



Stakeholder-Centered AI Design: Co-Designing Worker Tools with Gig Workers through Data Probes

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ABSTRACT

AI technologies continue to advance from digital assistants to assisted decision-making. However, designing AI remains a challenge given its unknown outcomes and uses. One way to expand AI design is by centering stakeholders in the design process. We conduct co-design sessions with gig workers to explore the design of gig worker-centered tools as informed by their driving patterns, decisions, and personal contexts. Using workers' own data as well as city-level data, we create probes—interactive data visuals—that participants explore to surface the well-being and positionalities that shape their work strategies. We describe participant insights and corresponding AI design considerations surfaced from data probes about: 1) workers' well-being trade-offs and positionality constraints, 2) factors that impact well-being beyond those in the data probes, and 3) instances of unfair algorithmic management. We discuss the implications for designing data probes and using them to elevate worker-centered AI design as well as for worker advocacy.

CCS CONCEPTS

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

KEYWORDS

Gig Work, AI Design, Co-Design, Data Probes, Worker Well-Being, Worker-Centered Worker Tools

*The second author conducted this work as a research associate at the University of Texas at Austin's School of Information.

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CHI '23, April 23–28, 2023, Hamburg, Germany

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ACM ISBN 978-1-4503-9421-5/23/04...\$15.00
<https://doi.org/10.1145/3544548.3581354>

ACM Reference Format:

Angie Zhang, Alexander Boltz, Jonathan Lynn, Chun-Wei Wang, and Min Kyung Lee. 2023. Stakeholder-Centered AI Design: Co-Designing Worker Tools with Gig Workers through Data Probes. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*, April 23–28, 2023, Hamburg, Germany. ACM, New York, NY, USA, 19 pages. <https://doi.org/10.1145/3544548.3581354>

1 INTRODUCTION

The advancement of AI has enabled a spectrum of innovative products and functions. From self-driving vehicles to mental health chatbots [8, 43], monitoring bank fraud to determining medical diagnoses [36]—when designed well, AI can be an assistive tool for humans in navigating their tasks.

In the workplace, AI has increasingly automated repetitive, manual tasks and improved worker productivity and efficiency. Here, AI often manifests as algorithmic management—algorithms that take on managerial functions to oversee, assign tasks, and evaluate workers [34, 41]. For example, workplace tools such as Microsoft Suites or productivity apps include monitoring features so employers can track worker efficiency and throughput [3, 68]. Some workplaces may even continue to track and collect data on employees through these applications when they are off the clock [2]. These practices of algorithmic management are especially prevalent in gig work where data about workers is collected in droves and overbearing algorithms dictate worker tasks [66].

Though vast amounts of data are collected through these applications on behalf of companies without consideration of the users, exploring one's own data can be incredibly informative and empowering. Personal informatics (PI) research around how individuals desire to track, reflect on, and draw insights from their own data has shown how this can assist people in understanding their patterns [65] and even initiate behavior change [76]. Additionally, exploring and reflecting on their real data can support users in imagining future uses of their data, surfacing ideas that designers or practitioners might not otherwise come up with on their own [32].

With the ubiquity of digital data, PI researchers have explored how individuals review and reflect on their own data collected by social media platforms [29, 47]. Researchers often use design probes,