use case examples from PWC. Illustration taken from PWC website no longer available.

### Life in a DAS (Design case proposition)

Turning back to cinema to help unpack what is being constructed in these complex new contexts in which decisions are made through the voting of members within a community – or potentially a DAS. The Dardenne Brothers film, *Two Days, One Night* features Sandra who works for a small struggling solar panel company of 15 people. One Friday afternoon in summer, she learns that she has lost her job because staff have been offered the choice of taking a bonus of €1000 and sack Sandra, or keep her on. Over 50% of her co-workers voted to take the money and she is told that she has lost her job. Having learnt this from a colleague she persuades her boss to carry out a further ballot on Monday which leaves her the weekend to visit as many employees at their homes and persuade them to vote for her in the second ballot.

A key characteristic of blockchain technology to date has been the 'proof of work' consensus algorithms that allow members of a distributed network to agree on the contents of a ledger. Very different to a centralised authority who is responsible for keeping the accounts in order. In both primary models 'proof of work' and 'proof of stake', the integrity of the blockchain is achieved by making it very difficult for one person to own more than 51% of the computing power in the network, or 51% of the currency. The same level of distributed controls underpin and define the potential for blockchain to be used to construct DAS's: Distributed Autonomous Societies. It is fair to should assume that PWC's DAS is similar to a Distributed Autonomous Organisation (DAO) which is / was an organisation that allowed investors to purchase tokens and form a venture capital fund, the spending of which was governed by code that allowed all members to vote on business decisions.

"The DAO had an objective to provide a new decentralized business model for organizing both commercial and non-profit enterprises. It was instantiated on the

Ethereum blockchain, and had no conventional management structure or board of directors. The code of the DAO is open-source.”  
[https://en.wikipedia.org/wiki/The\\_DAO\\_\(organization\)](https://en.wikipedia.org/wiki/The_DAO_(organization))

The involvement of all members of a DAO community in the investment decisions of the organisation through voting mechanisms (according to the stake that members have in the DAO) presents a near future in which platforms such as Ethereum are used as governance platforms. Used as the climax toward the final scene in *Two Days, One Night*, employees being involved in the governance of an organisation is likely to become more mundane as DAOs offer a transparent mechanism through which members can become involved in the management of company or community assets. An instantiation of this, at the mundane end of the distributed community spectrum, may be Edson Alcalá's simple exposition of how the function of an air conditioner unit is governed by a community in *Democrachain* (Alcalá 2017).

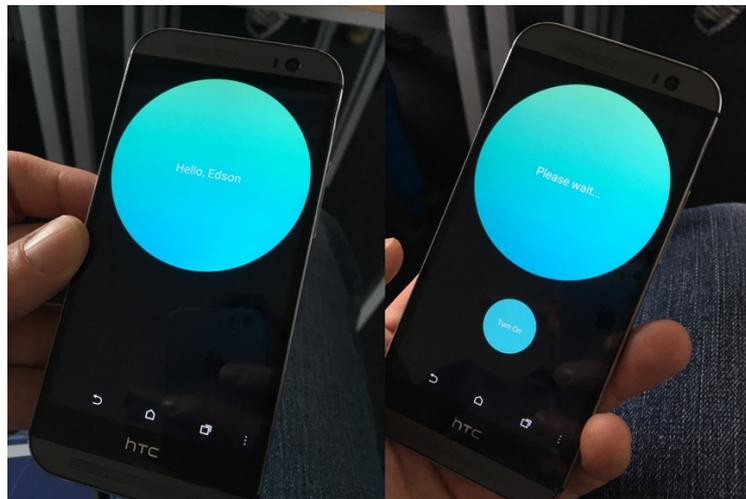


Figure 3 Edson, requesting to turn on his air conditioning unit

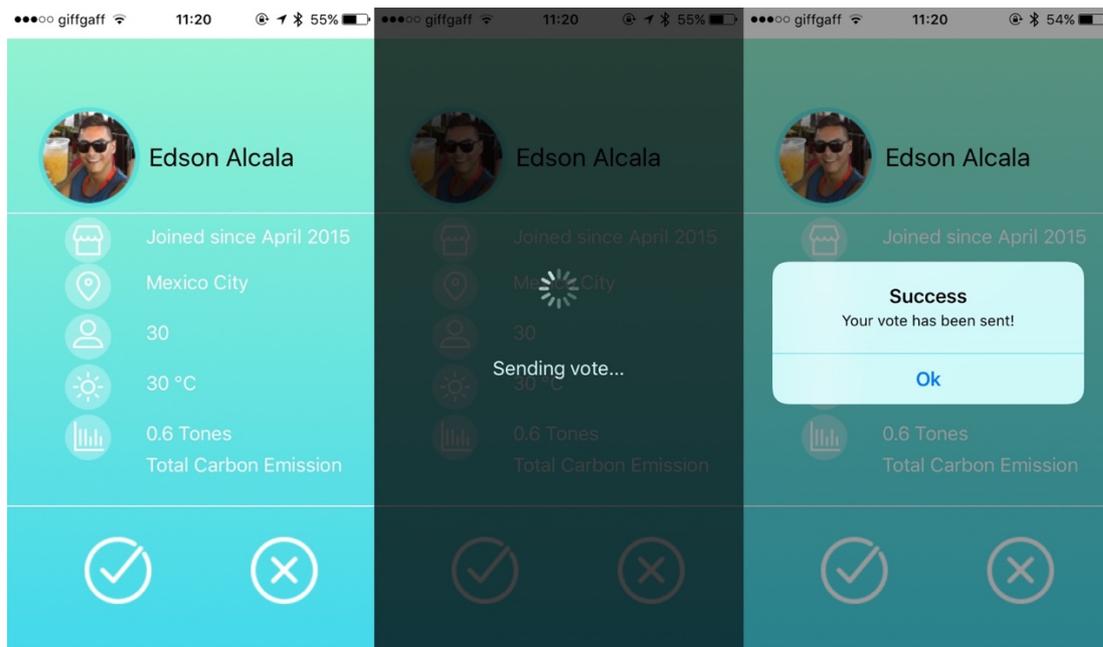


Figure 4 Screen grabs of the author voting as to whether to let Edson turn his AC on, I'm in a good mood so I vote 'yes'

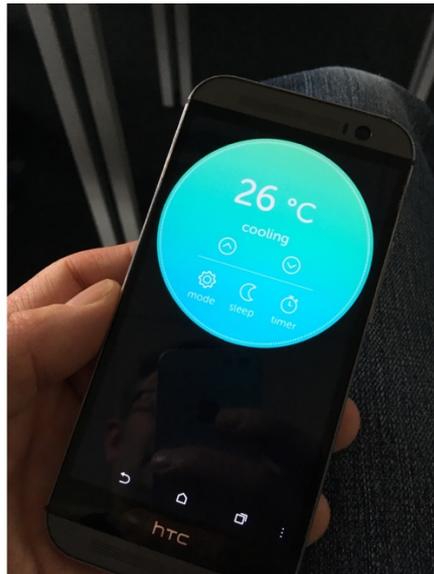


Figure 5 After counting up the votes, over 51% of people voted 'yes' and Edson's AC turns on.

### DABUs: More than Human Interactions within the Smart City

PWCs Distributed Autonomous Business Units (DABUs) represent the anticipation of artefacts that begin to perform interactions according to more-than-human rules. A design intervention that perhaps manifests these attributes is the BitBarista, a hacked Delonghi coffee machine that has been enhanced with a Raspberry Pi which reads signals from the coffee machines sensors, controls its functions, and connects it to the Internet. The coffee machine has also been given a bitcoin wallet which allows it to receive and may payments. This enables it to purchase bags of online coffee beans or offer payment to customers for performing maintenance tasks such as refilling coffee beans, filling its water tank, and cleaning out used coffee grounds (Pschetz et al 2017).



Figure 6 BitBarista coffee machine.

With its own spending power it is easy to see how BitBarista falls in to the bracket of a DABU as it works to stay in the world by providing a service to humans by buying coffee but also by intra-acting with them by asking them to perform simple menial tasks.

These intra-actions perform agential cuts (Barad 2007) in traditional human-machine ontologies and imbue the coffee machine with agency. Critical to BitBarista's agency is its ability to perform a further role that can be considered more-than-human, that of being able to gather social and ethical preferences from individual coffee drinkers and make a simple values-based judgement that in turn informs which type of coffee beans it should buy next. Following the decision to purchase coffee, the BitBarista asks each human buyer to select from four categories of coffee: best quality, lowest price, lowest environmental impact and highest social responsibility. After the purchase and the pouring of the coffee, a further screen informs the buyer of the current popular choice according to the poll, and the percentage split of votes. Once the machine has ran out of coffee, it will use the final vote to inform the purchase of the next bag of coffee.



Figure 7 Human choices for the source of the next bag of coffee that will be ordered by the BitBarista.

Acting as arbitrator for ethical and social decision making, BitBarista is a primitive Internet of Things device that is making informed decisions on behalf of humans. Whilst the designers of the machine encode the device with a spectrum of values, the machine gathers the preferences of individuals and applies their choice in order to source the type of beans that they will consume when the next bag of coffee is ordered. Whilst extremely simple, this social and ethical calculation is performative in engendering consumption habits that are ultimately better for the smart-city.

## Conclusion

We have introduced the term 'apocalyptic design' to build a bridge to the genre of films that portray the end of the world, and use Ginn's analysis of Tarr's film *The Turin Horse* as a means of reorganising the relationship between humans and 'things' that turn away from working for humans. We have discussed the ways that everyday geopolitics inform conventional understandings of both personal identity and sovereign identity through the reinforcement of state imaginaries, and how the identity of the 'other' who is simultaneously the object of suspicion and the object of development, as seen from the West. We have suggested that the smart city is caught up in the similar imaginary, and that more-than-human things will work with us to make life better. Through considering two films, *The Turin Horse*, which, in Ginn's analysis shows how conventional notions of the Anthropocene conjure 'solutions' to ecological rifts and global inequality in the limited form of technical and managerial solutions, and *Two Days, One Night*, which reminds us of the limits and potential of group governance. We recovered Barad and Harman in order to frame the apparent decision of more-than-humans to turn away from intra-actions that would benefit the humans in Tarr's movie. We then shifted to the disruptive technology of blockchain, which has potential to disrupt all of these factors; simple digital value exchanges, the introduction of

Distributed Autonomous Business Units (DABUs) that perform interactions according to more-than-human rules, and the potential for blockchain technologies to construct entirely new governance models in the form of distributed autonomous societies (DAS). The PWC continuum also allowed us to frame two design projects that allow participants to experience life within a smart city in which residents are asked to vote on our use of resources (Democrachain), and the BitBarista which offers an early insight into how 'things' in the smart city may begin to help humans make social and ethical choices. We offer these design projects as positive contributions to a smart-city that whilst are certainly apocalyptic in their design, better serve the interests of humans and the environment, rather than the very real experience of Emma, who is governed by private power, and we advance the potential for thinking differently about what blockchain affords, in its potential disruption of the capitalocene.

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