

SPECULATIVE DESIGN: CRITERIA AND MOTIVATIONS

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[Abstract]

Speculative design is immature and evolving. Its boundaries, definitions, and purpose can therefore lack focus, states James Auger. The spectacular and provocative nature of many speculative design projects has led to them being widely disseminated across a broad range of media and contexts. This has raised the profile and appeal of the approach but at the same time allowed for a fundamental lack of discussion on the deeper motivations and meaning behind some of the projects. Complicating matters further is its close relation to other practices such as design fiction and critical design – this can lead to the assumption that its *raison d'être* is the same. In this paper, and drawing on his work as designer, researcher, and educator in the Design Interactions program at the Royal College of Art in London, Auger suggests a number of criteria through which speculative design projects might be assessed, arguing we must further our theoretical understanding of the practice before we can further the practice itself.

[Leader]

What is better? James Auger argues it is this question that should be at the core of speculative design practices, and urges designers to extend themselves beyond their current circles of practice in order to further the approach's reach.

[Text]

Speculative design is immature and evolving, and as such its boundaries, definition, and purpose at best lack focus, and at worst are simply misunderstood. Speculative design projects are commonly related to the technological future, but not always; they use fiction in some way, but it is not necessarily apparent, and its practice takes diverse forms, on various scales and with numerous goals. **The spectacular and provocative nature of many projects results in broad dissemination that raises the profile of the approach, but fundamentally neglects its (potentially) deeper justifications or benefits.** Complicating matters further is its close relation to other practices such as **design fiction** and **critical design**, which leads to assumptions that its *raison d'être* or approach is the same.¹

¹ This is indeed a challenging issue. Due to the enormous breadth of its meaning the word 'design,' of course, needs qualifying. Each of these qualifiers (critical, speculative, fiction) attempts to describe a particular (evolving) approach – the problem lies in the disparity between the semantics of the words and of the practice; the words suggesting a greater difference than the representative objects actually exhibit. In many cases the terms are interchangeable being based

My own working definition of speculative design is as follows: Speculative design combines informed, hypothetical extrapolations of an emerging technology's development with a deep consideration of the cultural landscape into which it might be deployed, to speculate on future products, systems and services. **These speculations are then used to examine and encourage dialogue on the impact a specific technology may have on our everyday lives.** The familiar and engaging nature of the designed output is intended to facilitate discourse with a broad audience: from experts in the field such as scientists, engineers and designers to the consumers and users of technological products and systems.²

Due to the diverse and complex nature and objectives of the approach (when compared to normative design), one of the key recurring questions asked of speculative design is how to judge its projects. Based on my work as a designer, researcher, and educator in the Design Interactions (DI) program at the Royal College of Art (RCA), this essay proposes criteria by which the success of speculative design projects can be gauged. These criteria will be put to the test through the discussion of two design projects: one by myself and one by a student in the DI program. However, first I will first delineate the workings and purpose of speculative design, and argue how speculative design differs from other design approaches.

What Speculative Design Does and Why It Does It

In 1972 the renowned designer Charles Eames described design as “a plan for arranging elements to accomplish a particular purpose”.³ The power of this simple statement is that it operates across multiple scales, material complexities, and timeframes: from a piece of furniture to a city plan; from a length of wood to biological parts (now seen as designable through synthetic biology); or from the marketplace of tomorrow to a distant future world. But particularly relevant for the purposes of this essay is the issue of a *particular purpose* – in normative (generalised) terms this is the arranging⁴ of available elements to create useful objects designed to exist and usually be sold. Increasingly these elements are technological, and as such the designer can be seen as tasked with translating technological potential into useful, usable, and desirable products. The familiar assumption is that these products make life *better*.

Speculative design borrows many practical methods from its commercial counterparts like industrial and graphic design, but as a form of enquiry it de-couples this practice from direct market imperatives, in turn creating a space to:

on geographical location or context. My choice of ‘speculative’ is therefore informed by semantics and the subsequent loading of experience - for example, ‘fiction’ after design immediately informs the viewer that the object is not real and ‘critical’ reveals the intention of the object as an instigator of philosophical analysis. These terms act to dislocate the object from reality, exposing its fictional or academic status. This in turn modifies the way it is interpreted or experienced by the viewer.

² As will become clear from this paper, this explanation is limited to ‘speculative futures.’

³ Stated by Eames in a Q&A session with himself (providing the answers) and Mme. L. Amic (asking the questions) in conjunction with the exhibition *Qu'est ce que le design?* at the Musée des Arts Décoratifs, Palais du Louvre.

⁴ Useful here is used in its broadest sense – from the simple utilitarian to complex emotional values. see: Donald Norman, *Emotional Design*, New York: Basic Books. 2004.

1. Arrange emerging (not yet available) technological ‘elements’ to hypothesise future products and artefacts, or
2. apply alternative plans, motivations, or ideologies to those currently driving technological development in order to facilitate new arrangements of existing elements, and
3. develop new perspectives on big systems.

With the purpose of:

1. Asking ‘what is a *better* future (or present)?’
2. Generating a better understanding of the potential implications of a specific (disruptive) technology in various contexts and on multiple scales – with a particular focus on everyday life.
3. Moving design ‘upstream’ – to not simply package technology at the end of the technological journey but to impact and influence that journey from its genesis.

Significant Others

Speculative design obviously has non-design antecedents or shares family resemblances with other approaches to future-formation and technological critique. The simplest way to compare and contrast these is to clarify what precisely it is not.

Speculative designs are not ‘sociotechnical imaginaries’: “‘imagined forms of social life and social order that centre on the development and fulfilment of innovative scientific and /or technological projects.’”⁵ Sociotechnical imaginaries use a similar starting point, such as an emerging technology, but are motivated by the selling of particular state or corporate agendas. An example is *Futurama*, General Motor Corporation’s attraction at the 1939 New York World’s Fair, a 35,738 square foot (3320 m²) model depicting the development of motorways and vast suburbs across the United States. The hidden agendas behind *Futurama* are most strikingly revealed in E.L. Doctorow’s 1985 novel *World’s Fair*. As a family leaves the ride, the father says: “‘When the time comes General Motors isn’t going to build the highways, the federal government is. With money from us taxpayers.’ He smiled. ‘So General Motors is telling us what they expect from us: we must build them the highways so they can sell us the cars.’”⁶

Speculative designs are also not ‘utopian imaginaries’. The starting points and motivations are similar in that both are reactions to aspects of ‘here and now’.⁷ The

⁵ Sheil Jasanoff, Sang-Hyun Kim, Stefan Sperling, *Sociotechnical Imaginaries and Science and Technology Policy: A Cross-National Comparison*, NSF Research Project, Harvard University, 2007, p.1.

⁶ Edgar Lawrence Doctorow, *World's Fair*, New York: Random House, 1985, p.285.

⁷ In her book *Utopia as Method* sociologist Ruth Levitas explains the benefits of the utopian approach: ‘It [a utopian method] provides a critical tool for exposing the limitations of current policy discourses... It facilitates genuinely holistic thinking about possible futures, combined with reflexivity, provisionality and democratic engagement... The core of a utopia is a desire for being

key differences are in scale and tone. Social utopias are often set in extreme other worlds, such as H.G. Wells' *A Modern Utopia* (1905), or in far off futures, such as William Morris's *News from Nowhere* (1890). Speculative designs usually focus on the human scale rather than big sociocultural systems, and aim not to describe perfect or desirable worlds but more nuanced or neutral possibilities.⁸

'Techno-dystopian imaginaries,' such as those commonly described in science fiction, share the same narrative origin as many speculative design projects, namely a contemporary disruptive technology, but are extrapolated through negative forces such as an out of control system. For example: James Cameron's *Terminator* (1984) or the egotistical scientist in Mary Shelley's, *Frankenstein* (1819). These exist predominantly as cautionary tales and amplify the negative implications for cinematic effect or dramatic appeal. Like utopias they can be very far removed from the here and now. The key factor that differentiates speculative design from these approaches is its treatment of fiction and how this is mediated through design, and the relative neutrality of its outputs.

In *The Pervert's Guide to Cinema* (Fiennes, 2006) the philosopher and cultural critic Slavoj Žižek describes the viewer's reading (of cinema), stating that, "if something gets too traumatic, too violent, even too filled in with enjoyment, it shatters the coordinates of our reality – we have to fictionalise it." These 'coordinates' effectively relate to [a.] in fig. 1: the individual, social, cultural, political, technological, and scientific dynamics of contemporary life. Whilst these form the basis of all the approaches described above, they are commonly shattered, or at least broken, during the process of extrapolation (or inversion). Speculative design aims to 'stretch' rather than 'shatter' the coordinates, ensuring plausibility and in turn eliciting a different level of audience reaction.

Alternatively, in the case of sociotechnical imaginaries like *Futurama*, the installations can be remarkably plausible and achievable but the motivations behind them favour very specific interests or agendas. So, whilst *Futurama* had an enormous impact on the shaping of the American landscape, was the new America genuinely a better place? And if so, for whom? The 'neutrality' of speculative design simply means that the designed outputs are not loaded with utopian or dystopian undertones intended to influence or manipulate viewer opinion. In reality, technology, as it enters everyday life, is usually both good and bad – there are clear benefits but also unforeseen implications.

Speculative design aims not to spoon-feed audiences on how they should feel about a particular technology but rather to encourage or assist them in drawing their own (more informed) conclusions. It asks: "what would life be like if we had such products?" It can act as a cultural and behavioural litmus test, trying out applications before they happen and allowing for adjustments to be made. Its agenda is to facilitate a more democratic and considered approach to technological development.

otherwise, individually and collectively, subjectively and objectively. Its expressions explore and bring to debate the potential contents and contexts of human flourishing.' in: Ruth Levitas, *Utopia as Method: The imaginary reconstitution of Society*, Hampshire: Palgrave Macmillan, 2013, p.xi.

⁸ Historically this was the case but recently we (DI) have also begun to write briefs and develop projects looking at the design of states and systems. This is exemplified by Dunne and Raby's *United Micro Nations* (2013).

Criteria

As a design-based approach, the outputs of speculative designs usually take the form of artefacts such as hypothetical products, models, or other media, which act as evidence for the imaginary world. The approach facilitates the building of worlds or narratives around the object (based on a deterministic view of technology), as the viewer can project the use or ownership of the object into their own life. But how do we analyse such projects? Proposed below is **a tentative set of criteria** to assist this process:

1. Normative design criteria still remain (aesthetics, functionality etc).⁹
2. Awareness of context. This could be seen as the designer's understanding of the 'coordinates of reality' as described by Žižek. Speculative design projects are rarely universal but of a particular time and place.
3. How the speculation is informed. In particular how the complex technological, cultural, or societal aspects or motivations (commonly achieved through discussion or collaboration with experts) are obtained.
4. The plausibility (in practice a combination of [1.], [2.], and [3.]
5. Avoidance of one-liners or overt provocation. Previous projects such as our carnivorous coffee table have shown that being too provocative can lead to much publicity but little in the way of meaningful response.¹⁰
6. Identification of purpose – the bigger goals/motivations of the work and how close the project gets to achieving them.

The final point is critical, complex, and varied. It currently comprises a number of factors: discussion, debate, or critique on a particular subject (such as an emerging technology); purposes of public engagement; or to facilitate reflection on a certain aspect of contemporary life. The issue of purpose is where speculative design is exposed to its most common, fervent and to some degree deserving, critique. Critics ask: "why does the debate (when it does happen) take place in privileged contexts such as galleries and museums?"; why is it practiced only by white, middle class western males? (this is simply not true); or, put more straightforwardly, "design should not stray from its instrumentalist roots."¹¹

There is not enough space to address all of these concerns here, most of them are argued in the MoMA 'Design and Violence' discussion.¹² The fundamental question comes down to whether speculative design is a worthwhile activity *or*, instead, should designers simply be using their time and skills in applied ways to solve tangible existing *real-world* problems. My response to this is two-fold. First, as discussed in the MoMA thread: why can design not be pluralistic? Second, and relating to a larger, more complex question: "what is the role and function of design

⁹ For a comprehensive list of what these can be see:

<https://www.vitsoe.com/gb/about/good-design> (Not all of these apply).

¹⁰ From the *Carnivorous Domestic Entertainment Robot* series (2008) . See: <http://www.auger-loizeau.com>.

¹¹ The core of this discussion took place on the MoMA *Design and Violence* website under the post of John Thackara, 'Republic of Salvation (Michael Burton and Michiko Nitta)', *MoMA design and violence*, n.p., 9 Dec.2013. Accessed through: designandviolence.moma.org/ on September 2014.

¹² Ibid.

(and the technology it mediates) in contemporary life?”¹³ Design is a fundamental part of a postmodern socio-economic system, inextricably linked to entrenched notions of progress, the manipulation of desire and conspicuous consumption.¹⁴ Technology, made usable and desirable by designers, increasingly eviscerates human participation and empowerment and the nature of the problems it solves are becoming increasingly opaque or divisive. The incessant demand (by politicians and share holders) for growth has led to a situation where technological development is rarely questioned – and mainstream design exists within this mechanism. Speculative design, through existing outside of the system, can at its best act to analyse and question the role and responsibility of design, and what we want for the technological future.

I acknowledge that at this time the majority of speculative design projects do end up on plinths between white walls. But this does not mean that it is a luxury, just that we are still learning how to best exploit its potential. I will address this more later. First I will use two case studies to describe how speculations are crafted through variations of time-slip, examining how the criteria described above can be understood in practice.

Speculative Futures and Alternative Presents

Commonly employed to facilitate speculation are notions or variations of time slip, leading to the sub-terms ‘speculative futures or pasts’, alternative presents through counter-factual histories or even counter-fictional histories.¹⁵ Each supports a different way of thinking about the world.

Real Prediction Machines (2014)

The most common reason for speculating through design is to help with the understanding (and ideally shaping) of future life – how could (and should) everyday life be through the development and application of emerging disruptive technologies?¹⁶ The project *Real Prediction Machines (RPMs)* by Auger-Loizeau with Alan Murray and Subramanian Ramamoorthy (2014) exemplifies a *speculative future* facilitated by contemporary research in computer science such as big data, machine learning, and prediction algorithms. This project represents part of an ongoing collaboration between Auger-Loizeau and the School of Informatics, University of Edinburgh, and was commissioned by the Crafts Council (UK) for their 2014 exhibition, *Crafting*

¹³ Alfred Borgmann’s ‘device Paradigm’ provides a thought-provoking analysis of the way technological devices are perceived and consumed in modern society see Alfred Borgmann, *Technology and the Character of Contemporary Life: A Philosophical Inquiry: A Philosophical Enquiry*, Chicago: University of Chicago press, 1987.

¹⁴ For an excellent analysis of the roots of modern consumerism see *The Century of the Self*, dir. Adam Curtis. London: BBC, 2002.

¹⁵ RCA PhD student Austin Houldsworth is developing a system based on designing for fictional worlds such as *Walden Two* (2014). See www.austinhouldsworth.co.uk/project/walden-note-money

¹⁶ For example: a 2002 report commissioned by the U.S. National Science Foundation introduced the acronym NBIC for Nanotechnology, Biotechnology, Information technology and Cognitive science - available at: www.wtec.org/ConvergingTechnologies/Report/NBIC_report.pdf.

Narrative.

Contemporary use of digital networked technology, such as personal computers and smart phones, is effectively feeding a live global human behaviour laboratory with data scientists experimenting on an (often) unknowing pool of billions. The futures that might emerge from this research are as yet mostly unknown, but there are hints – as this data accumulates it can be analysed, mined and used in algorithms; patterns or trends invisible to the human observer can be identified; and seemingly random events become predictable.¹⁷ At this time prediction algorithms are predominantly being exploited by big industries such as banking, insurance and commerce, or examined in massive research projects such as the EU funded FuturICT project.¹⁸ They are, however, making surreptitious steps into our lives through tailored internet browsing and predictive shopping¹⁹ with occasional Kafkaesque consequences.²⁰

Returning to fig. 1, the developments described above represent [a.] – the here and now of data science. Using this starting point, *RPMs* extrapolates the potential of the technology motivated not by the interests of industry and research but by the more emotive and personal needs/desires of people – this has the purpose of communicating the transformative potential of big data in domestic life, and asking if the future possibilities described by the project are desirable.

The resultant extrapolation led to the concept of the *RPMs*. Returning to the criteria through which the project might be assessed, the first goal was to identify more poignant concepts to be predicted and to ensure the plausibility of these. This aspect was developed in collaboration with computer scientist Ramamoorthy (School of Informatics, University of Edinburgh). The following events are (to a large degree) predictable if the algorithm is fed by a sufficient amount of fixed data, such as genetic and historical information, and real-time feeds (sensory or RSS):

1. A domestic argument.
2. A heart attack.
3. A horse winning a race.
4. A son becoming a professional footballer.
5. Labour winning the next general election.

¹⁷ For example see *Culturomics 2.0*: www.firstmonday.org/article/view/3663/3040 and the FuturICT project: www.futurict.eu.

¹⁸ A €1 billion European Commission funded project to build a Living Earth Simulator. This will effectively model the myriad streams of big data - the social, political, ecological, cultural, biological and physical factors that shape the world in order to better understand the future. See: www.futurict.eu.

¹⁹ For example, Amazon was recently awarded a patent for 'anticipatory shipping' – the despatch of items before the customer has actually pressed the purchase button.

²⁰ The US retailer Target recently triggered what has been described as a modern day Kafkaesque story. The incident involved an unfortunate father who discovered a gift coupon for pregnant women sent by Target, in his daughter's name, to their house. The Father confronted the retailer upset that Target was sending unsuitable material to his young daughter. It subsequently turned out that the daughter actually was pregnant but that the retailer knew before the father; Target's hunch was based on its analysis of online searches and products purchased by the daughter - in particular for an unscented lotion that in some cases is used by pregnant women. (Duhigg, 2012, quoted in: Onkar Singh, *Crafting Narratives Catalogue*, London: Crafts Council. 2014, p.19.

Individuals can propose their own specific event to be predicted, we then determine the necessary and available data required for an algorithm to predict the event. Due to Ramamoorthy's experience in the field of sports science and developing algorithms for predicting injury, for the purposes of the *Crafting Narrative* exhibition we focused on predicting a heart attack.

Ensuring plausibility was a challenge. For the non-conversant audience (of big data) the serious promise of future prediction would most likely shatter Žižek coordinates of reality due to its relation to fortune-telling and the feelings of scepticism that related practices commonly elicit. Here we used the science – combined with relatively familiar and pertinent data sources to provide elasticity and suspend disbelief.²¹ The algorithm and Bayesian network diagram (fig. 4) used to predict a heart attack were presented alongside the objects in the exhibition.

The design of the device (fig. 3) was the next critical aspect, transforming the promise of the data into some form of artefact that could be used to represent the notion of prediction. In terms of communication the object simply needed to present three states – if the chosen event is approaching, receding or impending. Here we borrowed from analogue record players and the strobe effect used to calibrate timing. The output from the algorithm controls the rotation speed of a motor and in turn, the aluminium disc at the top of the cone. Internal strobing LEDs complete the effect.

Crafting Narrative was shown in a London gallery with the objects on perfect plinths between white walls... It effectively could be accused of all of the faults mentioned above. However, two things are not obviously apparent in such critiques of speculative designs. First, the process that led to exhibition. In this case (and in previous personal projects such as *Happylife*²²) the process involved extremely close collaboration with the science community in the development of the concept. This could be seen as the inverse of 'public engagement with science' – 'science engagement with publics.' The designer can effectively bridge the void between the disparate habitats of laboratory and domestic life, exposing scientific research to the complex needs and desires of people. It also has the potential to identify new research directions that are 'orthogonal' to the original aims and more closely related to everyday life.²³

Second, there is what happens after the exhibition. In this case *RPMs* is the first step towards a major new research proposal that will outline several new strands of related research, again in collaboration with the University of Edinburgh. We are also developing a fully functioning algorithm to predict a domestic argument with the aim of understanding the emotional and psychological implications of such a device (through working with experts in the appropriate fields).

Such technologies arrive in our everyday lives almost surreptitiously, for example, through small iterations in existing product lines. New untested services and

²¹ In the case of the heart attack, data sources include genetic predisposition from 23 and Me, supermarket reward card information showing diet and smart phone data via apps such as accelerometer data.

²² *Happylife* (2011) was commissioned as part of the *Impact!* exhibition, a joint project between the RCA, EPSRC and Nesta, bringing together 16 EPSRC-funded research teams with designers from the Design Interactions department at the RCA. *Happylife* was developed in collaboration with Reyer Zwiggelaar and Bashar A. Rajoub of Aberystwyth University. See: www.auger-loizeau.com/index.php?id=23.

²³ This was the feedback from computer scientist Professor Reyer Zwiggelaar after the *Happylife* (2011) project.

functions become available, transforming various aspects of our lives – and only when they become mainstream do we begin to analyse their impact. Regarding big data, Viktor Mayer-Schönberger and Kenneth Cukier pose some poignant questions: “As big data transforms our lives – optimizing, improving, making more efficient, and capturing benefits – what role is left for intuition, faith, uncertainty, and originality?”.²⁴ The purpose of *RPMs* is to begin questioning these technologies before they become an everyday reality.

A New Scottish Enlightenment (2014)

Mohammad Ali’s DI graduate project *A New Scottish Enlightenment* (2014) is an engaging and provocative example of an alternative present. Simply stated, alternative presents use the technique of modifying the outcome of a historical event and then extrapolating a new version of history.²⁵ There are three key factors that are specific to the success of alternative presents constructed through counterfactual histories, and I would like to add them to the aforementioned criteria. These criteria are:

1. The historical event on which the counterfactual is based. What are the contemporary issues that make the choice topical or poignant?
2. Choice of thematic. What is the most appropriate factor to focus on: the political/cultural/economical or technological consequences of the counterfactual?
3. Attention to detail, and in particular the use of historical styles and techniques.

In *A New Scottish Enlightenment* Ali postulates on a different outcome to the 1979 Scottish independence referendum.²⁶ In this version a ‘yes’ vote leads to the creation of a new Scottish government whose ultimate goal is the delivery of energy independence for its citizens, paving the way for a future free from fossil fuels (and the corporations that control them). The project was first exhibited at the Royal Collage of Art summer degree show – three months before the September 2014 Scottish independence referendum. This starting point (a simple yes/no vote) resonates because it vividly presents to the audience a life that *could* have been. It makes us think about the power of our own votes and the potential implications or missed opportunities of a ‘bad choice’.

The second aspect that gives the project a more general relevance is the agenda used to drive the extrapolation from its fictional starting point – a simple paradigm shift on energy generation and distribution. This is obviously a topical issue globally, however, contemporary approaches to alternative energy generation tend to happen through piecemeal developments or divisive policy shifts. By New Scotland defining ‘citizen energy independence’ its national goal, it becomes possible to begin outlining ways through which this might happen. The Energy Intellectual Property

²⁴ Viktor Mayer-Schönberger and Kenneth Cukier, *Big Data*, London: John Murray, 2013, p.195.

²⁵ I discussed alternative presents in a previous article titled “Speculative Design: Crafting the Speculation” (2013), using two DI student projects to describe the methods and motivations. It can be accessed through:

http://ellieharmon.com/wp-content/uploads/02-06-Auger_Design-Fictions.pdf

²⁶ The 1979 Scottish Independence Referendum controversially resulted in a no vote. See: www.bbc.co.uk/news/special/politics97/devolution/scotland/briefing/79referendums.shtml.

Rights Act 1984, for example, removes intellectual property rights for energy technologies as they are perceived as a barrier to the development of energy technology research; the Public Energy Act of 1985 sees individuals encouraged to prototype their own generating machines, and the Third Millennium Prize of 2000 is a competition held to rapidly realise the long sought-after dream of unlimited energy through nuclear fusion.

One of the key strengths of the counterfactual approach is how the extrapolation can provide a clear timeline- a set of logical iterations that can be used to communicate and describe the gradual divergence over time. So whilst alternative Scotland 2014 is highly fictitious, both in terms of societal structure and its use of technology, the vision succeeds because it makes clear how we might have arrived there had another choice been made 35 years ago. This project furthermore succeeds in plausibly combining political, economic, social, and technological elements in the fiction: a political agenda gives rise to new approaches to technology that encourage social and economic change. In order to communicate this alternative present, Ali decided to focus on the design of the technological artefacts. These were presented alongside government public information posters designed in the graphic language of the period.²⁷

Since the project was presented at the 2014 RCA degree show in June, Ali was invited to participate in Decision Time, a micro-festival at Dundee University that explored the decision-making practices in the context of the Scottish referendum on independence and is also running workshops with the London School of Financial Arts, on alternative economic systems (Scotland also voted No to devolution).

Where Do We Go From Here

My own undergraduate subject of study, and that of many of my contemporaries, was orthodox product design and as such the primary focus was on the arrangement of (real) elements to create something that did not previously exist. Once the object (let us assume it is an object) is complete, so is the task and the designer usually moves on to the next project: his role is fundamentally about the *creation* of the object. Speculative design is alluring (for many designers) for that very reason – it effectively introduces an almost unlimited number of new elements and possible plans into the creative act, and the removal of commercial constraints means that virtually anything is possible. This leads to two observations. First, no constraints means it can be considered a privileged activity. Second, the discussions or debates that are commonly stated as the motivations for speculative design fall outside of a designer's normative practice, expertise, or interest, as they happen post creation.

²⁷ In a recent interview Ali described his intentions for the project: "Much of this work allies with Frederic Jameson's paraphrasing of Slavoj Žižek, 'It's easier to imagine the end of the world than the end of capitalism'. This project is really about provoking thinking, about how we can foster alternative political systems which have a truly long term, globally inclusive philosophy. How do we create less damaging economic environments which fit better within our ecosystem, and how to give more exposure to one of the fundamental relationships that makes us human: energy, economics and politics?" In: Regine Debatty, 'A New Scottish Enlightenment', *We-Make-Money-Not-Art*, n.p., 2014. Accessed through: we-make-money-not-art.com/archives/2014/07/a-new-scottish-enlightenment.php#.VCKTAUvi4fN, on 31 July 2014.

Regarding the first observation: of course there are still constraints. These relate to how the (specified) audience perceives the speculation. The designer's challenge is to imbue their outputs with an *imaginary* value rather than real-world value; the constraints are therefore based on managing the speculation in order to ensure that the fictional element elicits a strong reaction whilst at the same time not being too easily dismissed as pure fiction.

The second observation relates to the purpose of speculative design, its operational realm, and its reach. As discussed above, we have for a number of years been developing and refining the practice. Our current research is partly based on generating a more comprehensive understanding of technological trajectories; identifying and documenting the agencies that influence or shape the technological future; and locating and encouraging collaboration with those positioned to critique and question futures. Recently, serious collaborations have begun to take place with scientists from a number of disciplines. This has had the result of improving the validity and design of the speculations, and at the same time influencing scientific research.

Approaches such as Science and Technology Studies (STS) and bioethics are far in advance of speculative design in their understanding of how social, political, and cultural values relate to scientific research and technological application; philosophers of technology have for decades been questioning notions of automation and our increasing dependency on technology. Psychologists are researching the impact of contemporary media (amongst other things) on the lives of humans. So far, designers (including speculative designers) have remained largely disconnected from these discourses, focusing instead on bringing products to market, or objects to exhibition. It is time to react to this situation – with a foot in the habitats of both technological development and of everyday domestic life, speculative design is perfectly placed to take a major role in the discussion on technology.

As I said before, speculative design is an evolving approach with blurry boundaries and a loose definition. It is without doubt a practice-based approach, meaning that the primary focus has, until recently, been on *how* to design speculations. As a consequence, I believe that this aspect has evolved in advance of our theoretical understanding of the *what* and *why* of speculative design. However, it is paramount that we further our understanding of the what and why if we wish to mature the practice, its methods, and its goals. Hopefully, this article can serve as a first step toward a more democratic and considered approach to future formation.

Writer Profile

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