The future of techno-disruption in gig economy workforces: challenging the dialogue with fictional abstracts

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ABSTRACT

In this article we explore near-future of the pervasive computing, AI, and HCI in the context of the disruptive potential of technologies on workers in the on-demand gig economy. Using fictional abstracts, the authors muse on dystopian case studies of: independent contractors, last-mile couriers, teachers, and creative professionals. This article serves as base for critical reflections on: 1) the need for multidisciplinary approaches when tackling broader and far-reaching societal implications of digital technology in the gig economy, and 2) the potential role of fictional abstracts in the design process of future digital technologies.

CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI)**.

KEYWORDS

Gig economy, fictional abstracts, human security, future studies, design fiction, existentialism, creativity, logistics, AI, autonomous vehicles, drones, HCI, ethics, justice, pervasive computing, ubicomp

1 INTRODUCTION

In HCI, design fictions [4–6, 19, 21], speculative research visions [3], futures studies [12, 16, 17], and workshops using fictions [11, 14] considering the societal consequences of technologies are becoming

increasingly popular. The narratives and fictional scenarios presented in this literature have facilitated discussions of alternative presents and futures, helping recognise and steer the development of digital technology away from unforeseen consequences on society. Pargman et al. utilised a so-called 'fictional abstract' where attendees authored 250 word fictional abstracts used to facilitate discussion and debate focusing on "futures of computing and wisdom" [14]. Building on Pargman et al., Light et al. [10], and Blythe [5], the authors see fictional abstracts as an effective medium for illustrating the potential effects on technologies and services in gig economy work, collaboratively embracing tensions of being a responsible designer, and recognising the needs for multidisciplinary approaches to technology design in complex social systems. This article focuses specifically on dystopian visions of the 'gig economy', which should be understood as "the exchange of labour for money between individuals or companies via digital platforms that actively facilitate matching between providers and customers, on a short-term and payment by task basis" [9].

HCI and related studies of digital technology have focused on: protecting gig workers [18]; algorithmic bias and data in the futures of work [13, 22]; developing tools to support workers in gig and crowd work [2, 8]; configurations of piecemeal work [1]; and, studies of on-demand, gig economy work [7, 20]. Whilst gig work is facilitated by technology, the authors also recognise the potential of digital technology to disrupt the labour of work in the UK where the gig economy facilitates casual work for 2.8 million workers [9]. Within this context, we see fictional abstracts as a tool to develop narratives and a diversity of multidisciplinary collaborations, leading to discussions and designs which more deeply considering the role of digital technology in key societal issues surrounding current and future labour laws, human security, employment rights, automation, access and bias, worker categorisations (e.g. gig economy workers vs. employees), and regulatory reform.

The purpose of this article is three-fold: 1) introducing fictional abstracts to the 'Halfway to the Future' community; 2) develop critical reflections on the near future of gig economy work in the UK; and, 3) use fictional abstracts to enable a discussion with the community about the broader implications of technology and its far-reaching consequences.

2 METHODS OVERVIEW

> "We used fictional abstracts for two different purposes. The first purpose was to encourage researchers to write abstracts that speculate about possible futures of (in this case) computing and wisdom. The second purpose was to put these abstracts to work as a tool to *drive conversations* about the futures of computing and wisdom at the workshop itself." [14]

The theme of the abstracts presented here is "The future of techno-disruption in gig economy workforces." This theme builds on previous work highlighting how HCI and design can (and should) work for workers, not just consumers, to help fight issues of unjust labour practice and shift the power of the gig economy to the hands of workers [2, 8]. **The abstracts are positioned in the near-future (2025-2035)** (cf. Design Fiction), and challenge notions of AI, HCI, labour, work, and automation. The authors followed writing guidelines developed by Pargman et al. [15].

3 FICTIONAL ABSTRACTS

A case study of gig workers as responsible moral centres of semi-automated systems.

International Institute for Responsible Automation

Recent high-profile incidents involving improper use of automated work-allocation systems demonstrate a misunderstanding of corporate responsibility. In this case study of the recent cyberterrorist attack ("The Gig Gig"), where a group of extremists exploited a corporate payroll server to steal funds (e.g., Argyll, 2022), we explore how the public misattributed blame and restate the vital role gig workers play as moral centres. The dominant argument on social media that preceded was that the terrorist groups were enabled and supported by corporations in their acts, using a series of instructional content on digital platforms to develop the skills necessary to carry out these attacks, and that the attackers were radicalised by systems that suggested increasingly extreme content based on their interaction history.

We explore this misunderstanding and demonstrate that responsibility rests with independent contractors, hired on extreme short contracts ("gig workers"), who are used to efficiently classify and categorise content on these platforms. This is done through a series of tagging tasks with excerpts of content, through a game interface where contractors compete to classify accurately and quickly for financial reward. Since these contractors independently made the decision to classify material used in preparation for the attack, it therefore follows that they ultimately be held responsible for the resulting misuse. Although platforms host the content, it would neither be accessible, or semantically linked, if not for the work performed. We propose design recommendations that ensure that such contractors are correctly held accountable for the effects of their actions.

Everyday Datafied Digital Service Design: Embracing resistance when designing for the productive societal contributions of ex-workers

Alternative Cybernetics Research Cooperative, UK

Collective action against the automation of last-mile logistics and "The Death of the Highstreet" is rising; "Sky-net" attacks against parcel drones in airspaces have quadrupled in the last decade (BBC Sept. 2032), and hacktivist groups repeatedly reroute empty AVUber taxis into Thames estuary (CNN, Oct. 2030). To maintain the flow of goods and services, the underbellies of our cities are used as 'secure testbeds', leading to the rapid development of fatberg cutting parcel drones and AV (Wired, Jan 2029). As an impact of basic income in the UK, free time is no longer a premium, perpetuating increased digitally mediated "civil disobedience" (e.g., anti-drone drones, the "Sky-net"). Work and labour became increasingly datafied between 2020 - 2025, leading to worker exploitation in these ubiquitous digital platforms, through holistic tracking of worker movements, practices, and behaviours. It has been hypothesised that business further leveraged this data (cf. surveillance capitalism) leading to the agency, work patterns, and intellectual property of the workers from this period becoming deeply ingrained in the autonomous society we now serve under. This paper aims to reconcile the role of technologists who "sit at a [slightly] higher plain of innovation and opportunity" [@HCI_technocrat_2F8cA, Twitter 12/23/33] by beginning to heal the broken social contract between the economy and the worker. Building on the framework of "Everyday Datafied Design" [Norman_bot and AI_xcF234, 2032] this paper presents qualitative deep learning study of ex-workers (n=328), presenting three new principles for designing resistance into digital services as a productive societal role.

'No Teacheroober!? How would I make time to get a job?' The augmented and 'naked' final year experience compared.

School of Critical Higher Education Design (CHED)

The 2024 Abacus Revolution's market deregulation policies has seen innovation in the 'gig lecturer' market, with 98% of UK students using learning support apps (Think and Sketch 2028) in dissertation writing.

Auto-writing and deep-research software enables app-tutors (normally academic staff and unemployed graduates) to co-write up to 400 student dissertations simultaneously, costing between £250 - £1100 per essay (Stuart & Shatner 2028, Teacheroober 2026). Academic support apps were banned for final year students at Sony TRUMP University in 2028. Research showed that these students have worse post-grad employment outcomes in the first month (Teacheroober et al. 2029). Here, we examine the impact of the ban on staff.

We surveyed 75% of the teaching staff (£50 reward card given) with 1 hour, semi-structured chatbot interviews. The paper presents three key finding truth insights: Disruption to academic research teaching staff piggy-backed their contract research through their student base and the app; Workload increase - the student's 'writing and research ability is crippled'. Tutors are having to 'take students back to first year basics'; Decrease in income - 'my bread and butter was gig lecturing' ... 'I am saving for a private rented flat, I think I'll be based in my car for another year at least.'

UK HE cannot ban learning support apps without large scale investment. At this point, it's now the backbone of the education

market-place. Forcing students to learn is an affront to their freedom.

The grand challenge revisited: protecting creativity professional's workers' rights

Centre for Creativity and Innovation in Economics

Twenty years have passed since HCI researchers were tasked with the grand challenge to develop creativity support tools (Shneiderman 2009), and since then the landscape has radically changed. With the advent of adaptive interfaces that automatically adjust tools to the designers' needs, recent development focus has shifted towards the tools that automate creative task assessment (e.g., creativityindexer.org). While those tools simplify the work of researchers seeking to support creative practices, the transformation of the entire industry has led to a worrisome state of the worker's rights. Specifically, the flourishment of crowdsourcing design platforms in the last decade see now 63% of creative professionals to be in temporary, freelance, or self-employed positions (Deloitte 2028), without appropriate protection and security for their future.

In this paper, we report on an interview study with thirteen design professionals in non-permanent contract situations and shed light on how the subtle change of the creative process over the past decade has changed their work practice. Analysing the results, we reframe the initial grand challenge of building creativity support tools as a challenge to incorporate considerations of workers' rights and protection for creative practice. Based on our review how the increased automation of creative tasks, their support tools, and the evaluation of creative work has changed this practice, researchers can no longer be agnostic of the political and economic implications that their work has on the affected workforce; an insight that was overlooked a decade ago.

4   REFLECTION AND CONCLUSION

Through the creation of these abstracts, we the authors have been drawn to ideas of daring and unknown futures for gig workers that could be very threatening, both in terms of dystopian and utopian visions. As we are only halfway to the future we see this venue to discuss themes of gig economy work in the next 15 years, to come to terms with the impact of technology design, seeking to avoid the undesirable negative impacts that technology may have on and for workers.

As co-authors with different backgrounds (e.g., Computer Science, HCI, Design, Interactive Media), a variety of disciplinary approaches and clashing values, the fictional abstracts offered us an interface for discussing (and documenting) issues of complex, global, and sociotechnical systems that are often out of scope of the research projects due to epistemological boundaries and limitations in our lenses and approaches. Through reflecting on our own experiences and assumptions in fictional abstracts we were able to identify gaps and grey areas in our collective knowledge of the impact of digital technologies in the gig economy. In the context of the gig economy this exercise helped the authors critically reflect on issues that are often not tackled as part of a software engineering or digital design process, such as, legal and regulatory issues, disruption of work and society, consumerism, legislative and legal issues, human security, access to work, and justice.

It is our opinion that fictional abstracts can be more than just a conversation driver (cf. Pargman et al. [14]). The exercise of creating and discussing fictional abstracts helped the authors proactively stay aware of "the wider interactions of our engagement with technology and its consequences" [10]. We are encouraged by the growing engagement in design fictions and future studies in HCI, and see the potential for fictional abstracts to become a design tool used reflexively throughout the design process, helping support critical thought about societal impact, the inclusion of multidisciplinary perspectives, and steering clear of dystopian futures.

Beyond provoking discussions between different disciplines, these fictions also serve as a reminder that our futures are latent, and are already in becoming. It is crucial, therefore, that we recognise the wider implications of evolving technologies and services, and in doing so, challenge the current dialogue in particular spheres. Whilst independent contractors, last-mile couriers, university lecturers and creative professionals are all professions in which technology has been positioned as being a capable aide, we have played with more dystopian futures to challenge such conceptions about gig economy work. We feel that it is critical for all designers and researchers in HCI and Ubicomp to engage with the ideas of technology having profound impacts on societal issues, and see that fictional abstracts are an effective tool for this.

As such, we leave the community with the following questions: How can fictional abstracts be used as tools in multidisciplinary projects to highlight different perspectives?
How can we make research more responsible and consider societal issues that arise from?

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