
Eliciting Speculative Design Fictions from the Margins

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Abstract

One approach to constructing an inclusive taxonomy of design fictions is to assess and understand whose voices have been missing from these narratives and why. We must then understand how our approaches and methods to eliciting such narratives could be more inclusive. To begin these efforts, we reflect on past HCI work, as well as our own, and discuss new methods, approaches, and questions to consider going forward to elicit more inclusive narratives. Through feedback sessions, which we hope to receive in the Design Fictions Workshop, we plan to iterate on and execute our proposed work with individuals from ethnically-diverse and marginalized groups.

Author Keywords

Design Fictions, Speculative design, Critical Race Theory

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Introduction

Technology has had a significant impact on society influencing our health, employment, education, and transportation among other things. While technology has its benefits, it has not been equally beneficial to all groups. For instance, studies have shown how the design of health-related information and communications

technologies that do not consider race/ethnicity, socioeconomic status, or geographic location may actually exacerbate health disparities instead of alleviating them [16]. Studies have also shown that those who identify as marginalized may not think about their health in the ways that current technology exemplifies [7]. Similar trends exist among digital platforms designed to support entrepreneurs from lower-income and underrepresented ethnic groups [5]. These platforms necessitate requirements known to be disproportionately less available for lower-income and minority entrepreneurs such as social and financial capital [2, 4]. A failure to address these limitations could cause certain population groups—often low-income minorities, disabled and elderly people, returning citizens, or those living in rural areas—to fall behind economically and socially.

Not only are marginalized populations falling behind in current technologies, they are very rarely, if ever, represented in popular scenarios of technology design fictions (e.g., [17]) or in speculative critical design (SCD) [9]. Per Tonkinwise, the needs of white affluent citizens from financially-wealthy countries are at the center of such scenarios [14]. Historically, writers such as Octavia Butler and N. K. Jemison have contributed to the area of speculative fiction and the concept of "futuring" as a part of the Afrofuturism genre, yet there has been very little evidence of speculative critical design work that considers or includes marginalized voices in the way we attribute technology design fictions. Therefore, to create a more democratic future, SCD narratives and artifacts from communities frequented by diverse populations should be valued as informing technology conceptualization and considered as a part of the larger ethos of speculative design [13]. To ensure that marginalized voices are being heard in the design of transformative technologies such as

artificial intelligence, robotics, and the Internet of Things, we aim to combine speculative design techniques such as design futures with co-design [15] and turn to Nägele et al. participatory design fictions (PDFi) [9] for insight. Given the nature of past HCI research and our own work, we also draw insight from asset-based approaches, intersectionality, and critical race theory [3]. Such techniques leverage community assets to convey how marginalized individuals envision alternative narratives about the world and what might become of it. We aim to understand and contribute what these future narratives entail and the best approaches to eliciting such narratives.

Related Work

We first discuss co-design and participatory design fictions as inclusive approaches to speculative design. We then discuss intersectionality and critical race theory, which has recently surfaced in prior HCI-related work [11]. This is vital to our discussion given that individuals face unique experiences based on a combination of their identities and not a single identity yet are often not represented. Drawing from the axes of privilege, domination, and oppression [8], race, education, and/or class are rarely if ever discussed within the creation of and resulting participatory design fictions.

Co-Design and Participatory Design Fictions

A cursory review of the literature reveals the use of co-design to create design fictions in the context of healthcare technologies for ageing adults. Tseklevs et al. first identified a problem definition through an examination of government policy documents [15]. They then developed design fictions in which they asked participants consisting of community groups and older citizens to consider short and long-term healthcare technologies through two co-design workshops. Finally,

they crafted two design fictions and a set of corresponding artifacts with their project partner. The researchers sought feedback on the artifacts and design fictions through another workshop held with the same group of community groups and older adult, which led to ethical considerations, and a discussion of the requirements [15].

Nägele et al. developed participatory design fictions (PDFi) and alternative realities using techniques from theatre, storytelling, sketching and design as a way to expose fictions and values from experts (i.e., people with urinary tract infections) [9]. Their method was extensive and consisted of four stages: a probe, which was crafted as a science fiction writing prompt by online volunteers; sci-fi narratives, which were collected from the science-fiction prompt; a world-building journey to upload narratives and sketches and conceptualize the final Design Fiction; and a PDFi showroom to view the final artifacts.

While both fictions helped vulnerable populations to imagine implications of future technologies, consider unwanted side-effects, and raise questions of ethics, the impact of identities other than age or specific health status (e.g., class, race, education) were not discussed.

Critical Race Theory

Ogbonnaya-Ogburu et al. suggest in an effort to advance inclusive HCI research, that we as scholars and practitioners engage with critical race theory (CRT) [11]. CRT is a theoretical framework that uses critical theory to examine culture and society from the perspectives of race, law, and power. One of its tenets, which has been used indirectly as a critique to speculative design, is that assumptions of white superiority are so ingrained in the political and legal structures that they are almost unrecognizable. This normalization, is often pervasive in technology and is seen in search algorithms [10] and as

suggested earlier, in speculative design and narratives of design futures. CRT scholars often use storytelling as a strategy to engage and make salient the experiences of people who are negatively affected by racism as a way to challenge the beliefs held about them by whites. Keeping this in mind, we propose combining speculative design processes with co-design, participatory methods, and CRT to elicit design fictions from marginalized populations.

Strachan argues that speculative design processes, when combined with co-design and participatory methods, "*can help people–non-designers–to consider and visualise the future, not as some abstract, scary and oppressive concept, but as something inevitable that we can help to shape*" [13, p.e17]. Strachan's quote draws attention to the opportunities that exist for *everyone* to contribute, not just designers, but it also highlights opportunities for the need for future and *inclusive* Utopia.

Our Proposed Approach

Drawing from past work, it is important to identify how far in the future to take our design fictions. What does futuring mean? Is it 5 years, 10 years? Or, for populations that haven't had an opportunity to envision the future, should we begin with an alternate utopian vision of the present? Instead of stories that lead to the next wave of technologies that could be beneficial for marginalized populations, existing stories often reflect how they overcome the daily societal barriers that they face [13].

Therefore, we propose two approaches: one to elicit utopian fictions for "Smarter Cities" of the future and the other to elicit alternate utopian visions of the present. Both studies will take place in two large ethnically-diverse metropolitan cities in the Midwestern, U.S.

Visions of smarter cities typically entail advanced sensors

and networks interfaced with computerized systems consisting of databases, tracking, and decision-making algorithms [6]. The goal is to monitor all critical infrastructures such as water, power, communications, bridges, roads for preventative maintenance and security. This would allow for real-time monitoring and control for purposes of "self-repair"; however, this vision has not included marginalized voices, which our first study aims to address. Using this standard narrative for "Smarter Cities" as a probe, we plan to elicit 5, 10, and 20 year futures drawing from [9, 15]. In addition to the fictions, this could also allow us to identify if social constructions are reflected in the fictions.

In a parallel study, we plan to engage a community of elders in participatory speculative design to elicit stories that cultivate positive narratives of communities commonly regarded as disparity-laden. Engaging community residents in oral storytelling allows us to understand: former and present community assets, and methods of preserving culture and heritage; and how to leverage design as a tool to represent storytelling and speculative fictions of current Utopian ideals.

We understand that eliciting such stories will require scaffolding as suggested in [9], which we hope to draw from the workshop and contribute as a part of our results. Speculative design fictions and storytelling have the potential to represent a more positive perspective of the intersectional identities and communities at large that are not being considered in technology design outside of deficit. This approach may produce stories that speak to the richness both in culture and environment that exists among these communities, and to examine the narrative of futuring among populations who could benefit from speculating alternative existence in the present.

Questions to Consider Going Forward

Our proposed approach will allow us to elicit and reflect on when to elicit Utopian versus non-Utopian design fictions of marginalized populations and consider appropriate mediums for fictions in specific contexts. Our approach will allow researchers, practitioners, and designers to reflect upon and consider what we learn from these fictions, as opposed to existing fictions, and offer new ways to generate fictions to better inform our thinking. Although not discussed here, we also recognize and acknowledge the need for the assessments of existing design futures. Such futures could be assessed or analyzed by individuals who are unrepresented in the futures using Critical Race and/or Black Feminist theories [3, 12] to highlight intersecting patterns of discrimination that arise. For example, using CRT as a frame [3], in what ways is racism "ordinary" in existing design fictions (e.g., [17])?

Conclusion and Next Steps

Our hope in the future is that when we create design fictions we consider whose voices might be excluded and that these exclusions do not go unacknowledged. Given the limited fictions that exist for less financially-affluent populations, we see an opportunity for multiple contributions. On one hand the (1) approach for eliciting such stories is valuable; however, we see the (2) stories themselves as being the key contribution. These stories would bring an understanding of the (3) opportunities for new development as well as (4) negative consequences [15]. Finally, it has been suggested that our ability to envision alternative narratives is strongly connected to our personal wellbeing and our collective wellbeing by extension [1]. Perhaps this is another way in which our methods could inherently contribute back to those who have remained voiceless.

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