Improvising the Future: An Improvised Theatre Approach to Design Fiction

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ABSTRACT
Human-computer interaction research often deals with the question of how to design technology for the future. Traditional ideation methods are not as forward-looking as design fiction approaches. However, HCI designers are not necessarily fiction writers, limiting design fiction to HCI researchers with narrative craft. Improvised theatre is a form of unscripted live theatre in which actors must create scenes on the spot, based on audience input. Our goal is to create a collaborative ideation method in which HCI designers create improvised theatre games for improv performers to explore narratively, identifying and inspiring new directions for technology.

Author Keywords
Design Fiction; Visions of the Future; Improvised Theatre

INTRODUCTION
The exploration of visions of the future has always been essential to human-computer interaction research. Human-Computer Interaction (HCI) teams have used many ideation techniques throughout the years; however, these are not as far-thinking and visionary as a *design fiction* approach. Grand & Wiedmer define *design fiction* as a strategy for design research which uses design artifacts and performances, among other things, to realize "how the world could be" rather than how the world is [1]. As the term 'fiction' implies, a large component of design fiction is writing about what is not currently possible – but what may be worth pursuing as a strategic long-term research agenda for HCI. However, while HCI researchers may be good at research, not all are good, trained fiction writers. This can be a limitation when using this approach for generating ideas for future technology.

Improvised theatre (improv) is a form of unscripted live theatre in which scenes are created mid-performance based on audience input. At its core, improv exercises an actor's ability to interpret new ideas and think on the spot [2]. Audience suggestions often lay the groundwork for a scene or inform its direction; in fast-paced exchanges things often do not go as any one improviser expects. Improv games are used before performances to warm up actors, acclimate novices to the 'rules' of improv, and sometimes in the performances themselves [2]. Many involve word association, the use of props, or creating a scene around given roles or settings. Actors are given a great deal of freedom within a topic, which allows for fun and creative scenes.

Our aim is to combine improv games with the scientific expertise of HCI designers to develop narrative futures and identify concepts for technology research directions. Using the *Yes, and*[1] principle of improv wherein no idea, however boring or crazy, can be rejected, a variety of suggestions can be generated for designers to consider. Additionally, by acting out scenes associated with the new technology, the technology's use in practice can be compared to the that of the designer's expectations. Overall, the flexibility of improv will allow designers to see their ideas in action as well as potentially expand upon or improve their design. During the term, I will study futuring techniques to develop improv games with the goal of using them as design fiction ideation techniques for HCI technology. I will then run a pilot study within the University and analyze my findings.

PREVIOUS WORK
This section explores existing design fiction and ideation research and techniques.

Design Fiction
The term *design fiction* was first coined by Bruce Sterling in 2005 and further developed by Julian Bleecker in 2009 [3]. Though some in the HCI research community question its credibility as a research method, it can be argued that its ambiguities are misattributions of its flexibility [3]. Design fictions have been used throughout the years to study a variety of topics including but not limited to: the exploration of data science [4], the development of sensing and tracking technologies [5], industrial-academic collaborations [6], and even for the study of design fiction itself [7]. Design fictions are indisputably establishing themselves as an effective research technique in HCI.

Productivity Future Vision
Over the years, Microsoft has published several design fiction videos showcasing the company's direction and ambition, each entitled *Productivity Future Vision*. The 2015 video[2] features a narrative of two researchers who use

[1] http://improvencyclopedia.org/glossary//Yes_And.html
[2] https://www.youtube.com/watch?v=w-tFdreZB94
[3] https://www.microsoft.com/en-us/enterprise/productivityvision/default.aspx
[4] http://improvencyclopedia.org/games//Hitch_Hiker.html

future technology in their daily lives as well as professionally. In it, the women use interactive data visualizations and augmented reality displays to schedule events, track personal health, do work, connect with others, and more. Microsoft uses dialogue-less storytelling to imagine how emerging technologies can "transform the way we get things done 5-10 years in the future"[3]. They integrate their four guiding themes into the story: "bringing people together" whether in-person or remotely; "living smarter" using personal agents and real-time data; "friction free creativity" in which information can be shared easily and naturally; and "fluid mobility", demonstrated by moving tasks between interfaces uninterrupted. These *Productivity Future Vision* videos serve as a strong, but rigid form of design fiction. Microsoft communicates a very clear vision of what technology they would like to create and how it would be used through a carefully crafted, heavily produced video with visual effects. In contrast, our work seeks to make a creative space where technology and its functions can be explored freely and flexibly through a more immediate, more exploratory approach.

Self-Driving Car Hitch Hiker

Our proposed topic is an extension of a pilot study conducted at the University of Calgary explored the use of the improv game *Hitch Hiker*[4] as an ideation technique for the design of self-driving cars [2]. In the original *Hitch Hiker*, one player acts as the driver of a car and picks up another player, a hitchhiker who portrays a strong physical or personality trait which all other passengers in the car also adopt. As new hitchhikers join, their quirks are also adopted. Once the car is full, the driver must find a reason to leave the car. The players then rotate seats and continue picking up hitchhikers. *Self-Driving Car Hitch Hiker* is largely the same, but instead of a human driver, the first player must portray the role of a self-driving car. He or she may choose to ignore the rule of having to take on the hitchhiker's trait and simply react to the scene, so long as it fits the embodiment of the car. When the car is full, it "arrives" at the destination, the player acting as the car leaves, and the remaining players rotate seats.

In the pilot test run, HCI designers with little to no improv experience played *Self-Driving Car Hitch Hiker*. Trying to figure out the rules, they found themselves immersed in the game and did not even realize how interesting the ideas they had come up with were. Some were rather bizarre, like the car taking blood samples from lost children, while others were more realistic, like the car having the inability to open the doors by itself. Overall, the study found that the fun atmosphere created by the game allowed designers to come up with a good range of ideas.

SOLUTION

Our research aims to follow in the footsteps of the *Self-Driving Car Hitch Hiker* workshop by using improvised theatre games as an ideation technique for HCI technology. However, unlike *Hitch Hiker* which would only fit for car-related fields, we seek a more general approach which can be adapted for any topic of research. Although having experienced improvisors to act out scenes for an audience of designers would be ideal, games should be simple enough that HCI designers are able to play by themselves if they so choose.

Traditionally, the success or failure of an improv scene is entirely subjective. Since there is no clear goal, the nature of the art encourages actors to explore strange territory and be unafraid of failure. However, for our purposes we will define failure as the inability to inspire meaningful discussion about the research topic after becoming reasonably acclimated to the game. Conversely, success means that the game is able to raise new ideas toward the development or use of the technology which the designers may then choose to build upon.

There are already a large number of existing improv games we can adapt for our purposes. We will first study futuring techniques to see what sort of approaches may be useful, and then use this information to work towards finding improv games that are most suitable for our cause. Of these candidates, we will develop two to three games which can be used for HCI ideation. If there are no suitable candidates, we will discuss and describe why none are suitable, and attempt to create new games. Finally, we will run a pilot study of our findings within the Department of Computer Science at the University of Calgary.

TIMELINE

Week of	Task
Jan 14	Determine research topic
Jan 21	Write research proposal
Jan 28	Study futuring techniques
Feb 4	Continue study of futuring techniques
Feb 11	Study improv games
Feb 18	Continue study of improv games
Feb 25	Analyze data, develop games
Mar 4	Continue development of games
Mar 11	Prepare pilot study
Mar 18	Run pilot study
Mar 25	Write final report
Apr 1	Write final report
Apr 8	Prepare for final presentation

Table 1. Timeline of tasks through the Winter 2019 semester.

CONCLUSION

Design fiction is a design method which imagines what is not yet possible. Although powerful, it can be limited by HCI designers' fiction-writing skills. For this reason, we seek to use improvised theatre to create natural narratives which can inspire new ideas for technology and/or analyze its potential use in the real world. There are a number of already existing improv games which can be adapted for this purpose. We will create two to three games to be used for general-purpose HCI ideation and run a pilot study. We hope this research can be built upon and used in the future as a new method for technological design.

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