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The Solution Printer: Magic Realist Design Fiction

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Abstract

This paper is presented as a “design fiction” because nobody would accept these findings in any other form though they are as true as anything else published at CHI. It begins with empirical investigations into the infamous dream simultaneously experienced by thousands of people. We describe the development of a device designed to capture images from that extraordinary dream. This was a prop, or diegetic prototype that unexpectedly began to work. We then report a range of other fictional devices developed at the Solutionist Studio which began to function as described. We argue that the line between fiction and reality has become entirely porous.

Author Keywords

Design Fiction; Research Through Design; Magic

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous;

Introduction

The collective dreaming on the night of the 7th of July 2015 had a profound effect on the lives of the millions across the planet who experienced it. While there is a growing body of evidence that the event occurred as described by participants, “the oddness” is still

dismissed as a mass hallucination, a localized manifestation of the collective unconscious or a fraud. Although we ourselves experienced the dream we acknowledge that we cannot prove anything within the terms of the current (doubtless temporary) positivistic epistemologies of HCI.

Despite the testimony of many thousands of people the idea that this dream was indeed shared or jointly experienced has been largely dismissed by the scientific community. At most it is conceded that people *thought* they had shared an experience, a subtle but important distinction. Some commentators have speculated that a hallucinogenic substance was introduced to the water supply in the cities most seriously effected. This then was a terrorist act designed to cause not merely the physical fear of an explosion or death but rather an existential fear, a spiritual or religious terror of the kind previously confined to people who take the Book of Revelation seriously.

But the dream is for the most part not discussed at all in the scientific literature. This may be due in part, to the slowness of journal publications and the time that it takes to conduct a scientific investigation. But it may also be due to the materialist dogma at the heart of the scientific community. The dominant western epistemology excludes as a matter of principle, the miraculous and the marvelous.

The extent of the dream share seems to have been sporadic, appearing with greater or less intensity around large urban conurbations around the world. But in our lab “the Solutionist Studio” everyone within a thirty mile radius shared the dream. We all woke up having spent the night wandering the ruins of our city

in a shared dream. Many of us believed that this was a glimpse of our last winter. The effect on the research being conducted in the lab was immediate. Projects investigating the ways we might influence behavior to reduce carbon footprints now seemed irrelevant. Those of us working on projects to put accelerometers into anything that moved became disinterested: what was the point of trying to measure minutiae that might or might not improve our health when we were shortly about to cease to exist. It wasn’t even fiddling while Rome burned, at least this would be making music; it was measuring the string vibrations on a fiddle somebody else was playing.

Those of us interested in design fiction [e.g. 1,2,3,4,6,7] also became totally disillusioned with the research topic. And yet we also recognized that fiction was perhaps the only way for us to come to terms with what was happening. Fiction after all, resolves at the level of fantasy, that which cannot be resolved in reality [8]. The design fiction which we had been writing was essentially rationalistic and clearly we no longer lived in rational times. For us the design fiction inspired by the work of William Gibson or Bruce Sterling [16,17,18] and the other cyberpunk authors looking fifteen minutes into the future was not enough when in twenty minutes time there would be no future at all. We had now begun to inhabit a world like that imagined by Salman Rushdie where:

“the laws which had long been accepted as the governing principles of reality had collapsed”. (14: 55)

For Rushdie and other “magic realists” the only response to times such as ours is a literature full of marvels and wonders that are so much a part of the

everyday that they are hardly remarked upon let alone explained.

The distinctions between one kind of fiction and another are to an extent arbitrary. The divisions between science fiction, horror and fantasy for example are the invention of booksellers. When the literary novelist Kazuo Ishiguro started writing about ogres he was surprised to discover his work in a new section of the bookshop [9]. But the magic realist tradition exemplified by writers like Gabriel Garcia Marquez, Rushdie and Borges has a very long pedigree going back to the Tales of the Arabian Nights which some regard as the earliest surviving outpouring of the human imagination. The magical transformations that occur in the Arabian nights are reminiscent of the metamorphoses in Ovid and later in Kafka. In this tradition magic remains magical it is not, as in science fiction, explained as a technological achievement. The magic in magic realism is inexplicable, mysterious and ambiguous.

This paper reports the extraordinary events in our lab following the development of a digital dream catcher, originally conceived as a prop representing a device that might photograph the dream we all shared. This was developed as a diegetic prototype but against all expectations it began to function. As more researchers in the lab began to create fictional prototypes these too began to function. We describe the development of the digital dream catcher and the other devices that followed culminating in the development of a Solution Printer.

The Digital Dreamcatcher

The dreamcatcher was originally conceived as a device that would produce interesting images that might stimulate reflection and discussions around the shared dream. The digital dreamcatcher consists of two modules: a portable module to be placed by a bed for data capture and a base module, for interpretation.



Figure 1: Portable unit front and back, base unit

The portable module consisted of a FEZ SPIDER mainboard from GHI Electronics, and a set of Microsoft Gadgeteer compatible modules attached to it: a temperature sensor, a compass, an infrared sensor, a low resolution camera, an LED Matrix and a SD Card module. On a functional level, periodic readings from the sensors are represented by the LED matrix and logged into a file on a SD Card. At the same time, when the infrared sensor detects movement a photograph is taken and stored in the SD Card. The portable module thus captures images of a dreamer dreaming.

The Base module was built by connecting together another FEZ SPIDER mainboard, a low resolution camera, an SD Card, a joystick and a LED screen. When a participant returns the portable module it is

attached to the base and the SD card is inserted into the module. The camera is subsequently activated to capture images of the retina of the participant. These images are processed and altered by the information (sensor readings and photographs) gathered by the portable module and stored in the SD Card. Finally, the resulting dream images are revealed in the LED screen. When a participant looks into the viewer we see them seeing. Both modules were programmed using C# as language and .NET Gadgeteer as framework into the memory of the FEZ SPIDER mainboard modules.

We were planning to add a Photoshop script that would place the images of the dreamers dreaming within desolate city landscapes, the ruined buildings that we had all seen. This plan was abandoned when the device began to spontaneously produce the images we had seen in the shared dream.

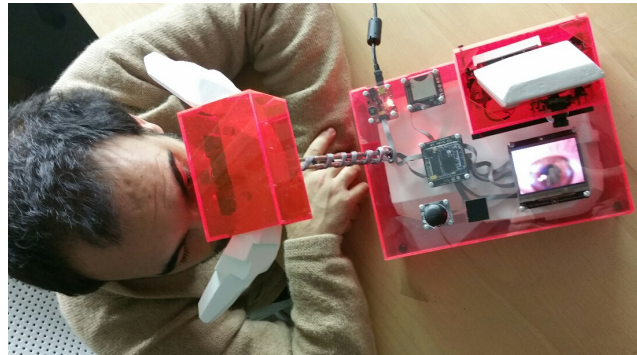


Figure 2: A participant undergoing retinal analysis with the base module.

Participants were instructed to locate the device in the space where their dreaming usually took place. After

retinal inspection of the participant, raw material (dream images) began to appear on the LED display.



Figure 3: The portable module installed at the bedside of a participant in order to record the context of dreaming and construct a timeline of dreams

At first it was not clear to us what the dark shapes that the device began to reveal were. Only after staring for a long while at the first images did we realize that what we were seeing was the silhouettes of buildings on a horizon. Once we had made this discovery we began to understand that the city we were looking at was our hometown, Newcastle. And yet it was not the city we knew. The familiar buildings around the riverside were now derelict and empty. Nature had begun to reclaim many of the structures, weeds were growing through the iconic silver shell of the Sage building, the great tower of the Monument had crumbled and fallen to rubble, grass grew through the platforms of the train station.

Data from the first three participants showed the same bleak images of a desolate and abandoned city. As in the shared dream we saw a Newcastle devastated by

some natural disaster, terrorist atrocity or perhaps, simply decaying and crumbling like Detroit after long economic stagnation.

As more data was collected from different participants we began to see the gigantic figures that appeared to all of us who shared the dream. From some perspectives the strange fluid figures looked almost human, or angelic. In others they appeared to be monstrous, perhaps holding weapons. For many participants this was confirmation that the dream really had been shared, they were not crazy:

P4: Oh my god! You've photographed the dream! This means it really happened doesn't it? We weren't hallucinating!

Other participants remained skeptical.

P7: Well it's a nice little show you've got going on with your dream catcher but you've obviously Photoshopped it all. It is pretty much what I saw in the dream but I guess you saw it too so that's how you know what it looked like?

For some participants the images proved not only that the dream was real but that we were now living in the "end times" and that the dream had been a prophecy. Some attributed the images to some sort of technological telekinesis, others to a form of divine revelation. A minority of the participants thought that a fraud or deception was being perpetrated and organized by the government



Figure 1: Photograph produced by the Dream Catcher.

Perhaps the most interesting interpretation of the images was that the machine itself had learned to dream. Somehow our dreams had spilled over into this device and as the end of the world grew closer the boundaries between fiction and reality were becoming more porous. The following table roughly summarizes the participants' interpretations of the images

Interpretation	Number of Participants
Technological Prophecy	43
Divine Revelation	22
Government conspiracy	15
Fraud	13
Don't Know	7

Table 2: Interpretation of the images



Figure 4: Photograph produced by the Dream Catcher.

MetaRationalizations

Frederic Jameson famously remarked that it is easier to imagine the end of the world than to imagine the end of capitalism [12]. No doubt it is also easier to dream about the end of the world, Hollywood has been doing almost nothing else for the past twenty years. Picturing the destruction of famous buildings is good box office and increasingly easy, even for amateurs, to portray with Photoshop and After Effects. Psychotherapists have argued that the notion of the end of the world is ultimately comforting. If we believe the world is going to end then our own death is no longer irrelevant: the earth itself becomes mortal along with us. Thus we are spared the awful thought that life will go on without us. There is then something ultimately reassuring about the apocalypse [21]. This shared dream from this perspective was nothing more than a standard wish fulfillment in responses to a drive as old as Eros,

Thanatos – the death drive. But the dreamcatcher photographs of the dream convinced many, including the members of our own lab that something new was happening. The laws of nature had changed.

Functioning Fakes

As we investigated the images other researchers in the lab began to create fake prototypes that also began to function. Day by day more researchers would bring in strange devices that they had made as props to illustrate ideas. Once presented in the lab, they all began to function as described. One by one a collection of functioning fakes began to build up.

The Book of Sandpaper

A designer created a leather bound book she claimed was an infinite compendium of lost and forgotten books. Wherever it was opened it showed fragments of legendary texts: Aristotle's book on comedy, a first person gospel by Jesus Christ, a Shakespeare play about a journey to the moon. The book always seemed to open at a text that each reader somehow needed in that moment. An RA in the very depths of despair was consoled by a passage on the joy of lost love from one of Cleopatra's diaries. An administrator with a broken heart found lines from a burned Kafka novel that made him think he might one day laugh again. The book never showed the same passage more than once and it appeared to be infinitely large.

The Author Eraser

A sociologist presented a device he called the author eraser. It looked something like a small vacuum cleaner and when it was passed over the list of authors on the front page of an academic paper it sucked off the names of all the senior academics who had added only

minor edits or made no contribution at all. Not only did it Hoover the names from the physical piece of paper it removed them from all digital archives as well.

The Asset Stripper

A computer scientist demonstrated an asset stripping virus by asking a Professor who had recently amassed a small fortune from a spin off company to check his bank balance during the presentation. When the Professor looked at his banking app he saw his balance decreasing dramatically. As the audience members checked their bank apps they realized their balances increased the closer they stood to the Professor. The computer scientist explained that it was redistributing his wealth. The Professor fled from the campus pursued by a crowd waving their mobiles and thanking him.

GossApp

A game designer developed an app that allowed users to gossip anonymously about their neighbors. Anyone who was discussed on the app immediately succumbed to the descriptions on it. If a man was described as fat he immediately gained weight. If a woman was denounced as a drunk she developed a drinking problem. If someone was said to be looking old their wrinkles immediately deepened. The effects could not be reversed so victims took revenge by speculatively cursing others as they had been cursed.

The Brilliantification Pad

An artist created a dictaphone-like device to be worn on the sleeve at all times. It would listen to conversations and type a manuscript that would turn half formed notes into brilliant insights and ideas. It produced a succession of fantastic ideas no matter who it was attached to or how dull their conversation. The

most banal clichés were transformed into profound poetry. The silliest notions morphed *into the most brilliant inventions*.

The Solution Printer

A young researcher finally decided to create a solution printer. Adapting the largest 3D printer in the lab she created a device which would print solutions to whatever problem was specified. The first print outs addressed some of the fairly trivial problems that beset members of the lab: there was a machine that cured baldness, a skin stretcher that would iron out wrinkles without leaving the surprised look of plastic surgery, there was a volume control to turn down loud and vexatious people.

The researcher became convinced that this solution printer could avert the catastrophe that we had all dreamed about. She specified a device that would provide energy without creating an environmental catastrophe. It printed out a windmill. Following the conservative Philosopher Roger Scruton's demand for a "real solution" to global warming [15] the researcher specified a device that would provide us with the energy we need without disrupting our lifestyles in any way or spoiling the landscape.

The solution printer duly produced a perpetual motion machine but the apocalyptic images of the shared dream persisted. The researcher tried specifying other problems that may have produced the desolation we saw in the dream images; so far she has not succeeded in creating anything to alter the visions of destruction first glimpsed in the collective dreaming. Eventually she concluded that the solution printer cannot save us because we do not understand the problem.

Discussion

Since the “oddness” that began with the collective dream it is now obvious to everyone in our lab that the laws of nature have become unstable. We have arrived at the limits of reason specified by Hume in the eighteenth century. Hume argued that just because bread nourished him yesterday this was no guarantee that it would do so the next day:

“I shall allow, if you please, that the proposition may justly be inferred from the other: I know for a fact that it always is inferred. But if you insist that the inference is made by a chain of reasoning I desire you to produce that reasoning.”

(David Hume, 1902, p.34)

GK Chesterton pointed out at the beginning of the twentieth century that the laws of nature are not laws at all coming to this conclusion by way of studying the laws of fairyland:

“As I put my head over the hedge of the elves and began to take notice of the natural world, I observed an extraordinary thing. I observed that learned men in spectacles were talking of the actual things that happened—dawn and death and so on—as if *they* were rational and inevitable. They talked as if the fact that trees bear fruit were just as *necessary* as the fact that two and one trees make three. But it is not. There is an enormous difference by the test of fairyland; which is the test of the imagination. You cannot IMAGINE two and one not making three. But you can easily imagine trees not growing fruit; you can imagine them growing golden candlesticks or tigers hanging on by the tail.” [10]

It has long been understood that fictions sometimes become real and ideas that were once fantasies can break through from the world of the imagination into reality. In 1907 when the idea of a flying machine was, to most people, nothing more than a fantasy, HG Wells wrote “The War in The Air” predicting aerial warfare a decade before bombs began to fall from actual warplanes. After reading some obscure papers on the properties of radium Wells realized that if the new form of energy that the scientists were imagining could be harnessed then a bomb could be made. In 1913 he published “The World Set Free” asserting that the atom bomb was invented in 1956. Reality caught up to Wells before that in 1945 when this terrifying fiction was dropped onto Hiroshima and Nagasaki.

There is of course a well documented feedback loop between the imaginings of science fiction writers and engineers [6]. The influence of Star Trek on the development of the mobile phone is self evident. The inventor of Quick Time is on record as saying that he got the idea from an episode of the Next Generation when Data walks into his room and asks to hear Mozart. But fiction today is penetrating the real at a much faster rate than ever before. The speed of change is so dizzying that it cannot but appear miraculous. At the Solutionist Studio it is now only necessary to describe a device for it to exist.

Wells begins “The World Set Free” with an account of humanity’s development from its first appearance on the planet. Once “Man” has made tools enough to distinguish himself from his nearest ancestors there appears a storyteller. This storyteller tells eager listeners of a day to come when some hero will battle with a mammoth and win. It is this “seeker” that

dooms the mammoth and propels the development of civilization forward.

“Such a man was that Leonardo da Vinci, who went about the court of Sforza in Milan in a state of dignified abstraction. His commonplace books are full of prophetic subtlety and ingenious anticipation of the methods of the early aviators. Durer was his parallel and Roger Bacon - whom the Franciscans silenced - of his kindred. Such a man again in an earlier city was Hero of Alexandria, who knew of the power of steam nineteen hundred years before it was first brought into use. And earlier still as Archimedes of Syracuse, and still earlier the legendary Daedalus of Gnosso.” [19].

HG Wells would have found nothing surprising in the notion of “design fiction”. Sterling makes a distinction between science fiction that is fantastical and design fiction which makes “more sense on the page” [16]. But Wells’ science fiction was always plausible, so was that of Leonardo and Archimedes.

Plausible fictions do not account for the events at the Solutionist Studio where fake prototypes become real. In the *Satanic Verses* Salman Rushdie writes of a hospital ward full of mythological creatures such as manticores. A man with a tiger’s head explains that the English are responsible: “They have the powers of description, and we succumb to the pictures they construct.” In his latest novel Rushdie describes a nurse whose arms start to rot when she picks up a baby. It later emerges that she was stealing medical supplies to sell them to drug addicts and as the story progresses it becomes apparent that the baby exposes corruption [14]. The metaphoric corruption of bad faith becomes real rotting flesh. Magic realism often

proceeds by making metaphors real. In this sense magic realism is an accomplishment of language. The wonder tales of the Arabian Nights, the transformations of Ovid, the metamorphoses in Kafka, the miracles that take place in Gabriel Garcia’s town of Macondo - none of these can be accounted for with the notion of advancing reason and technological progress. These fictions offer no scientific explanations nor speculate on how technologies might accomplish the wonders described. Magic realism answers no problems and offers no solutions futuristic or otherwise. But these wonder tales are the oldest form of literature that survives to us and it can articulate human fears and desires that are perhaps deeper than those described in the fantasies of rationalistic design fiction.

Conclusion

This paper has described fictions that became reality in the Solutionist Studio. The lab was given its title in a spirit of irony. Morozov defines solutionism as solutions for problems that do not exist or quick fixes for complex social, political and environmental problems [13]. We called our lab “the Solutionist Studio” in a spirit of irony in the hope of avoiding that kind of thinking; but the irony was on us. We present our findings here as a piece of magic realism because we know that if we claimed them to be true we would not be believed. And yet the only fiction presented here is the notion that this is fiction.

References

1. Bardzell, S., Bardzell, J., Forlizzi, J., Zimmerman, J. and Antanitis, J. Critical design and critical theory: the challenge of designing for provocation. *Proc. DIS '12*. ACM (2012), 288-297.

2. Blythe, M. Research through design fiction: narrative in real and imaginary abstracts. *Proc. CHI 2014*. ACM (2014).
3. Blythe, M. and Buie, E. Digital Spirits: report of an imaginary workshop on technologies to support religious and spiritual experience.
4. Buie, E. and Blythe, M. Spirituality: there's an app for that! (but not a lot of research). *Ext. Abstracts CHI 2013*, ACM (2013), 2315-2324.
5. Chesterton. GK. *Orthodoxy*. 1908. New York. Dodd Mead and Co
6. Dourish P. and Bell G. "Resistance is futile": reading science fiction alongside ubiquitous computing. *Personal and Ubiquitous Computing*, 18, 4 (2009), 769-778.
7. Dunne, T., and Raby, F. *United Micro Kingdoms (UMK) Design Fiction*. The Design Museum, 2013.
8. Eagleton, T. *Literary Theory (2nd ed.)*. Wiley-Blackwell, Hoboken, NJ, 1996.
9. Gaiman N & Ishiguro K (2015) "let's talk about genre". The New Statesman. <http://www.newstatesman.com/2015/05/neil-gaiman-kazuo-ishiguro-interview-literature-genre-machines-can-toil-they-can-t-imagine>
10. Hume., David, 1902: *An Enquiry Concerning Human Understanding*. Oxford, Clarendon Press.
11. Jameson, F. *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions*. Verso, London, 2005.
12. Jameson F. (2003) Future City. *New Left Review*. <http://newleftreview.org/II/21/fredric-jameson-future-city>
13. Morozov E. *To Save Everything, Click Here: Technology, Solutionism and the urge to fix problems that don't exist*. Allen Lane. Penguin 2013
14. Rushdie R., (2015) *Two Years Eight Months and Twenty Eight Nights*. Penguin. Random House UK.
15. Scruton. R (2015) *The Only Conservationist is a Conservative*. Coleridge Lecture. <https://www.youtube.com/watch?v=flzH2Bd4kEs>
16. Sterling, B. *Shaping things (Mediawork Pamphlet)*. MIT Press, Cambridge, MA, 2005.
17. Sterling, B. *Fantasy prototypes and real disruption*.
18. Sterling B. *Patently untrue: fleshy defibrillators and synchronised baseball are changing the future*. *Wired* <http://www.wired.co.uk/magazine/archive/2013/10/play/patently-untrue>
19. Wells H.G. (1907) *The World Set Free*. Kindle edition 2015
20. Wells H.G (1913) *The War in The Air*. Kindle Edition 2015
21. Zizek S. (2011) *Living in the end Times*. Verso