Research Fiction: Storytelling, Plot and Design

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# ABSTRACT

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What kind of stories and plots do researchers of Human Computer Interaction draw on when they make fictions? This paper applies the “basic plots” identified in the study of literature to scenarios, speculative design and design fiction. Traditional HCI scenarios employ the plot of “Overcoming the Monster” where the monster is some problem to be solved. Much of the commentary on critical, speculative or adversarial design also draws on this plot as it attempts to overcome monsters like public apathy or a lack of debate. Design Fiction more frequently takes the form of a “Voyage and Return” or a “Quest”. The paper argues that a better understanding of plot and storytelling could contribute to more reflective research fiction.

## Author Keywords

Design fiction, scenarios, personas, critical design, speculative design, adversarial design, solutionism

## ACM Classification Keywords

H.5.m. Information interfaces and presentation

# INTRODUCTION: THE Uses of fiction

Narrative is fundamental to thought and communication: we tell stories not just in novels and films but also in academic conferences and journal articles [4, 15]. The founding narratives of HCI were based on lab based experimentation. As the field expanded ethnographers returned from field studies with different kinds of narrative: qualitative reports from field studies that were described as “surprisingly useful.” [46]. Some HCI work also included entirely fictional narratives developed in the process of design. Design is a fundamentally imaginative act that involves picturing the world as other than it is. Many forms of design (e.g. scenarios, personas, sketches, speculative design and design fictions) can be thought of as research fictions, in the sense that they are imaginative responses to questions. Fiction is often considered as an escape from reality so it might seem rather odd that it plays a part in research. Research is supposed to be concerned with the real world isn’t it?

Within anthropology it has long been recognized that ethnography is a literary practice. James Clifford and others pointed out that literary devices and conventions shaped the narratives of anthropological ethnography to such an extent it was possible to argue that ethnographers were not writing *about* culture but rather *writing culture* [20]. The observational practices ethnographers employed in fieldwork as well as the conventions they used to write up their findings meant that they were not simply recording the world but rather creating particular versions of that world. Clifford’s book was deeply controversial within Anthropology and its criticisms were often countered with arguments around reflexive practice. Awareness of the ethnographer’s own positions and writing practices would help them check their own preconceptions and biases. But it was also argued that there was value in ethnographic writing whether it could make any ultimate truth claim or not [35].

Carlos Castaneda, a student of Harold Garfinkel, turned his PhD study on the uses of peyote amongst native Americans into a best selling book, *The Teachings of Don Juan* [18]. This book contained many stories of the enigmatic Don Juan who, for example, tells the youthful narrator that he must find the right place on the floor to sleep; after vainly searching for some part of the floor that feels any different to another he gives up and falls asleep till the next morning when Don Juan congratulates him on finding exactly the right spot. The book also contains many vivid accounts of spiritual visions induced through ritual and peyote. It is now widely believed that this book was almost entirely fictional and it has been condemned as an abuse of ethnomethodology [14]. And yet it remains a bestseller that readers continue to value. Why? In other words: what is fiction for?

Fiction presents us with worlds we can enter into that are fundamentally different to our own. It presents characters who are not like us, with lives that are different to ours. Fiction allows us to imaginatively enlarge our point of view. Ethnography also allows us to look at the world in different ways. It has, for example, helped engineers and computer scientists to imagine what it would be like to be an air traffic controller. Pierre Bourdieu argued that the first task of sociology was -

“to manage to think in a completely astonished and disconcerted way about things you thought you had always understood.” [12]

The results of psychological lab tests, the findings from ethnographic field studies and the fictions we produce all help to trouble and disturb that which we might think we already understand. Of these narrative forms fiction is the wildest and most disreputable: it is not scientific or in any sense disciplined. And yet it is not random or without form either. This paper argues that research fiction is likely to draw on some of the basic stories and plots that are common in the culture. But what do we mean by plot, story or, if it comes to that, narrative?

**NARRATIVE , STORY AND PLOT**

The philosopher and critic Roland Barthes pointed out that the narratives of the world are numberless, taking forms as varied as: myth, novella, history, painting, stained glass, cinema, news and conversation [4]. Setting such radically different forms against one another might seem utterly reductive, hopeless and futile (ibid). But following analyses of literature like Propp’s morphology of the Russian folk tale Barthes argued:

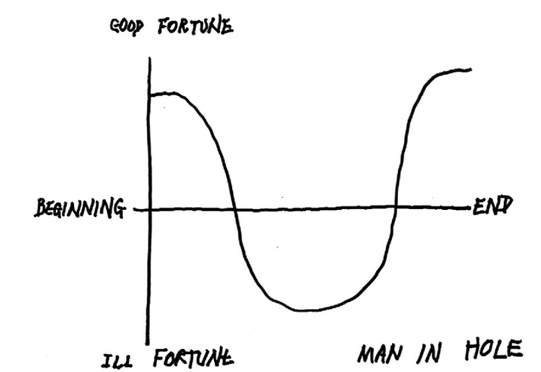
“either a narrative is merely a rambling collection of events, in which case nothing can be said about it other than by referring back to the storyteller's (the author's) art, talent or genius - all mythical forms of chance - or else it shares with other narratives a common structure which is open to analysis” [ibid]

The field of Narratology is now very large and there are many competing theoretical accounts and definitions of key terms. Brannigan’s definition of narrative includes not just structure but also judgment:

“narrative is a perceptual activity that organizes data into a special pattern which represents and explains experience. More specifically, narrative is a way of organizing spatial and temporal data into a cause-effect chain of events with a beginning, middle, and end that embodies a judgment about the nature of the events as well as demonstrates how it is possible to know, and hence narrate, the events.” [15]

The novelist EM Foster famously distinguished between a story and a plot with this illustration: “the King died and then the Queen died” is a *story* because it is a chain of events but “The King died and then the Queen died of grief” is a *plot* because it links the events together [30].

The idea that there are only so many plots and that each new tale is a variation on them is a very old one dating back at least as far as Aristotle’s *Poetics*. The American writer and humorist Kurt Vonnegut argued that common plots or as he called them, “story shapes” were so simple that they could be fed into a computer. He expressed story shapes as graphs with the X axis as “the beginning and end” and the Y axis as “good and ill fortune”. The “man in the hole|” story shape begins with someone high on the fortune axis (because who wants a depressing character) plummeting into a hole and then getting out of it. Vonnegut advised his audience that people love these stories and anyone telling them can make a million dollars [55].



**Figure 1: Kurt Vonnegut Man in a Hole Story Shape**

In a large study published in 2004 the aptly named Christopher Booker, found very persistent plot lines that crossed ages, continents and cultures [10]. Although metaphor has received some attention in HCI [e.g.1] there has been less focus on the uses of plot. Yet common plot patterns are structuring principles of many of the narratives of HCI.

## Booker’s Basic Plots

Booker’s taxonomy of plots is one among many but it has the advantages of still being taught on literature and media courses and also being very accessible. Booker begins with the following basic plots: *overcoming the monster, rags to riches, the quest, voyage and return* [10]. These four plots are widely resonant in the culture generally and also, I will argue, the field of HCI.

*Overcoming the Monster* is a category that unites stories as seemingly disparate as the medieval text *Beowulf* and the Steven Spielberg movie *Jaws*. In Beowulf the hall of a King is threatened by a monster, Grendel, that raids at night killing warriors as they sleep; Beowulf is elected to kill the Monster and the main body of the tale is concerned with his struggle first with that monster and then its Mother. In *Jaws* a seaside community is terrorized by a great white shark that emerges from the deep to kill swimmers, surfers and paddling children. A hero, Chief Brody, is elected to do battle with the monster and he eventually overcomes it. The same basic plot drives the stories of *Perseus, David and Goliath, Hansel and Gretel, Little Red Riding Hood, Jack and the Beanstalk, Dracula, The War of the Worlds, King Kong, The Seven Samurai, The Magnificent Seven, Dr No, The Guns of Navarone, Day of the Triffids* and *Alien I, 2 and 3* (ibid).

For Booker the *Rags to Riches* category brings together even more disparate texts. The legend of King Arthur sees an ordinary boy transformed into a King when he pulls a sword form the stone. The Ugly Duckling becomes a beautiful swan, Cinderella becomes the Princess, the orphan Oliver Twist is adopted by wealthy benefactors, the penniless Jane Eyre marries the wealthy Mr Rochester. The “rags to riches” category is fairly self explanatory in terms of literature but this plot can also be found in sacred and secular accounts of the origins of the universe. In *Genesis* God creates the universe from chaos; in the Big Bang theory the universe is brought about through random chance. Although these narratives could not be more disparate they follow the same plot structure.

Booker’s categories of the *Quest* and *Voyage and Return* center around a journey. In the quest the protagonist usually seeks some specific goal, Mount Doom in *The* *Lord of the Rings* for example, in “voyage and return” the journey may be undertaken for its own sake e.g. *Gulliver’s Travels* (Ibid). These basic plots can also be found in research fiction.

# THE PLOT OF TRADITIONAL HCI SCENARIOS

Short fictions in the form of scenarios have long played an important part in HCI. Carroll defined scenarios as “stories about people and their activities” [17.] He argued they were a tool for reflective practice: creating vivid descriptions of user experience, fixing solutions in an open ended and easily revisable way, allowing for multiple viewpoints, and facilitating design knowledge archives (ibid). A 1999 paper provides the following example of a scenario:

“an accountant wishes to open a folder on the system desktop in order to access a memo on budgets. However, the folder is covered up by a budget spreadsheet that the accountant wishes to refer to while reading the memo. The spreadsheet is so large that it nearly fills the display. The accountant pauses for several seconds, resizes the spreadsheet, moves it partially out of the display, opens the folder, opens the memo, resizes and repositions the memo, and continues working” [17]

Although the scenario describes a mundane and routine activity, it is not just a story (one thing after another) there is also a plot (causality). The scenario describes with great economy a protagonist (the accountant) their goal (to open a folder) and an obstacle (a huge spreadsheet) a struggle (resizing the spreadsheet) along with an ending (continued work). The basic plot in Booker’s terms is *Overcoming the Monster*. Although there is no beast to be slain the huge spreadsheet functions as the monster which the hero must grapple with. When Alice reads *Jabberwocky* she confesses to herself that it is rather hard to understand but “somebody kills something, that’s clear at any rate”. Similarly someone who had never seen a computer or heard of a spreadsheet could read this scenario and know that someone struggled with something and got the better of it.

The basic structure of *Overcoming the Monster* is even clearer in (John) Carroll’s next example:

“Harry is interested in bridge failures; as a child, he saw a small bridge collapse when its footings were undermined after a heavy rainfall. He opens the case study of the Tacoma Narrows Bridge and requests to see the film of its collapse. He is stunned to see the bridge first sway, then ripple, and ultimately lurch apart. He quickly replays the film, and then opens the associated course module on harmonic motion. He browses the material (without doing the exercises), saves the film clip in his workbook with a speech annotation, and then enters a natural language query to find pointers to other physical manifestations of harmonic motion.” (Ibid)

Here the hero is preparing for battle and the power of the monster is vividly conveyed. Not only has Harry seen a bridge collapse he saw it when he was a child. He replays a video and is stunned as a bridge “sways and ripples”, this incongruously fluid description of a solid structure stresses the horror. This is a well-recognized stage in *Overcoming the Monster*: the hero prepares. It is reminiscent of the early scenes in *Jaws* when Brody is reviewing books of shark attacks. This kind of scene is crucial to the drama because it illustrates the power and strength of the adversary as well as the hero’s resolve and bravery.

Perhaps the most influential scenarios in HCI appeared in Mark Weiser’s seminal article on “The Computer for the 21st Century” [56]. HIs 1990s “Sal” scenarios describe with astonishing acuity the technologies that now shape much of our working lives. Sal wakes up to coffee made on voice command by her alarm clock; her windows show data indicating that her children are up; she reads an electronic newspaper and marks passages to send to work with a smart pen; a “foreview” mirror in her car warns her that she is heading towards a traffic jam and helps her to find a parking space; she collaborates on a document with Joe who she shares a virtual office with; Joe asks her if she remembers a woman at a meeting from the week before, she doesn’t but she searches previous meetings and finds the woman’s biography.

This is a complex set of scenarios describing a range of technologies. Can it be reduced to a simple plot? Although these scenarios describe a variety of technologies and situations the plot remains the same. They address the monsters of work in the twentieth century. Difficult and painful aspects of the working day - getting up early, organizing the children, avoiding traffic jams, finding a parking space, collaborating with colleagues, remembering people’s names - are all supported and eased by technology. The monsters may be small, they are monsters of inconvenience and inefficiency, but they are monsters nevertheless and they are all effectively overcome.

Critics of scenarios like these argued that the characters were two dimensional and stereotypical. Cooper’s book *The Lunatics Are Running The Asylum* [21] advocated the use of more richly imagined persona in scenarios. He argued that computer scientists were designing for themselves or at best the guy in the cubicle next to them. For Cooper scenarios with users that were little more than names like Harry or Sal were not adequate, there should also be demographics like age, occupation and ethnicity (ibid). For Lene Nielsen [42] this too was superficial. She argued for character driven scenarios taking European film as an inspiration. She advocated a move from plot to character driven scenarios and her subsequent work involved recruiting novelists and playwrights into the design process.

It is possible to imagine Carroll’s Harry scenario with a more richly developed character. Harry might be a Woody Allen-esque wise cracker having an affair with a near relative. We might see him with an open chat window flirting neurotically while watching the bridge collapse. But this would not change the basic plot of the story. Harry as played by Woody Allen might add depth, richness, humor and other unexpected elements but the plot would remain the same. It could be argued that the plot of *Overcoming the Monster is* inevitable when the scenario is problem focused. But the kind of story where technology overcomes monsters of one kind or another has been much criticized recently as “solutionist”.

**Scenarios and Solutionism**

Michael Dobbins coined the term “solutionism” in a 2009 book on urban design. He argued that in city planning projects the problems being addressed were always so complex that it was almost impossible not to dumb them down to meet the solutions available [26]. He warned that big “imageable” ideas were particularly seductive and pointed to numerous examples of how good ideas that worked in one area can come to be seen as a quick cure-alls. Eugeny Morozov took up this critique in *To Save Everything Click Here* [39] and argued that much of the work in Silicon Valley and in academic HCI was solutionist in that it either solves problems that do not really exist or champions quick technological fixes for complex social, political and environmental issues. This critique resonates so widely that it is now a part of popular culture. The sitcom *Silicon Valley* regularly mocks the notion that Californian tech entrepreneurs are “making the world a better place”.

HCI is an applied discipline. It is funded either for private profit in industry or public benefit in universities though increasingly public benefit is framed in terms of impact and relevance to industry. Perhaps inevitably then the field frames problems it can potentially solve. For this reason it should be no surprise that *Overcoming the Monster* is a standard plotline in traditional HCI scenarios. But many HCI practitioners reject solutionist approaches in favour of critical, speculative or adversarial design. Are there plot lines in this kind of work? This kind of design represented not solely through text but provocative images and artifacts? Is there any kind of narrative here?

# NARRATIVE in images and ARTEFACTS

Barthes pointed out that narrative is everywhere, as present in a piece of stained glass as a novella, A linked chain of events may be less obvious in a static picture but Barthes’ landmark article “The Rhetoric of the Image” showed how even seemingly flat and mundane images like a bag of shopping in an advertisement can suggest narrative. The string bag in the Panzani spaghetti advertisement he discusses connotes shopping, not in a supermarket that would provide disposable plastic carriers, but rather a local market; the garlic and vegetables behind the tins and packets suggest freshness; the name Panzani itself conjures Italy although the pasta is made in America [3]. The image suggests not only a story (a sequence of events) but also a plot (linked events) and a broader narrative including judgment (someone goes shopping and buys products which are fresh and authentic).

Even static images then might convey narratives of one kind or another. But what about artifacts? The notion of an “affordance” in HCI articulates the ways that we consciously or unconsciously create narratives about how we expect everyday things to behave [43]. If there is a handle on a door this implies a chain of events: if I pull this handle then the door will open. If it is a “Norman handle” then this narrative will be incorrect and we will have to push the stupid door (ibid). But whether the implied narrative is correct or not artifacts can suggest a plot in the sense of a related sequence of events: cause and effect, if this then that. Some artifacts, especially, perhaps, those that have been made as provocations also convey judgment.

There is clearly a difference between textual research fictions and those which are primarily image or text based. Image or artifact based fictions are likely to be far more ambiguous. And yet they may strongly imply both plot (related events) and narrative (judgment). Commentary about such artifacts is almost certain to shape some kind of narrative and in doing so may well draw on basic plots.

# THE PLOT OF CRITICAL DESIGN

In *Design Noir: The Secret Life of Electronic Objects* [27]Tony Dunne and Fiona Raby presented a number of intriguing and provocative designs that were never intended to solve any problem but rather to open up a space for debate. The twitching needles in the “compass table” alert us to the magnetic fields caused by the various devices we carry. Their Faraday chair would shield us from such fields though we may not have even have been aware of them before being confronted with this provocative device [15] This work built on the tradition of Italian Radical Design [46] and they initially called it “critical design”. More recently they adopted the term “speculative design” [28] echoing Harlan Ellison’s distinction between “ray guns and monsters” science fiction and the more serious and challenging “speculative fiction” [29] that he and others were writing. Speculative design asks questions like what will lab grown meat look like on a plate, and – could I grow meat from my own cells to serve me at a dinner party? [28]

Carl DiSalvo includes this kind of work in what he calls “adversarial design” [24] which he defines as a form of cultural production that “does the work of agonism”. Agonism is a condition of disagreement, confrontation and contestation and it is fundamentally democratic: those engaging in agonistic discourse do not wish to destroy their opponent but rather to engage in meaningful dialogue with them (ibid). DiSalvo’s examples include the *Million Dollar Blocks*, a project which maps where the prison population comes from by census block. The designed objects that result from the project show that the prison population is drawn overwhelmingly from the same blocks each costing the government millions of dollars. For DiSalvo this is an example of a design practice informing public discourse and civic life. Is there a basic plot in such work?

**Critical Design and Solutionism**

Morozov ends *To Save Everything Click Here* by advocating adversarial design as an alternative to solutionism. He offers examples such as a smart parking meter that allows users to leave time remaining for the next driver or - resetting it to zero and benefiting the municipality. He also describes an energy monitoring system that causes devices to go haywire when consumption increases. The tone of this final chapter is uncharacteristically positive and it is interesting to note that it very much annoys the *New York Times* book reviewer:

“These examples prompted many exclamation points of disbelief in my margins. Until now, Morozov has been arguing that moral issues must be approached through the mysteries of human relationships, the messy processes of political and social debate. But here, suddenly, he is advocating systems in which designers have defined the issues and determined the correct lessons to be learned” [53]

This is a frequent complaint against critical design, speculative design as well as adversarial design. Such work is sometimes even seen as elitist e.g. [44] in that it adopts a position of knowledge / power from which to raise consciousness or provoke debate. But aside from such critiques there is also a sense in which it remains within the basic plot of traditional HCI scenarios: *Overcoming the Monster*, albeit with a twist.

The various forms of design for debate (critical, speculative and adversarial) appeal to the democratic principal that good governance requires well-informed public debate. The monster to be overcome then is public ignorance or apathy, the hero to overcome it is the designer and their weapon is the design. The plot of traditional HCI scenarios posits some issue as the monster to be overcome (e.g. inefficient work practices, poor public transportation, excessive energy consumption) while critical design posits a lack of awareness and debate about particular issues as the monster to be overcome. Although it might be argued that an individual artifact carries no particular plot, if it is positioned as a critical design then the frame is likely to invoke this basic plot. There is of course, a difference between a critical or speculative design and a piece of writing about that design, and this plot is much more likely to be explicit in commentaries. Identifying the plot of either a traditional HCI scenario or critical design as *Overcoming the Monster is* not to dismiss the work. Neither is it to suggest that it is *only* a story, stories are important, and some monsters are worth overcoming.

# THE PLOT OF DESIGN FICTIOn

When Carroll advocated scenarios as a means of reflective practice, computers were largely confined to the workplace. Since then digital technology has become integral in almost every human activity and the stories we tell have become more complex. One of the earliest appearances of the term “design fiction” appears in a 2003 paper by Alex Milton when he refers to new approaches in product design inspired by film making:

“Noam Toran’s work has begun to explore the realms of design fiction through the medium of props and pseudo documentaries. Ron Arad suggests that ‘Noam tends to develop fictional histories for his objects, deceitfully creating individuals and inventions as if they already existed and he merely discovered them.’ [40]

In the following decade Bruce Sterling and others have offered various definitions of design fiction [e.g 6, 7, 23, 36, 50], It has become a malleable term encompassing a range of media (text, image, audio, video, model, prototype) often advocating a broader understanding of the social and political implications of the imagined technology [9]. But what is the basic plot of design fiction?

In 2005 Sterling remarked that he had been writing design fiction for years [50]. Although his 2000 novel *Distraction* [49] is not formally designated “design fiction” it fits early and later definitions: the imaginary technologies are plausible and the social and political context for the new technologies is imagined in depth and detail.

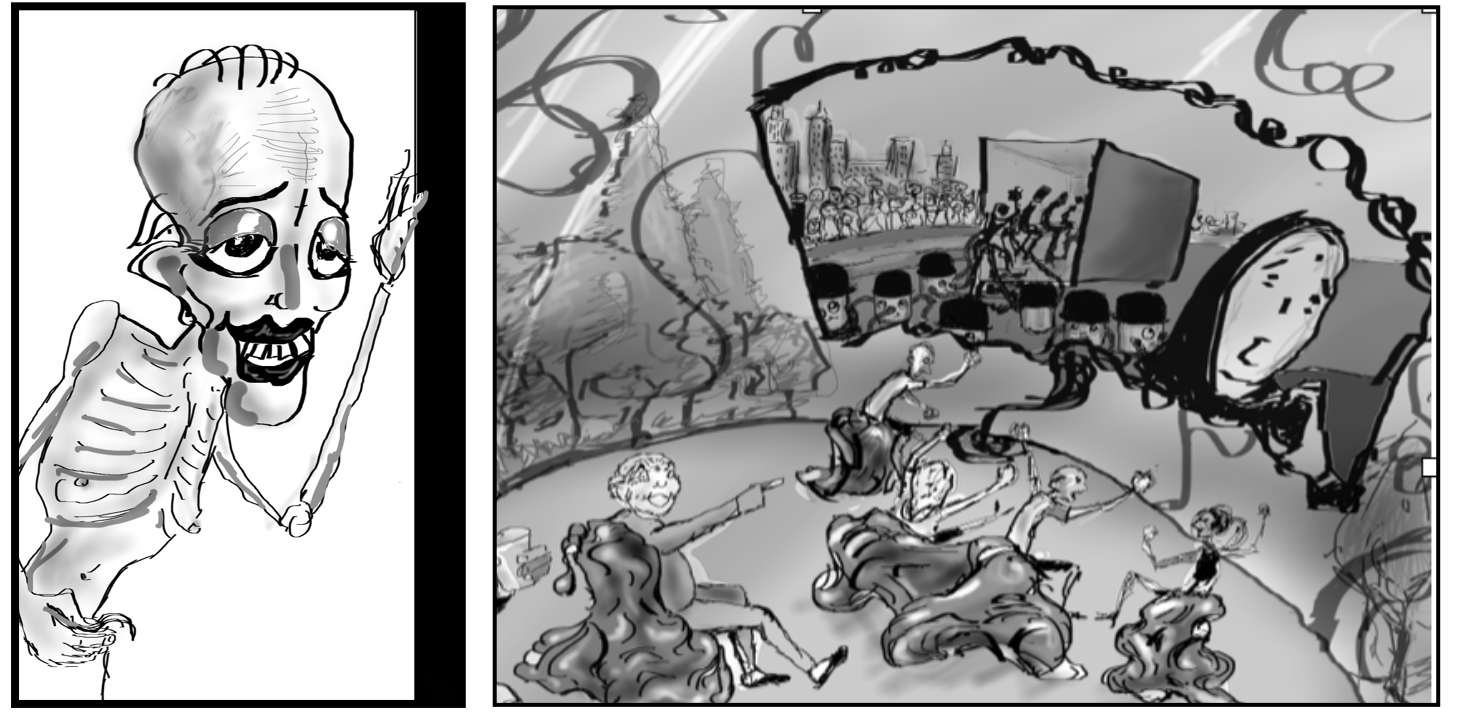
In the first pages of the novel we meet the protagonist Oscar, a clone whose unusual genetics make him the ultimate political “fixer”. He is tasked with investigating the Collaboratory, a research lab in Texas where he falls in love with a researcher and becomes involved in a battle to keep the lab and its bio-technological secrets out of the hands of a despotic local Governor. The struggle over the bio-tech drives the protagonists through a world where a quarter of the population is unemployed, congress is replaced by an emergency committee, the army raise funds by road block “shake down” and construction workers are directed in their jobs by talking equipment. Oscar arrives in the lab and encounters this world much like Gulliver being introduced to the scientifically minded inhabitants of Laputa. The plot in Booker’s terms is a “Voyage and Return”, the protagonist sets out on a journey, is taken to a new world and is introduced to practices and technologies obvious and familiar to its natives but new to him. This structure fits perfectly design fictions which aims to present worlds in which technology is merely a part, rather than the point of the work.

R.K, Adams also known as Nick Dalton, a computer scientist at Northumbria University, has published a design fiction novel on Wattpad which has achieved staggering popularity with over nine hundred thousand reads at the time of writing [1]. The synopsis of the plot is as follows:

“Captured and slave collared by robots, Jenny is sent to slave school and then sold to the notorious but mysterious Cyborg called Lord Rockwood. Can she survive being 'up cycled' as a pet, encounters with feral Roombas, moronic human slave owners, fashion conscious robots, vampire cyborg-etts, dangerously addictive perfumes dealt by rogue members of OneDirection and werewolf marines?”

Although Jenny is captured and enslaved the basic plot adheres to the formulae of the voyage and return.

*The Centenarians* is another design fiction which takes the form of a quest, it is book length but short extracts have been published in HCI publications [7, 10, 47]. Boris and Annabel Bide are called out of retirement to track down @tak, an old enemy who has stolen the Tetranomiplex, a device that allows the user to hack into and control any computer system. The search for @tak takes them through the care sectors of the twenty first century: the pleasuredome of AppleCare, the digital workhouse of WalmartCare, experiential worlds like *Albion* a home for retired racists broadcasting fake newscasts of immigrants being herded into concentration camps and *Hormy Pines* a sex themed care home funded by voyeur gerontophiles (figure 3).



**Figure 3: Horny Pines and Albion, from The Centenarians**

Like the *Voyage and Return* plot, the *Quest* involves a journey and so allows for episodic encounters where a range of imaginary technologies are described as if in passing. The concern with depicting a larger world makes journey based plots unsurprising but what plot do more visual design fictions draw on?

Julian Bleecker and the other members of the Near Future Laboratory are currently producing some of the most interesting design fictions in the form of the TBD magazine [52] featuring articles and advertisements for products and services that do not exist.



**Figure 2: TBD Vol 9 Issue 4. Near Future Lab**

The fake branding and image for the “Miguel Bay Driving Experience” (figure 2) conveys much of the fiction but the details are fleshed out in the accompanying text. The imagined driverless car enlivens boring commuter journeys by adding an OLED display surface to the inside of the windscreen:

“Explosions, robots, earthquakes, invasions and military actions are generated by our patented Terrorvision algorithm and appear so real you’ll be gripping the wheel!” [52]

The text frames the fiction in a larger imagined context where autonomous cars constitute 45% of journeys and drivers are bored on their daily commute. But the format of the glossy advertisement also conveys the implicit context of an industry built around driverless-car entertainment. A standard scenario could express the idea very simply and very briefly – *on the way to work Harry plays a virtual shooter game on the windscreen of his driverless car*. The design fiction offers much more than this because it pastiches advertising. Advertising is a genre with an agenda: it wants to sell something, and we read it with some degree of suspicion. The form calls attention to the commercial intent of the manufacturers and so perhaps sounds alarm bells that would not be sounded if we were reading a bald textual description. Like the Panzani advert it implies larger narratives.

The context of the TBD catalogue then is important. This is one idea amongst many. All of the fake articles and advertisements are produced to a very high standard and could be extracts from WIRED magazine. The cumulative effect is that of a world that already exists. As readers we dip in and out of it, we take a tour. Similarly researchers at Mobile Life recently collaborated with IKEA to produce a fake catalogue of digital IKEA products. The products were not critical designs and many were entirely plausible (e.g. beds with sensors to provide feedback on how the users slept). Again the effect of browsing the catalogue is cumulative. It refers to a larger world that already exists and we are taking a brief tour. Although there is no explicit over arching story there is a meta narrative and it takes the form of the *Voyage and Return*: the reader ventures into this world and then comes back. Within each catalogue there are other stories: the bored commuter overcomes the monster of boredom as they play the in-car game, the user of the smart bed overcomes the monster of poor sleep by achieving a better understanding of the effects say of an open window on sleep patterns. But the overarching form, is in Booker’s terms *Voyage and Return*.

This plot can be detected even in events such as “magic machines” workshops where participants are asked to make machines from cardboard, string and other lo fi materials before deciding what it is that the imaginary machines do [9]. This kind of procedure has been described as “anti solutionist” because its results are absurd, allowing participants to articulate a problem space rather than a solution. But even here the activity is framed as a journey where we move from one imaginative space to another. Participants suspend disbelief and questions of plausibility to focus on magic and possibility – *Voyage and Return*. This differs from a quest because it is framed as an exploration rather than a search for answers or solutions. But this does not mean that the participants return as they began. When Gulliver came back from his adventures amongst tiny people he walked the streets of London telling passers by to get out of his way, afraid he might crush them. Gulliver sees the world differently because of his travels and the “journey and returns” of design fiction often have the same goal.

# THE PLOT OF ACADEMIC FICTION: THE QUEST

Recently design fictions have taken the form of imaginary academic work. This kind of academic fiction was most fully expressed by Stanislav Lem in two collections of stories in the nineteen seventies [33,34]. But the form is as old as science fiction itself. Many of HG Wells’ stories are supposedly objective accounts of a scientist’s work. HP Lovecraft also frequently invoked the trope of “scientific findings that nobody would believe” in his horror stories. The form has been used in “imaginary abstracts” describing technologies that do not exist in studies that did not take place [7]. There have also been whole papers written describing imaginary research and even entire proceedings [37,31]. What then are the plots of this kind of academic fiction?

The plot of many research narratives both real and fictional is that of the Quest. The researcher sets out to discover the answer to a particular question or set of questions. This is perhaps best exemplified in the Technology Education and Design (TED) talk formulae. The generic nature of TED talks is so well established that it has now been satirized many times. The hero / speaker tells an often very personal story beginning in darkness and confusion, moving through struggles and toil towards sudden and (usually) unexpected insight. The hero returns from their intellectual quest sometimes metaphorically wounded (having had to let go of their original preconceptions) but bearing gifts for the community: the idea being given to the TED audience.

Fictional abstracts have mimicked this kind of structure e.g. [8]. The following abstract for Linley and Coulton’s Game of Drones paper is typical of a Research through Design abstract except that it is not true. It begins with some background on the increasing use of state sponsored drones and then relates this fictional study:

“we have worked with retired members of the police and armed services as drone pilots in relation to the enforcement of by-laws relating to parking offences and dog fouling in a small UK city. The initial results indicate that not only does this age group find the game-like activity enjoyable they feel that they are providing an important service to their community.” [37]

The *Quest* structure articulates a problem space – limited take up of opportunities for the use of drones, a solution – gamification, a trial and a positive result. At the end of the quest there is a prize – the promising response and future possible applications.

# WHy this matters part 1: keeping the rules to make better fiction

Why does any of this matter? Surely an awareness of basic plot structures should be of interest only to literary scholars? There are both practical and theoretical reasons why an awareness of literary plots is important for HCI. Some academics have collaborated with professional science fiction writers e.g [38] but this is not always practical. Increasingly academics themselves are writing their own research fictions even though they are not professional or experienced writers of fiction e.g. [7, 24, 36]. Greater knowledge of plot and storytelling might help develop better fictions. The following section is a reflection on how a piece of my own writing was developed with editorial suggestions and criticism. The story below is not included here as an example of best practice, just the opposite in fact, it is an illustration of how a poor fiction was improved through an editor’s concerns with plot and storytelling.

Andrew Rosenbloom, an editor for the ACM *Communications* magazine asked me to write a short story about “digital immortality”. When I asked for more of an idea of what digital immortality might mean he forwarded articles about 3D organ printing and virtual reality forums that promised conversations with loved ones after death [59]. He also sent links to *The Trade-Ins,* a classic episode of the Twilight Zone about an old couple who want to trade in their old bodies for new models but can afford to buy only one. Although the story I wrote was not successful a consideration of the editorial process illustrates how an awareness of plot and literary conventions can help reshape and improve a fiction.

My initial draft was inspired by Jonathan Swift’s satirical depiction of the “Struldbrugs” in *Gulliver’s Travels*. Swift’s Struldbrugs never die but continue to age, when Gulliver first hears of these immortals he imagines them to be revered in their communities having lived long enough to master every science and art. But he finds they are reviled and outcast: when one is born it is taken as a great ill omen; after the age of eighty Struldbugs are not allowed to hold any position of responsibility, their marriages are dissolved, they cannot own land and their heirs inherit their estates. My story was called The Digital Struldbrug and imagined older people sustained into incredible old age first by artificial organs and then avatars representing their wishes as legally recognized digital individuals.

The first draft began with the narrator remembering being twelve and visiting his great, great, great grandfather “Grandpa 3G”. This mean old man is looked after by his long suffering daughter, Grandma 2G, the boy doesn’t like visiting but his family make him do it because they are hoping to inherit his fortune. During one visit Grandpa 3G introduces a digital version of himself and asks the boy to play a game where he has to guess which is one is real by listening to each of them answer questions. When the boy cannot tell one from the other, Grandpa 3G is jubilant, declaring that a new legal entity has been created. The old man is finally able to leave the physical torment of his analogue body while retaining control of his estate through a digital self. In the corridor the boy meets Grandma 2G operating a device and he realizes that she was supplying the answers during the game.

The editor pointed up a number of problems with this first draft including a lack of narrative drive. A second version shifted to a third person account of a trial where the great, great, great grandson is charged with murder. Rosenblum thought this was an improvement but had other suggestions:

“maybe have the first sentence be something like the prosecutor saying to the grandson witness "I call it murder!" to get the reader's attention and frame the legal proceedings” (*pers comm*)

it is interesting to note that Rosenbloom’s suggestions were not concerned with plausibility or technology but rather storytelling and plot. The third version began as the editor suggested:

*“You are charged with the murder or, as you have publicly insisted the deletion -”*

“OBJECTION!”

**Overruled**

*“- of a man recognized as the first digital American..”*

The defendant then relates the story of meeting Grandpa 3G the difficult dinners and then the Turing test.

*“So you played a crucial if unwitting role in having the digital American recognized in law.”*

“That thing was no more alive than a spreadsheet.”

“OBJECTION!”

**“Overruled”**

Shifting the shape of the story to a trial changed the plot into that of the Quest. Although the first draft of the story was called “The Digital Struldbrug” the reference was not explained and did not play a significant part in the plot as Rosenbloom pointed out:

“I notice that the word "Struldbrug" appears only in the headline. If used there, like showing a gun in act 1 of a play, the story really must define and use it throughout to support the theme. Then make it shoot at the end’ (*ibid*)

This critique is called “Chekov’s gun” because it originated with the Russian playwright. It is a very famous piece of advice and a more experienced writer would perhaps have done this is a matter of course The third version of the story made the term Struldbrug more central to the plot.

*“You had no idea of the legal ramifications of the test?”*

“No. All I knew at the time was that Grandpa 3G was very happy. He would finally be free of old age without going to the trouble of dying. He and the lawyer were slapping one another on the back cos there would be no death duties to pay and his money wouldn’t be wasted by his relatives or some charity.

*“And so the Digital American took control of the fortune you hoped to inherit.”*

“Yes.”

*“You understand the meaning of the item of hate speech known in civilized society as the “s word”*

“Of course.”

*“How would you define it?”*

“The same way the man who invented it did. Jonathan Swift said that Struldbrugs are opinionated, peevish, vain, covetous and avaricious”

“OBJECTION!”

**“Overruled.”**

“They have no interest in humanity beyond their immediate descendants.”

“OBJECTION! MY CLIENT IS BEING GOADED INTO GERONTOPHOBIC -”

**“Over-ruled. Carry on.”**

*“And this is the essence of the Movement for which you have long campaigned?”*

“Yes, Sir, it is. Swift saw very clearly that if such creatures existed they would eventually own everything, control all civic power and be the ruin of us all.”

*“And when the first digital American refused to have new organs printed for your Mother you thought you might further your cause by any means necessary? ”*

“Yes”

*“Even murder?”*

“I didn’t murder anyone. I erased some malicious code.”

*“You are condemned by your own hate speech!”*

“This is not hate speech – it is free speech!”

*“I put it to you that your motivations are far from civic. Ladies and gentlemen of the jury I urge you find the defendant is guilty!”*

“They’re not ladies and gentlemen, they’re Struldbrugs! There’s not an Analogue American in this court! You’re Struldbrugs every one!”

“OBJECTION!”

**“Sustained”**

Following Rosenbloom’s advice then the term “Struldbrug” was incorporated into the story as a term of ageist abuse in a broader social setting where age has become a symbolic marker for conflict and bigotry.

Political debate is increasingly framed in terms of a conflict of interest between young and older people [e.g. 22]. The trial structure in the second draft of the story was added to make for a more dramatic narrative. The “Chekov’s gun” advice led to incorporating the term Struldbrug into the story world and functioned to highlight the social and political issues raised by the notion of digital immortality.

Understanding basic plot functions, and also some of the basic tips on storytelling offered in various guides (e.g. Chekov’s gun), might help make better research fictions. But what might research fiction look like if it deliberately broke from conventional plot formats and writing formulae?

# why this matters part 2: Breaking the rules, the case of literary fiction

Bowker and Star point out that any classification system is ultimately arbitrary: categories blur seamlessly into one another at the edges [13]. Booker’s basic plots are no exception and it would be easy to argue over the categorization of any fiction. Such schema are guides to broad patterns rather than definitive classifications. But it is often precisely when a taxonomy breaks down that it is at its most interesting. Booker’s first four plots are relatively easy to define but there are also more troublesome “other” works that do not fit easily into any of them or cross several at once. These are very often works of “literary fiction” which deliberately set out to undermine and disrupt reader expectations of standard plots and genres. What would research fiction in this context look like?

David Foster Wallace’s 1996 novel *Infinite Jest* contains a technology story that resonates with current ideas about design fiction. It begins with a page long question written in upper case asking why video telephony or “videophony” failed despite its initial huge popularity. The answer covers the next six pages and it is written in an analytical almost academic style. It begins with an insightful account of what we value about audio only telephony: the comforting illusion that we have our interlocutor’s full attention while we ourselves wander about the house doing chores, doodling or attending to our cuticles. Videophony fails because of:

“emotional stress, physical vanity and a certain queer kind of self obliterating logic to the microeconomics of consumer high tech”. [57]

Wallace imagines not only videophony technology but also the industry producing it. The industry first produces video filters to enhance the user’s appearance, then it makes resin augmented masks for them to wear. These could be considered as instances of both types of *Overcoming the Monster* with the monster being chronic anxiety about our personal appearance. The first overcoming is solutionist– the kind of filters that today mask images on Snapchat, Instagram and dating apps. The second is ironic – resin masks hanging on a hook, when not in use. But in the fiction these developments create another monster – mass agoraphobia.

The intellectual quest – why did videophony fail - is resolved but the complexity of Wallace’s story challenges neat classification. David Foster Wallace was never satisfied with irony, arguing that it had been the dominant mode of American culture since the nineteen sixties. Forty years on irony was, for him, ultimately enfeebling [57]. So the story of videophony does not end with the ironic almost comedic depiction of users sat in front of their video phones wearing resin masks. The rise of an agoraphobic home bound population leads to still further tech entrepreneurialism and advances in home shopping and delivery.

Whether a tale is tragic or comic depends on where you start and when you stop. Wallace keeps going, adding layers and complexity in a way that make this story hard to classify. By “losing the plot” he creates a model for the uses of fiction as a tool for studying technology that encompasses auto-ethnographic insight (the advantages of voice only telephony and appearance related anxiety in videophony) with design fictions that go beyond technology fetishism (the rise and also fall of multiple business models) to seriously considering the social and psychological impact of new technologies (increased psycho-social distress) without providing simple technological answers or knowing and ironic single message critique.

# DISCUSSION: The uses of fiction

Text and film based research fictions such as scenarios are likely to draw on common plots and storytelling strategies. Image and artifact based fictions may be more ambiguous but these too may imply narratives that draw heavily on recognizable plots. This is not to dismiss or undermine either traditional HCI scenarios, speculative design or design fictions. It is rather to suggest that an awareness of common stories and plots may help us develop better fictions. But what counts as better? Roland Barthes’ body of work demonstrates that any cultural artifact can be valuable to scholarship. He treated wrestling matches and haircuts with the same kind of critical seriousness that he approached canonical poetry.. The intrinsic quality of a research fiction is in some ways beside the point, a text might be well or badly written, a film may be masterly or mediocre, but bad fiction may be put to good use and vice versa. This again returns us to the central question: *what is fiction for in research?*

Clearly predicting the future is not the point. In *The Napoleon of Notting Hill* [19]G.K. Chesterton described the game of “Cheat the Prophet” where people come up with outlandish predictions about what the future will look like and all the while Tomorrow quietly gets on with doing something none of them had ever thought of. But soon so many people are playing the game that eventually some of the predictions turn out to be right. Whether a fiction is prescient or not can matter little to anyone except futurologists hoping to persuade investors to pay for their guesses. Why should it matter to academics?

There is something of an epistemological crisis in HCI around the nascent practices of Research through Design [31, 60]. What are prototypes for? Are they illustrations of design processes? Sketches of future products? Examples of best practice? Illustrations of design principles? Can they generalize?. When the rationale for a prototype is framed in terms of a response to a large social problem it can quickly becomes solutionist or ironic. When it is framed as best practice the links to industry are difficult to trace and this is also unconvincing. Even less certain is the epistemological status of a fiction. Are we just making it all up now? [36] But if informing industry or predicting the future are not the point then the focus must return to scholarship: thinking carefully about technology.

A greater awareness of literary craft and conventions might help create better fictions. But perhaps more importantly it might also help achieve a more reflective and critical practice. Schon’s book *The Reflective Practitioner* was a call to value the kinds of unspoken or tacit knowledge which informed a range of professions. He argued that universities fostered “selective inattention to practical competence and professional artistry.” [44] Although much has been written about fiction in research, little attention has been paid to matters of professional craft such as plot and storytelling. Carroll argued that scenarios allowed for a reflective practice [17] a greater awareness of the plots we are likely to draw on might aid this process. Fiction can help articulate both fear and desire about new technology but making fiction involves engagement in a larger cultural imaginary. A deeper understanding of storytelling through text, image and artifact may help us develop more nuanced and reflective research fictions.

# CONCLUSION

This paper has argued that the dominant plot in standard HCI scenarios is *Overcoming the Monster* where the monster is some problem or challenge. There is a variation on this plot in much of the commentary on critical design where the Monster to be overcome is a lack of informed debate. Design Fiction often draws on plot forms like Voyage and Return and the Quest where the reader or viewer enters into a larger world and encounters various wonders before they leave. Identifying a standard plot is not to dismiss or trivialize a piece of work. There are many monsters worth fighting. But becoming aware of the plots that we draw on may help develop a more reflective and critical practice when we make research fiction.

# REFERENCES

1. Ross K. Adams (2014) I’m a Cyborg’s Pet. Wattpad <https://www.wattpad.com/story/47397263-i'm-a-cyborg's-pet>
2. Jeffrey Bardzell and Shaowen Bardzell 2013. What is "critical" about critical design?. In (CHI '13). ACM, New York, NY, USA, 3297-330
3. Roland Barthes (1964) “Rhetoric of the Image” “Rhétorique de l'image,” Communications 4, 1964
4. Roland Barthes (1993) *Image, Music, Text*. Fontana Press; New Ed edition.
5. Alan Blackwell (2006.) The reification of metaphor as a design tool. ACM Trans. Comput.-Hum. Interact. 13, 4 (December 2006), 490-530
6. Julian Bleecker ( 2009). “Design Fiction: A Short Essay on Design, Science, Fact and Fiction”. webeditionpdf
7. Mark Blythe (2015) Practical Products for Centenarian Spies. Interactions XXII 2. March / April 2015
8. Mark Blythe (2014) Research through design fiction: narrative in real and imaginary abstracts. In Proc of (CHI ’14)
9. Mark Blythe, Kristina Andersen, Rachel Clarke, and Peter Wright. 2016. Anti-Solutionist Strategies: Seriously Silly Design Fiction. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). ACM, New York, NY, USA, 4968-4978.
10. Mark Blythe and Enrique Encinas. 2016. The Co-ordinates of Design Fiction: Extrapolation, Irony, Ambiguity and Magic. In Proceedings of the 19th International Conference on Supporting Group Work (GROUP '16). ACM, New York, NY, USA, 345-354
11. Christopher Booker (2004) *The Seven Basic Plots: Why We Tell Stories*. Kindle Edition
12. Pierre Bourdieu (1991) *Language and Symbolic Power*. Harvard University Press. Cambridge Mass
13. Goeffrey Bowker & Susan Leigh Star (1999) Sorting Things Out: Classification and Its Consequences. MIT Press
14. Corin Braga (2010) Carolos Castaneda: The Uses And Abuses of Ethnomethodology and Emic Studies. Journal for the Study of Religions and Ideologies. 9 27 71-106
15. Edward Branigan (1992) *Narrative Comprehension and Film*. Routledge. London
16. Andrea Branzi (2006) *No Stop City*. Archizoom Associati.Librairie de Architecture et de la Ville.
17. John M. Carroll (1999) Five Reasons for Scenario Based Design. IEEE Proceedings of the 32nd Hawaii
18. Carlos Castaneda (1970) *The Teachings of Don Juan.* Penguin Books
19. G.K. Chesterton (1946) *The Napoleon of Notting Hill* Penguin Classics
20. James Clifford & George Marcus *Writing Culture: The Politics and Poetics of Ethnography* University of California Press
21. Alan Cooper (1999) *The Inmates are Running the Asylum: Why High-tech Products Drive Us Crazy and How to Restore the Sanity* Pearson Education
22. Rhiannon Cosslett (2016) Family Rifts Over Brexit: I can barely look at my parents. The Guardian. <https://www.theguardian.com/lifeandstyle/2016/jun/27/brexit-family-rifts-parents-referendum-conflict-betrayal>. Accessed 6.1. 2017
23. Paul Coulton, Joseph Lindley & Haider Ali Akmal (2016) Design Fiction: Does the search for plausibility lead to deception? Proceedings of Design Research Society Conference 2016.
24. Nicholas S. Dalton, Rebecca Moreau, and Ross K. Adams. 2016. Resistance is Fertile: Design Fictions in Dystopian Worlds. In Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '16). ACM, New York, NY, USA, 365-374
25. Carl DiSalvo, (2015) *Adversarial Design*. MIT Press
26. Michael Dobbins (2009) *Urban Design and People*. John Wiley and Sons
27. Antony Dunne and Fiona Raby (2001) *Design Noir: The Secret Life of Electronic Object*. Birkhauser
28. Antony Dunne and Fiona Raby (2013). *Speculative Everything: Design, Fiction, and Social Dreaming*. The MIT Press.
29. Harlan Ellison *Dangerous Visions*. SF Masterworks Gollancz
30. E.M. Foster (2016) Aspects of the Novel. Kindle Edition.
31. William Gaver. 2012. What should we expect from research through design?. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12). ACM, New York, NY, USA, 937-946
32. Ben Kirman & Joseph Lindley (2016) International Fictional Conference on Design Fiction’s Futures. <http://www.fictionalconference.com/organisers/>
33. Ben Kirman, Conor Linehan, Shaun Lawson, and Dan O'Hara. 2013. CHI and the future robot enslavement of humankind: a retrospective. (CHI EA '13). ACM, New York, NY, USA, 2199-2208 Lem S., (1985) *Imaginary Magnitude*. Harcourt Publishers
34. Stanislav Lem (2006) *A Perfect Vacuum*. Northwestern University Press; Reprint edition
35. Stephen Linstead (1994) Objectivity, Reflexivity, and Fiction: Humanity, Inhumanity, and the Science of the SocialHuman Relations November 1994 vol. 47 no. 11 1321-1346
36. Conor Linehan, Ben J. Kirman, Stuart Reeves, Mark A. Blythe, Joshua G. Tanenbaum, Audrey Desjardins, and Ron Wakkary. 2014. Alternate endings: using fiction to explore design futures. In CHI '14 Extended Abstracts on Human Factors in Computing Systems (CHI EA '14). ACM, New York, NY, USA, 45-48
37. Joseph Lindley and Paul Coulton. 2016. Peer Review and Design Fiction: "Great Scott! The quotes are redacted". In Proceedings of CHI EA '16. ACM, New York, NY, USA, 583-595
38. Joseph Lindley and Paul Coulton. 2015. Game of Drones. In Proceedings of the 2015 in Play (CHI PLAY '15). ACM, New York, NY, USA, 613-618
39. Thomas Markussen and Eva Knutz. 2013. The poetics of design fiction. In Proceedings of the 6th International Conference on Designing Pleasurable Products and Interfaces (DPPI '13). ACM, New York, NY, USA, 231-240
40. Alex Milton (2003) Filmic Design – A Hitchcockian Design Strategy. European Academy of Design Conference, 28-30 April 2003, Barcelona, Spain.http://www.ub.edu/5ead/PDF/8/Milton.pdf
41. Eugeny Morozov (2013) *To Save Everything Click Here: Technology, Solutionism and the Urge to Fix Problems That Don’t Exist.* Allen Lane Penguin Books.
42. Lene Nielsen. (2002.) From user to character: an investigation into user-descriptions in scenarios. (DIS '02). ACM, New York, NY, USA, 99-104
43. Donald Norman (2013) *The Psychology of Everyday Things*. MIT Press
44. Luiza Prado de O. Martins, (2014) Privilege and Oppression: Towards a Feminist Speculative Design. DRS 2014
45. Donald Schon (1983) *The Reflective Practitioner: How Professionals Think in Action*. MIT Press. Cambridge Mass.
46. Ian Sommerville, Tom Rodden, Pete Sawyer, and Richard Bentley. 1993. Sociologists can be surprisingly useful in interactive systems design. In Proceedings of the conference on People and computers VII (HCI'92), A. Monk, D. Diaper, and M. D. Harrison (Eds.). Cambridge University Press, New York, NY, USA, 342-354
47. Heather O’ Brien & Paul Cairns (eds) *Why Engagement Matters: Cross Disciplinary Perspectives on User Engagement in Digital Media*. Springer
48. Penny Sparke (1988) *Design in Italy 1870 to the present*. Beville Press. New York
49. Bruce Sterling (2000) *Distraction*. Gollancz.
50. Bruce Sterling (2005) *Shaping Things*. MIT Press. Cambridge Massachusetts
51. Bruce Sterling (2013) Bruce Sterling NEXT13 - Fantasy prototypes and real disruption https://www.youtube.com/watch?v=2VIoRYPZk68
52. TBD Catalog Near Future Laboratory. Vol 9 Issue 24
53. Joshua Tanenbaum, Karen Tanenbaum, and Ron Wakkary. 2012. Steampunk as design fiction. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12). ACM, New York, NY, USA, 1583-1592
54. Ellen Ullman (2013) Big Data is Watching You. Sunday Book Review. The New York Times May 17 2013
55. Kurt Vonnegut (n.d.) On the Shape of Stories. YouTube. <https://www.youtube.com/watch?v=oP3c1h8v2ZQ> Accessed 6.1.2017
56. Mark Weiser (1991). The Computer of the 21st Century. Scientific American Special Issue on Communication, Computers and Networks .
57. David Foster Wallace (1996) *Infinite Jest* Abacus
58. David Foster Wallace (1988) E Unibus Plurum. In A Supposedly Fun Thing That I will Never Do Again: Essays and Arguments.
59. Mark Walton (2015) Project Elysium Wants to Use VR to Revive Deceased Loved Ones. Ars Technicahttp://arstechnica.com/gaming/2015/04/project-elysium-wants-to-use-vr-to-revive-deceased-loved ones/
60. John Zimmerman & Jodi Forlizzi (2008) The Role of Design Artifacts in Design Theory Construction. Human Computer Interaction Institute. Paper 37