Research Fiction: How to Build a Voight Kampff Machine

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Abstract

Tyrell: *Is this to be an empathy test? Capillary dilation of the so-called blush response? Fluctuation of the pupil. Involuntary dilation of the iris...*
Deckard: *We call it Voight-Kampff for short.*

Design fiction is a broad term that occupies a space within the wider miscellany of speculative design approaches and is appearing as a nasent method for HCI research. The factor that differentiates and distinguishes designs fiction from other approaches is its novel use of world building and in this paper we consider whether there is value in creating fictional research worlds through which we might consider future interactions. As an example we build a world in which algorithms for detecting empathy will become a major compnent of future communications. We take inspiration from the sci-fi film *Blade Runner* in order to consider what a plausible world, in which it is useful to build a Voight-Kampff machine, might be like.

Author Keywords

Design Fiction; Empathy; Voight Kampff; Blade Runner, Speculative Design, Research Through Design.

ACM Classification Keywords

HCI theory, concepts and models.

Introduction

Bruce Sterling is generally considered the originator of the term Design Fiction and provides the most widely cited definition of the practice: a suspension of disbelief about change achieved through the use of diegetic prototypes [10]. What differentiates design fiction from other speculative design is its novel use of world building to facilitate this suspension of disbelief. In many respects these worlds create what Huizinga described as a 'magic circle', "a place dedicated for the performance of an act apart" [4], and in design fiction the magic circle is a fictional world within which speculative prototypes, and their users, can plausibly exist.

The term 'diegetic prototype' has its origins in David Kirby's research into how science informs and is represented in cinema, where the diegesis is the interior of any given story world [5]. Thus, for HCI research, design fiction is not a means to directly evaluate a particular user interaction but rather consider a world in which that interaction makes sense to the prospective user. Thus design fiction opens up a discursive space between the researcher and prospective users to consider emergent interaction design [1].

Currently design fiction is arguably pre-paradigmatic and as the practice matures deeper questions around its nature are inevitably accumulating. However, while the number of examples of design fiction in HCI is growing [6] we believe that we do not yet have enough examples to draw meaningful conclusions as to the usefulness of design fiction as a research method. Thus we would argue that at the present time, using Frayling's consideration of design research [7], the best way to do research into design fiction, is to do research *through* design fiction.

Therefore, in this paper we consider the design process relating to the crafting of a fictional world in which empathy takes a more prominent role in future our communications.

Empathy

An oft-cited criticism of our increasingly online world is that text based communications still dominate, offering limited opportunity for the development of empathy between users and possibly encouraging more critical and confrontational interactions. Whilst there are a wide range of design methods that enable designers to develop empathy for the potential users of their products or services, there are none aimed at helping designers to create systems that actively encourage the development of empathy between those users.

While empathy has yet to be completely understood; studies thus far indicate the existence of three complementary, yet distinguishable, 'kinds' of empathy [2]:

1. Cognitive: The act of understanding how another person is feeling - but not necessarily experiencing that particular feeling yourself.

2. Affective: Actually experiencing the same feelings as another individual as a direct result of their affective state.

3. Compassionate: Feelings and/or expressions of concern and sympathy that are driven by empathy.

Figure 1. Voight-Kampff Machine in Blade Runner.

Example Question from Voight Kampff Test

You're in a desert, walking along in the sand when all of a sudden you look down and see a tortoise, The tortoise lays on its back, its belly baking in the hot sun, beating its legs trying to turn itself over. But it can't. Not without your help. But you're not helping. Why is that?

These considerations of empathy have been developed outside the technological arena, but with an increasing amount of our communication mediated through technology, often without any face-to-face interaction, in the design of technology empathy is a neglected a design consideration. However, within science fiction, the importance of empathy in relation to what it means to be human in a technological landscape, is a prevalent theme. The most notable example comes from the 1982 film, Blade Runner, which is an adaptation of Phillip K Dick's novel, Do Androids Dream of Electric Sheep [3]. Blade Runner presents a vision of the future with flying cars and sophisticated artificial humans known as replicants ('androids' in the original novel). Whilst the technology presents a compelling vision of a possible future in a highly technological age, it poses the more fundamental question of what its means to be human in such a society. This is explored through one of the central elements of the film, a test known as Voight-Kampff, that measures bodily functions such as respiration, blush response, heart rate and eye movement in response to emotionally provocative questions [9]. Replicants are unable to communicate the feeling of empathy for which these responses are indicative and, thus, are distinguishable from humans by the Blade Runners.

While a work of fiction, we would argue that many of the ideas embodied within the description of using physiological measurement and computer algorithms to detect empathy is also evident in much of the current research aimed at trying to automatically detect human emotions. Therefore, we will use the Voight-Kampff as inspiration for considering future communications in which empathy takes a more prominent role by building a design fiction world.

Design Fiction World Building

In the current age of digital development, the most common way of allowing the creation of new products and services is through software and tools that would allow deployment across a range of platforms. Therefore, the core of the Voight-Kampff design fiction world is the creation of the Digital Empathic Language (DEL) and associated Software Development Kit (SDK). An SDK allows developer/ designers to be able to utilise the core functions of programming languages such as the DEL. In doing so software developers can create new products and services. SDKs usually include a reference library detailing precisely what core functions are available to developers, so as part of the world building process for this design fiction a complete outline for the functionality, an overview of this is illustrated in Figure 2.

Figure 2. Empathy SDK Features.

Having designed the platform through which empathy products and services could be created the question arises as how do we create plausibility for this platform without actually developing it. In the past many startup companies developing new technical products would seek venture capital investment. In recent years
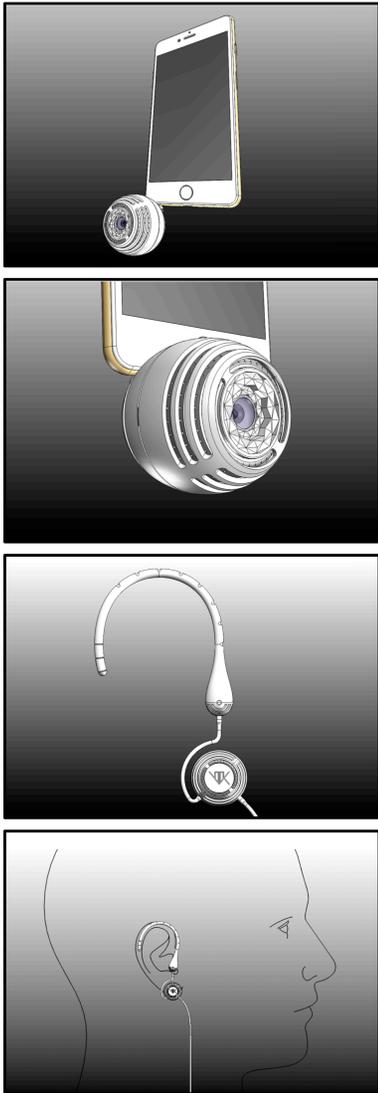
Figure 4. Voight-Kampff Machine as iPhone add-on.

crowdfunding has become commonplace through rewards based services such as KickStarter. There is a strong argument to be made that all the products and services on KickStarter are fictional until they are made tangible through first reaching their funding goals, but more importantly through successful research, development and production, after funding is achieved. Crowdfunding services such as Kickstarter typically require short videos to promote the proposed product or service, and in this instance we decided to adopt this form to present the DEL SDK design fiction.

Figure 3. Collection of Screenshots from Empathy SDK Video.

The video [https://youtu.be/64GntbVwIGw] shown in Figure 3 presents a scenario where a team of computer scientists discuss the need for greater empathy online and how this could be achieved through the creation of an empathy SDK. They describe a series of plausible scenarios and use cases to illustrate the empathy SDK's potential. Having invoked the design fiction world by creating the empathy SDK, the story world can be

populated with more specific artifacts that make sense within it.

Voight Kampff Machine

In the film Blade Runner this design of the Voight-Kampff machine was a briefcase sized device which clearly echoed designs of the computers and polygraph machines of 1982 (the year the film was released). Today, in an era when smartphones and tablets are ubiquitous, it is more plausible to imagine an empathy detecting device either within a smartphone, or as a peripheral device to be used in conjunction with a smartphone as illustrated in Figure 4.
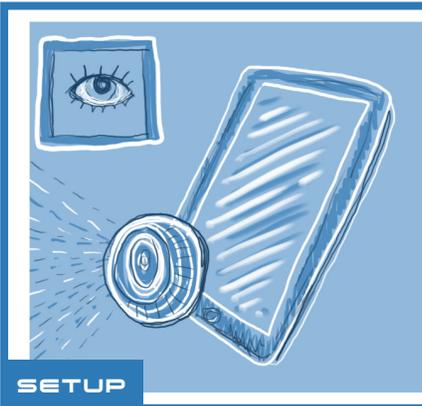
In terms of proposed uses of the device, detecting rogue androids is not *yet* a plausible scenario. Instead we envisaged the device being used as a way of gauging empathic responses in online communications between individuals not known to each other, for example, via online dating services.

Design fiction is 'something that creates a story world' and 'has prototypes within that story world' [6]. The word 'something' could actually mean 'almost anything', in other words, design fiction can be 'almost anything that creates a story world' (e.g. a film, a poster, an advertisement, or a play). Whilst we could have created a video we wanted to explore whether the alternate format was equally good at engaging people within a plausible future world. Therefore to explore the previously mentioned dating scenario we created the comic which comprises the subsequent pages of this paper and explores the use of the Voight-Kampff iPhone add-on shown in figure 4.
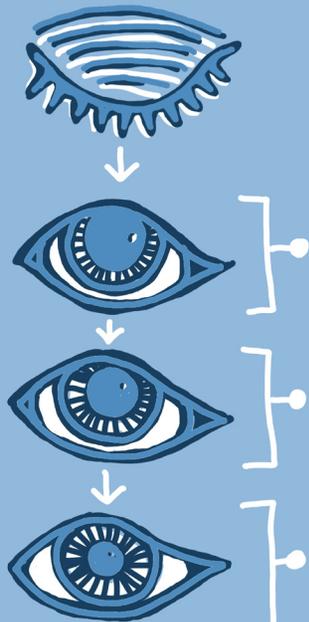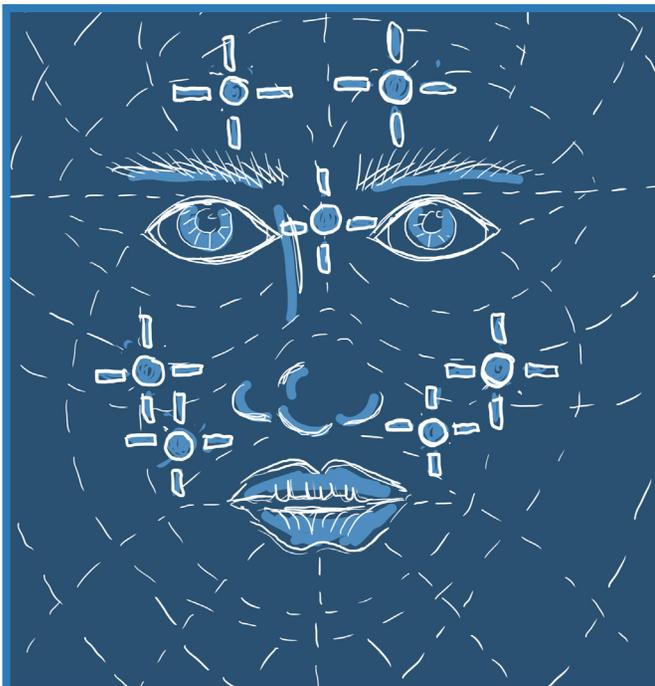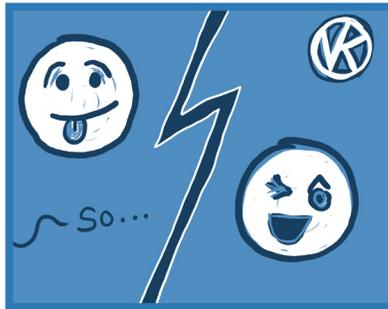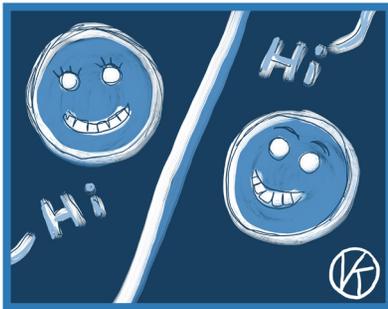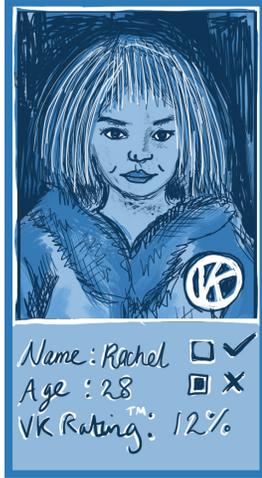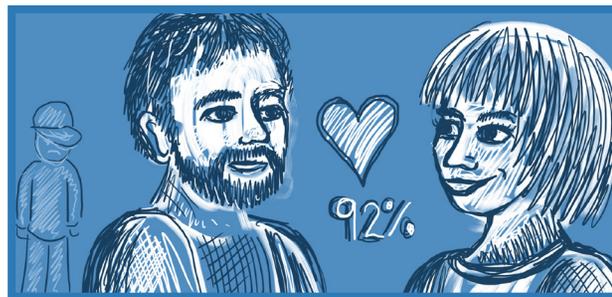
SETUP

CALIBRATE

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VIEW PICTURES

BLUSH RESPONSE CALIBRATION
please align face to grid and
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CENSORED

CENSORED

CENSORED

Empathy SDK Video

The video has obtained over 900 views and has attracted many positive comments, as well as press enquiry, it was an email correspondence that perhaps most confirmed the plausibility of the fiction.

We were contacted by a documentary film maker from the US who wanted to produce a film about our creation of a Voight-Kampff machine. Whilst we wrote back and explained the fictional nature of the project it took a considerable effort to convince the filmmaker we had no intention of actually making the Voight-Kampff machine. Perhaps this indicates that the media may be seduced by the story worlds created through design fiction practice, and it would be easy to try and garner publicity by creating a hoax that was only marginally more elaborate than this design fiction.

Conclusions

Like many techniques that plot current trajectories in order to create compelling future visions as a means to reflect on our present, the ability of design fictions to perform as rhetorical tools is generally attributed to the plausibility of the worlds they present. If we consider dictionary meanings of plausible, it is synonymous with 'something that is not obviously untrue'. However, design fictions are untruths by their very nature so a successful design fiction should strive to be 'not obviously untrue' notwithstanding the fact that at its heart is intentionally, and fundamentally, untrue. This contradiction creates tension, a tension stemming from any design fiction's intention to showcase unreal worlds in a manner that strives to appear real. The properties that can influence the relationships between these factors are at the behest of the speculative designer's crafting of any given design fiction world, and whilst this presents and wide range of potential dilemmas for academic researchers, in this paper we are exploring how designers make decisions relating to this world building.

In this case the world we are building is itself inspired by the fictional world depicted in the film Blade Runner. In particular, we take the core tenant of the film which equates the notion of what it means to be human with our ability to express empathy. In the film a test for empathy is used to identify replicants using a Voight-Kampff machine. We re-imagined the Voight-Kampff device as a means of facilitating a discussion around the apparent lack of empathy evident in much of our online communication.

The world created to evoke such a discourse consists of the design of an SDK and an accompanying video which is created in a style that intends to be deliberately reminiscent of videos related to *real* projects appearing on crowdfunding services like Kickstarter. Having created a design fiction world, we are then able to populate the world with prototypes that can be used to focus on specific aspects of debates *about* that world. In this case we are evoking insights into the increasing promotion of using physiological measurement and computer algorithms to automatically detect human emotions such as empathy using consumer level technology, perhaps like the Voight-Kampff machine. Going further down the design fiction rabbit hole we present a possible use case of such a device in the form of comic which is intended to open a discourse around practical and ethical implications of how such automatic emotion detecting technology might be used in practice. The choice of the comic is part of an exploration into the format of design fictions and recognises they may well have much to offer in relating science discourses.

We intentionally do not present, what might be considered by many HCI researchers, as 'tangible results' for any of these artifacts as we are primarily interested in the research through design (RtD) process in their creation. As such they highlight that design fictions are often nested with different levels of narrative to produce a 'russian doll rhetoric' that can be used to evoke particular discourses. Whether they are successful in evoking certain debates or even whether this is an appropriate measure remains a larger question around design fiction more generally. However, we believe the detailing of the process by which we created a plausible Voight-Kampff machine, most practically exemplifies the notion of what Sterling means in his description of design fiction as:

"deliberate use of diegetic prototypes to suspend disbelief about change... It means you're thinking very seriously about potential objects and services and try to get people to concentrate on those – rather than entire worlds or geopolitical strategies. It's not a kind of fiction. It's a kind of design. It tells worlds rather than stories."

On a final note we would add that while RtD is now much discussed in HCI research, its appearance in papers is often appears as a way of quickly describing the process of creating the artifact and the majority paper discusses some evaluation of the artifact. In this paper we are deliberately describing the RtD process (in line with Frayling's original characterization) in the style of an annotated portfolio not only as a way of considering design fiction, but to also provoke a debate within the review of this paper. Is this a valued approach to research, or are we simply just making stuff up?

Acknowledgements

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