Abstract

Gig work has become a new instantiation of piecework. Further, gig work platforms allow employers to geographically disperse workers and silo workers' information, making organization and coordination all but impossible, and stymieing work specialization and expertise. Our research will draw on our past work, using historical analysis of piecework to inform this contemporary phenomenon, to design and develop a "digital hiring hall". Our research will shed light on the potential complexity limits of gig work, point to possible futures of labor advocacy for gig workers, and offer some insights into the best practices of principally online collective governance.

Motivating Work: Historical Analysis of Piecework

Piecework has historically disempowered workers and empowered employers, and many the same dynamics of disenfranchisement and frustration are poised to return today. In our most recent work [1], we found that a number of aspects of piecework — a form of work payment that began more than a century ago — bears striking resemblance to the sort of work we have begun to see emerge in Uber, Lyft, TaskRabbit, and more — collectively called "gig work". By subdividing work and paying for each task, employees are driven to work faster and longer, affording them little control over working conditions. And for most of its history, piecework yielded no benefits, occupational health and safety, or social insurance. When piecework combined with job routinization, workers became interchangeable and deindividuated. This combination of piecework and routinization produced the dominant payment system during the industrial era, starting with agriculture and home production but quickly moving into factories. However, by the turn of the 20th century in the United States, campaigns for workers' rights yielded regulations on conditions, and by the late 20th century, piecework was associated primarily with migrant labor and sweatshops. This contracted piecework economy has remained relatively stable since.

Today, with the growth of on–demand labor, piecework is reemerging in new forms. Networked computational infrastructure is now mediating each unit of work and worker. Uber's taxi drivers are paid per ride and assigned jobs by an algorithm [15, 6]. Information workers, such as those on Amazon Mechanical Turk and Upwork, are paid per task, performing vast quantities of data and administrative work [17]. Increasingly numerous workers make money through one–off tasks like housecleaning and food delivery, all mediated by online platforms. Much of this work has been limited in complexity to easily verifiable work, stymieing gig workers' career opportunities in many of the same ways that historically limited information workers' careers [5].

In our examination of crowd work and gig work as a reinstantiation of piecework [1], we identify a number of parallels that relate to this question. First, that the first "human computers" were geographically distributed and only retained for several years to stifle career development opportunities [5]; second, that effective uses of historical piecework were generally limited to easily measured work due to a general mistrust [10, 18]; third, this mistrust led to such a starkly adversarial relationship between workers and managers that it may have precipitated the wave of labor advocacy which defined the first half of the 20th century [7, 8]. What remains then are serious questions about the future of gig work as informed by piecework's history. We have limited knowledge of how gig workers today are adapting to digitally mediated, constantly changing labor markets. Similarly, we know very little about gig work's potential to support complex work, let alone how to turn that potential into reality.

This work carries policy implications for the emerging, and as yet largely unregulated, gig economy. Will gig work represent empowered, independent professionals who freely control their destinies, or will gig work become a geographically distributed "digital sweatshop" [3]? Whereas researchers had relatively little control over the markets that emerged throughout the 20th century, researchers of digital sites of work have the ability not only to influence, but to architect these settings [16]. It can be argued that with a few lines of code, we can effect outsize change on the future of gig work — a form of work that continues to grow by the year [21, 20].

Research plan

While our research considered a number of possible futures for gig work in general and gig workers in particular, several important questions remain unresolved. For example, will gig work remain an undesirable career path, largely taken up by people who can't or won't commit to conventional work arrangements; or can gig work someday come to represent highly skilled, sought after work? While we offered a framework for answering questions such as this one, the reality is that any researcher or team exploring this area — especially on the basis of the parallel we drew — would fundamentally need to be conversant with several deep bodies of research spanning myriad fields.

Informed by our research into gig work, we propose to build one of the potential futures that we discussed. We will build a system that tracks gig workers' professional histories across myriad work platforms, aggregating & consolidating that data, and allowing workers to curate their professional identities, instantiated by a "digital hiring hall".

The system we intend to build will serve two roles — one for workers and one for employers. Gig workers will share their work histories from platforms such as Amazon Mechanical Turk with our repository, which will allow us to provide the worker with information upon which they can reflect (e.g. detailed analysis of their work trends, approval rates under various circumstances, etc...) as well as information in relation to other workers (e.g. offering a percentile ranking overall for approval rates, or within specific types of tasks). In doing so, we hope to find that workers will identify cues and gravitate toward qualities in work in which they identify competitive advantage.

The second role that this repository will help employers identify and source the best workers for highly skilled work. By aggregating the data from work platforms and offering more in–depth analysis of workers' histories, we hope to find that we can direct employers to gig workers whose overall experiences match the employer's given needs. For example, if an employer or a platform queries our platform for workers who are proficient at translating between two specific languages, we can yield a list of workers who would be suitable for the task.

This approach is similar in some senses to the role that hiring halls played through the 20th century. By disconnecting workers' data from the platforms themselves, our repository will act as a sort of "digital hiring hall", connecting employers with workers whose varied work histories provide them with the expertise necessary to do given tasks. By engaging workers in the management of this repository, we will advance the metaphor in much the same way that labor unions maintained — and continue to operate — hiring halls of their workers.

At a high level, we can study the usefulness of this system using standard experimental approaches. First, through quantitative methods (for example, comparing workers' earnings over time); and second, through qualitative methods (for example, through interviews to determine whether workers find and exploit specialty niches as a result of this tool). We can also explore employers perspectives in tangible ways; for example, given concerns about the quality of work [9, 14, 13], we will investigate whether a system that better communicates worker expertise allows employers to rely more confidently on crowdwork.

Interdisciplinarity

This research will call on methods and skills originally from and generally found in disparate fields. As we showed with our paper examining the relationship between piecework and gig work [1], the lens of a social scientist can inform conversations about digitally mediated work in ways that many computer scientists are not otherwise able to offer. At the same time, the perspectives of computer scientists — and the challenges digitally mediated spaces bring with them — offer to reinvigorate deeply theoretically grounded discussion and offer field sites with which to experiment and test these theories. As a Computer Science Ph.D. student originally trained as an Anthropologist, I believe I'm the best candidate to combine these bodies of literature to make this project succeed.

Anticipated Contributions & Implications

This research is of significant importance given the recent trends in the "gig economy". With more and more people joining the workforce in this capacity [21, 20], concerns about "the future of work" [19, 12] continue to grow. Without compelling career trajectories in this space, the optimistic prediction seems to be that we will have little say in the outcome of this shift in work. Our hope is that, concretely, the artifact produced by this research raises the limit on the complexity of work that can reliably be crowdsourced. More broadly, we expect to offer two major contributions to the Human–Computer Interaction community: first, an existence proof that a gig work market for complex, specialized workers is possible; and second, insights into how best to scaffold and foster ongoing collective governance.

This project's will speak to the critique that the internet, far from the democratizing force that Barlow predicted it would be, has become an infrastructure facilitating the corporate centralization of power [2, 11, 4]. The success of this project will therefore not only bring a more nuanced understanding of the shifting climate and culture of labor, but may — in a small way — deliver on the promise Barlow made that cyberspace and the Internet would be a tool for democratizing access to information, and with that, empowering more than the tech elite who engineered it.

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