Worker-Centered Design: Expanding HCI Methods for Supporting Labor

Sarah E. Fox
Carnegie Mellon University
sarahfox@cmu.edu

Vera Khovanskaya
Cornell University
vdk9@cornell.edu

Clara Crivellaro
Newcastle University
clara.crivellaro@ncl.ac.uk

Niloufar Salehi
University of California,
Berkeley
nsalehi@berkeley.edu

Lynn Dombrowski
Indiana University–Purdue University
Indianapolis
lsdombro@iupui.edu

Chinmay Kulkarni
Carnegie Mellon University
chinmayk@cs.cmu.edu

Lilly Irani
University of California, San Diego
lirani@ucsd.edu

Jodi Forlizzi
Carnegie Mellon University
forlizzi@cs.cmu.edu

Abstract

HCI has long considered sites of workplace collaboration. From airline cockpits to distributed groupware systems, scholars emphasize the importance of supporting a multitude of tasks and creating technologies that integrate into collaborative work settings. More recent scholarship highlights a growing need to consider the concerns of workers within and beyond established workplace settings or roles of employment, from steelworkers whose jobs have been eliminated with post-industrial shifts in the economy to contractors performing the content moderation that shapes our social media experiences. This one-day workshop seeks to bring together a growing community of HCI scholars concerned with the labor upon which the future of work we envision relies. We will discuss existing methods for studying work that we find both productive and problematic, with the aim of understanding how we might better bridge current gaps in research, policy, and practice. Such conversations will focus on the challenges associated with taking a worker-centered approach and outline concrete methods and strategies for conducting research on labor in changing industrial, political, and environmental contexts.

Author Keywords

Future of work; labor; worker-oriented design.

CSS Concepts
• **Human-centered computing~Human computer interaction (HCI)**

Background
Since its inception, the field of HCI has considered the ways in which emergent technologies contribute to and interact with cultures and practices of work. Suchman, for example, outlines the tradeoffs of rendering certain aspects of work practices visible to others within organizations [19]. Star and Strauss describe how increased visibility may come with new forms of accountability and burdens of surveillance, through discussion of the challenges nurses faced in seeking to make their work demonstrable while retaining important aspects of ambiguity and discretion [18]. Early efforts of participatory design sought to contend with a managerial impulse embedded within emerging systems [2,3]. From medicine to graphic design, technologists collaborated with trade unions to oppose "managerial prerogatives" that sought to divide and control labor for the primary purpose of accruing capital, and instead uphold and recognize the importance of workers' skilled labor [2:251].

On-demand platforms introduce new expectations for managerial control and oversight, while leaving crucial forms of work unaccounted for or ignored [4]. For instance, Raval and Dourish describe the temporal labor and emotional performance required of ride-share drivers on popular apps such as Uber or Lyft [13]. Dombrowski et al. detail the information practices of low-wage workers seeking recourse for instances of wage theft [1]. Amazon Mechanical Turk workers similarly take part in uncompensated work when they investigate requesters and turn to forums to seek out

new techniques to navigate the platform [7]. Rosenblat suggests that the rhetoric of "flexibility" pervading the communications of such companies may draw drivers and other crowd laborers into such work, but as they become enrolled into these platforms they are pushed to partake new forms of ingenuity and risk-taking in order to keep up with the everchanging terms of work (e.g., the requirement to own a vehicle and Uber's foray into subprime lending)[16]. Here we see a type of "venture labor" different to that of the heroic potential that attracted "knowledge workers" to early internet startups in search of big payouts [12]. Instead, contemporary platform workers are expected to come in with the necessary expertise and materials to work but without the potential for wealth or sustained employment.

Recent information scholarship surfaces the human labor propping up the world's most used social media platforms, in the form of content moderation [6,15]. Despite being "the commodity platforms offer," according to Gillespie [6], the work of censoring graphic content unfit for public consumption (e.g., beheadings, child pornography) is often done by contract workers who earn low wages and are often offered no benefits. Because of this, they have few resources for seeking out therapeutic services or otherwise coping with the barrage of troubling content continually posted online. Similarly, those who recycle and manage the world's electronic waste are continually exposed to toxic and hazardous materials as a condition of their employment [14]. In the absence of consistent standards or oversight, such industries threaten to affect the health of workers and their communities for decades to come.

Efforts to interrogate labor relations have begun to assume a reflexive mode, unseating common design narratives and offering more nuanced understandings of building systems that support work. Irani and Silverman, for example, contest stories of design saviorism that have pervaded media coverage of their Turkopticon system, pointing instead to the efforts and organization of the workers themselves [8]. Similarly, Rosner, Shorey, and colleagues collaboratively enact the process of core memory weaving as means to surface the embodied and gendered nature of such work, while troubling narratives of invention as a solo accomplishment [17]. Khovanskaya, Dombrowski, Rzeszotarski, and Sengers draw on the history of pre-digital labor advocacy to surface strategies used by industrial unions to mitigate and selectively take on scientific management, tracing implications for contemporary data-driven worker advocacy [10].

As these questions of accountability, representation, and responsibility mount across the field, we seek to bring together a growing community of HCI scholars interested in labor to imagine the modes of methodological intervention and combination necessary moving forward.

Workshop Goals

Our aim with this workshop is to collectively imagine what a contemporary worker-centered research and design agenda could be for CHI. With this goal, we will not only gather a community of researchers around notions of work, but also build knowledge together. There are particular, overarching questions that we will seek to address by drawing on the broad range of experiences and perspectives present at the workshop:

How might we mitigate the (environmental, social) harms imposed upon workers involved in industrial technology production? As work in the field increasingly contends with the reverberating harms brought on or exacerbated by largescale technology production and use (e.g., environmental degradation, toxic exposure), we will focus our discussion on scholarship and activism that reimagines current practices and collectively outline additional strategies for which to intervene.

How might we design for "good" jobs? With more sophisticated artificial intelligence technologies come experiments in automation and attendant concerns around the displacement of workers in a variety of domains. We will consider the many facets of such debates, recognizing that advocates might seek to replace worker effort in dangerous, unhealthy conditions. Here, the focus then is on ensuring that labor is involved in creating and negotiating new modes of employment moving forward.

How might we contribute to coalitions already underway? Rather than developing altogether new initiatives, we will consider approaches of partnering with and contributing to existing efforts of worker advocacy. We will also discuss how to design spaces and platforms for workers to organize and advocate for better conditions, without fear of retaliation. In doing so, we will look to historical and contemporary examples for inspiration on how academic research initiatives can be responsive and responsible to worker-led groups.

How to advocate for and receive funding at the level needed to research large and disparate workgroups, with researchers from multiple areas of expertise? As

worker-oriented design research requires long-term efforts from people across lines of expertise, with various commitments, and institutional affiliations, we will discuss practical strategies for attracting and maintaining resources and support.

How might we as researchers inform policy initiatives that directly influence the conditions of digital labor? HCI researchers have long sought to inform design specifications that take stock of technological constraints and contexts of use, however, as Jackson et al. [9] explain, there are comparatively few examples of work that seeks to change regulatory structures. We will reflect on the ways in which research might work to shift policy conversations, pointing to examples and techniques within and outside of the field of HCI.

Organizers
Sarah Fox is a Presidential Postdoctoral Fellow at Carnegie Mellon University in the Human Computer Interaction Institute. Her research focuses on how technological artifacts challenge or propagate social exclusions, by examining existing systems and building alternatives. Her work has earned awards in leading computing venues including ACM CHI, CSCW, and DIS. She has also previously organized workshops at CHI, DIS, CSCW, and the decennial Aarhus conference.

Vera Khovanskaya is a PhD candidate in the Department of Information Science at Cornell University. She studies how social implications are built into technology through technical decision-making, and develops methods to identify and alter underlying values in technology through critical technical practice. Her work has earned honorable mention awards at ACM

DIS and CSCW, where she has also organized workshops.

Clara Crivellaro is Senior Research Fellow at Newcastle University's Open Lab, where she explores the design of tools and participatory socio-technical processes to support democratic practices and social justice. She is currently leading Not-Equal—a network to support collaborative responses to issues of social justice in technology design and implementation, including the future of work and workforces. Her work has earned best paper and honorable mention awards at CHI, where she has also previously organized workshops.

Niloufar Salehi is an Assistant Professor at the School of Information at the University of California, Berkeley. Her research interests are in social computing, technologically mediated collective action, and digital labor. Through building computational social systems in collaboration with existing communities, controlled experiments, and ethnographic fieldwork, her research contributes the design of alternative social configurations online. Her work has been published and received awards in premier venues in HCI including CHI and CSCW.

Lynn Dombrowski is an Assistant Professor at the School of Informatics and Computing at Indiana University – Purdue University – Indianapolis. She studies, designs, and prototypes human-centered technologies for intervening in large systemic social issues, like social and economic inequalities (e.g., hunger; wage violations). Her work has earned multiple awards, including a Best Paper at Ubicomp and DIS, as well as several honorable mentions at CHI and CSCW.

Chinmay Kulkarni is an Assistant Professor of Human Computer Interaction at Carnegie Mellon University,

where he directs the Expertise@Scale lab. In his research, Chinmay introduces new collaborative computer systems that help people learn and work better; typically, these systems use the large scale of participation to yield benefits that are otherwise not achievable.

Lilly Irani is an Associate Professor of Communication and Science Studies at University of California, San Diego. Her research examines the cultural politics of high-tech work and the counter-practices they generate, as both an ethnographer, a designer, and a former technology worker. She is a co-founder and maintainer of digital labor activism tool Turkopticon. Her recent book *Chasing Innovation: Making Entrepreneurial Citizens in Modern India* (Princeton University Press) was awarded the Diana Forsythe Prize by American Anthropological Association.

Jodi Forlizzi is the Geschke Director and a Professor of Human-Computer Interaction in the School of Computer Science at Carnegie Mellon University. She is responsible for establishing design research as a legitimate form of research in HCI that is different from, but equally as important as, scientific and human science research. She is a member of the ACM CHI Academy and has been honored by the Walter Reed Army Medical Center for excellence in HRI design research.

Website

The website will be hosted on Carnegie Mellon University servers in order to ensure long-term maintenance and security. This site can be accessed at the following address: https://sites.google.com/andrew.cmu.edu/workercentereddesign

Pre-Workshop Plans

We will invite participants via existing networks, including mailing lists, social media, and personal invitations. We will distribute the workshop announcement to researchers, practitioners, and students in design research and aligned fields, including HCI, design, science and technology studies, information studies, and law. We hope to accept 20-25 participants.

Several weeks prior to the workshop, we will circulate position papers amongst small groups and encourage early discussion so that attendees have time to reflect on each other's work prior to the gathering.

Workshop Structure

8:45-9:00 — Coffee and breakfast items

9:00-10:00am

Welcome and Participant Introductions - Academic attendees will introduce their research topics and institutional affiliation. Non-academic researchers and practitioners will describe their work and what they hope to gain from this workshop experience.

10:00-10:45

Reading Reflection - Small panels will be invited (consisting of organizers and participants) to discuss exemplary work on the future of labor and labor-oriented methods. Extensive time will be reserved during each session to reflect and discuss.

11:00-12:30

Working Paper/Works in Progress presentations - Participants will give brief presentations on projects in progress, and attendees will offer feedback.

12:30-2:00 — Lunch

2:00-3:00

Cross-cutting Themes Discussion - Participants and organizers will discuss and synthesize themes emerging from the works in progress presentations and reading reflection discussions.

3:00-4:00

Moving Seminar - Inspired by STS scholar Mol's "walking seminar" [11] and feminist workshops previously held in HCI/CSCW venues [5], participants will organize into pairs around various concerns raised earlier in the workshop. This will be an opportunity for researchers and practitioners to discuss issues not typically addressed in traditional academic fora.

4:15-5:30

Resource Brainstorming and Future Steps - What can we already share from this space to the broader HCI and CSCW community? Workshop participants will share insights and resources for the wider community while also planning future steps toward advancing workshop goals.

Post-Workshop Plans

The primary and long-term goal of the workshop is to build a community of researchers who are committed to worker-oriented study of labor. Possible long-term outcomes include research panels and labor themed interactive exhibits at CHI and related conferences, as well as collaborative research projects among workshop participants. We also intend to incorporate discussions from this workshop in a proposal for a special issue of a peer reviewed journal such as *ACM Transactions on Computer-Human Interaction* (TOCHI) or *Design and Culture*. After the workshop, discussions and materials will be documented and we will work with attendees to produce a collective annotated bibliography of references mentioned during the event, all hosted on the workshop website. This site will be maintained after the workshop, allowing for participants to continue conversations and collaborations that support future discussion of design and labor.

Call for Participation

This one-day workshop will explore the use of research and computing practice in supporting labor. We will build conversations around what it means practically to take a worker-centered approach to design within HCI. Topics will include the following: strategies and techniques for research on labor, emphasizing the development of community/academic partnerships, our role as interventionists in sites of labor, and methods for evaluating and iterating on contributions to our various partners or initiatives. Such conversations will focus on the challenges associated with taking a worker-centered approach and outline concrete methods and strategies for conducting research on labor in changing industrial, political, and environmental contexts.

We request that participants submit a two to four page thought piece that describes their work in relation to worker-centered design. This could take the form of an argument, a case study, a portfolio, or an analytic intervention. Submissions will be accepted based on originality, quality, and how well they represent disciplinary and geographic range. Submissions from outside the HCI community will be particularly welcome (e.g., information studies, anthropology, law, or from labor advocacy organizations outside of academia).

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