
Online WORK

Gig Work

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Algorithm-driven Online Work

- Work is shifting online with the use of algorithms in automatic management, organization, coordination and evaluation of workers
- Gig work: temporary, short-term, and on-demand work
 - **App work: Uber, Instacart, Lyft**
 - Crowd work: MTurk, Fiverr, Upwork
 - Capital platform work: Airbnb, Etsy

History

Late 1990s -
Early 2000s



Mid-2000s



2008



2010s



How many people are working as gig workers in the U.S.?

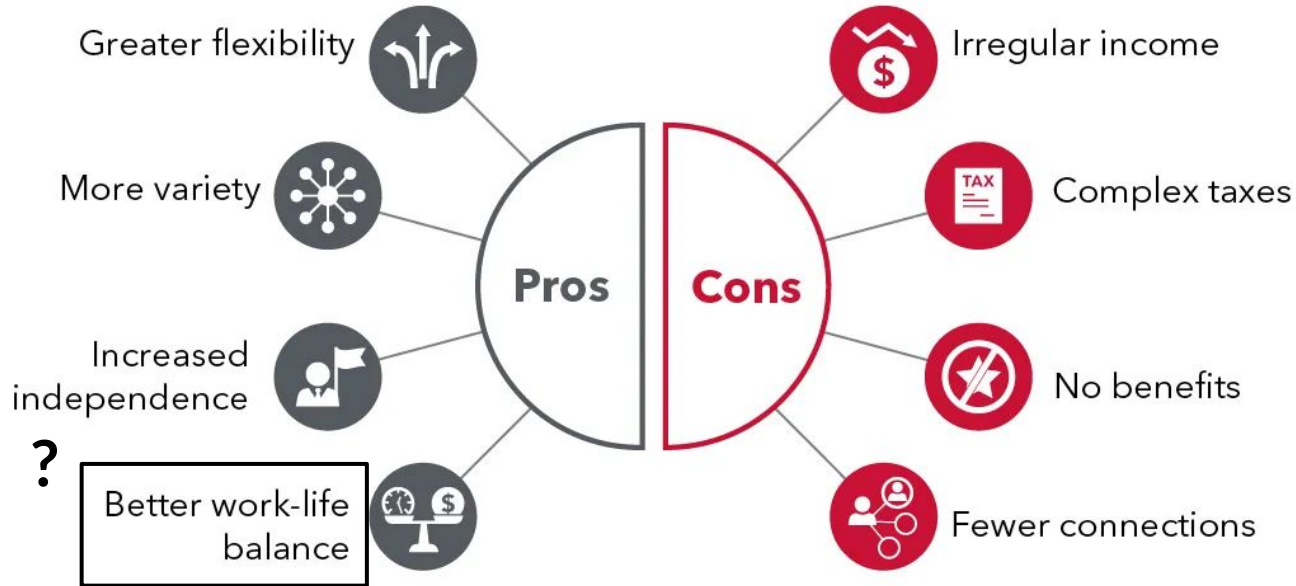
- 9% of U.S. adults are current or recent gig workers, i.e., they've earned money through an online gig platform in the past 12 months
 - 4% currently doing gig work
 - 5% not currently doing it, but having done so in the past year

Quick Survey

What gig work platforms do you use or have you ever used?
Have you ever used a gig work platform to find freelance
gigs or part-time jobs? What's your general experience?

GIG ECONOMY PROS AND CONS

Workers in a gig economy can enjoy a number of advantages, but there also are potential disadvantages. The pros and cons include:



Sources: The Balance, Investopedia, ThoughtCo., TimeCamp

**The impact on human workers and work practices is
less recognized**

Outline

- Paper 1: The impact of algorithm over ride-sharing drivers (30min)
 - 3 discussions
- Paper 2: Ways to improve gig worker well-being (30min)
 - 1 discussion

Working with machines: The impact of algorithmic and data-driven management on human workers (CHI2015)

Min Kyung Lee, CMU

Daniel Kusbit, CMU

Evan Metsky, CMU

Laura Dabbish, CMU

Case: Ride-sharing



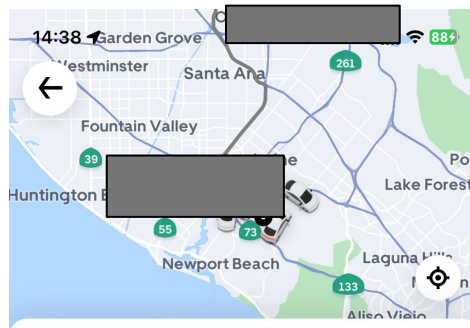
Method

- Interviewed **21** drivers and **12** passengers
- Archival analysis of **128** posts by drivers in online driver forums and **132** official blog posts and communication materials from both Uber and Lyft

Case: Uber and Lyft

1. Passenger-driver assignment
2. Dynamic display of surge-priced areas
3. Data-driven evaluation

1. Passenger-Driver Assignment




Prices are lower than usual



UberX 4
15:13 • 8 min away


\$25.91
\$30.41



Comfort
15:12 • 7 min away

\$27.37
\$36.76

Faster



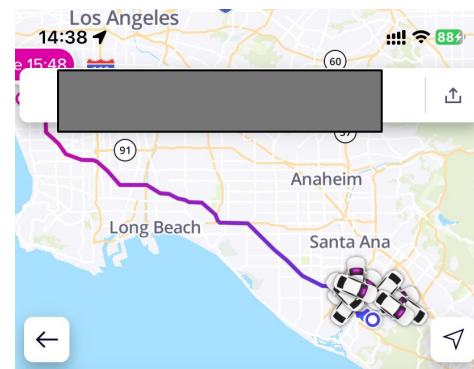
Uber Green
15:13 • 7 min away

\$25.91
\$30.41

UberX Share \$20-25.26

Apple Pay

Choose UberX



You're saving 10%, up to \$3. Nice.

Lyft 4

in 9 min
Priority Pickup \$73.42 **\$70.42**

in 10 min
Standard \$70.86 **\$67.86**
15:48

Green 4
in 10 min **\$70.86**
15:47

XL 6
in 11 min **\$96.61**
15:47

Wait & Save \$60.00

Apple Pay + Promo

Schedule

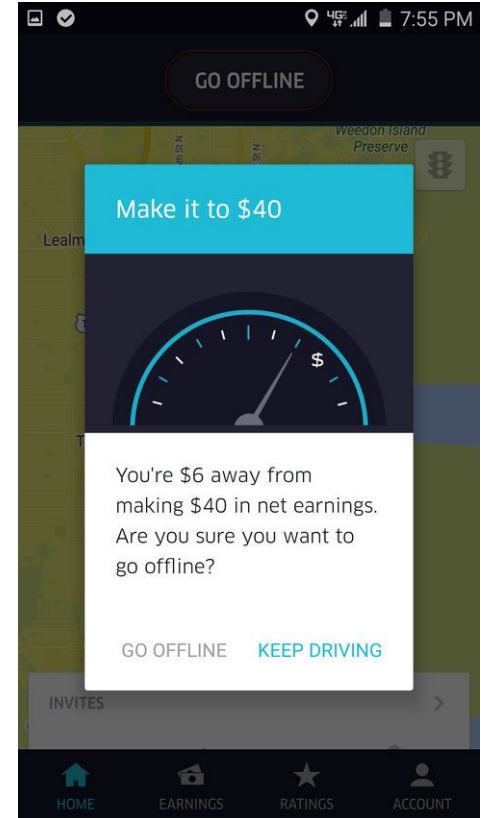
Select Lyft

Driver-Passenger Assignment

- Lack of Transparency
 - Folk theories about the assignment
 - Self- and Community-developed Workarounds
 - *Resisting*, e.g., rejecting rides from low-rated riders
 - *Switching*, e.g., working the Uber and Lyft apps simultaneously
 - *Gaming*, e.g., strategically turning on and off the driver app

Driver-Passenger Assignment

- Automation v.s. Self-control
- Dark Patterns
 - Having to make the decision within 12 seconds
 - Nudges encouraging drivers to work more
 - ...



Group Discussion

From the perspective of a service user, how important is it for you to feel the platform's task matching process is transparent? How could gig work platforms improve fairness and transparency in task matchings?

- What information would you want to have for the matching system?
- What factors should platform prioritize, e.g., distance, rush hours, worker ratings, experience, and responsiveness?

This guy paid \$800 for an Uber home on New Year's (surge prices reached 9.9x)

Jelisa Castrodale USA TODAY

Published 1:30 p.m. ET Jan. 5, 2016



increased to get more Ubers on the road.



2. Dynamic Pricing

Surge-pricing Algorithms

- Not accommodating human abilities, emotion, and motivation
 - Some drove for fun, social, and curiosity needs

Uber Surge Pricing is a Scam

Requested an Uber last night from Newark airport to downtown Manhattan. Price was ~\$65 which is reasonable if not a little on the high side. When the driver came and I got into his car, he saw my destination was in New York City and refused to take me on the 30 minute ride as he was not licensed in New York and would not be able to take a passenger back to New Jersey.

I had him cancel the ride so as to not get charged and got out of the car. I was a little mad he accepted the ride when he could see that I was going to NYC, but whatever.

Went to
the price

Surge pricing, how much does driver get?

Decided

I am trying to determine if I need to tip my driver. I just paid 80 dollars from an airport that is normally 20-30. I Uber home a decent amount and have never had this pricing. How much does my driver get of that / should I still tip?

To reiterate, I've never seen that pricing for my trip and just want to make sure I take care of the driver and make sure he gets a proper money from my ride.

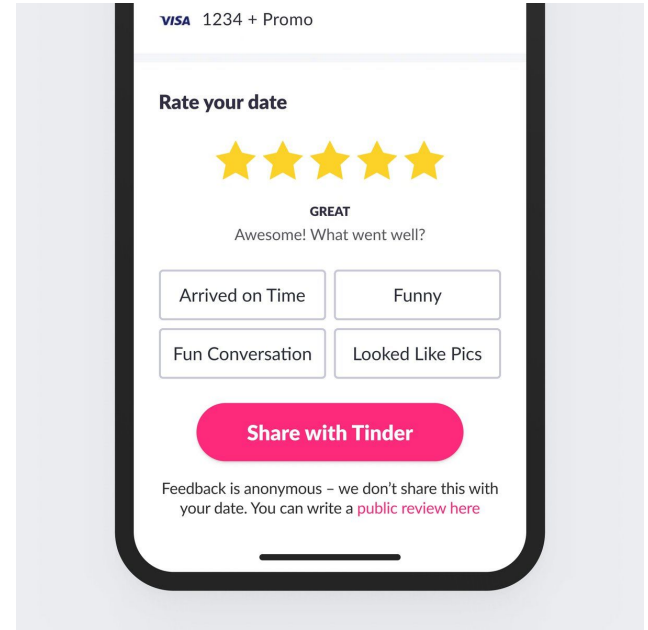
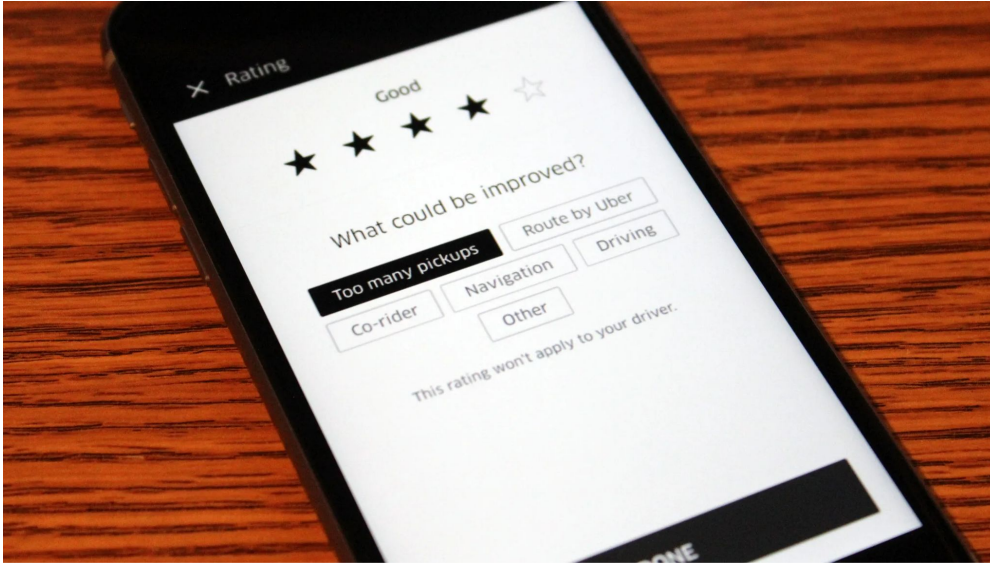
Thanks!

Group Discussion

Pick a gig work platform you are most familiar with. How do you feel about the pricing systems on the platform?

- Do you think they are fair to gig workers? Why?
- How would you design the pricing system? E.g., accounting for drivers' different motivations, improving the transparency?

3. Evaluation System



Data-driven Evaluation

- Inaccuracy in only using numeric metrics of service quality
 - Treating all ratings equal
 - Misattributed system error
- Unfairness in treating all rejections equally



r/uber • 11 hr. ago



Why are Uber drivers giving me 4 stars 🤔

I've gotten two four stars (or less) in the past 3 months when prior to that I had gotten none at all. It sounds like not that big of a deal but I feel like I'm already iffy about a driver the moment I see they are lower than 4.9 but now I'm the one with a 4.86 ;-; I'm always on time, waiting from the start and try my best not to annoy anyone

I just don't understand what would warrant them giving me a low rating, I match their vibe, if they seem initially talkative I will talk but if they aren't, I won't. They do the basic greet, hi how are you and if they don't ask any questions from then I won't but if they seem like they want to chat, I'll keep asking questions. The main problem is that it's the ones who don't chat with me that have given me 4 stars, I sit in silence and scroll on my phone for 30 minutes and say thank you have a great day at the end of the ride. Whyyyyy are they giving me 4 stars 🤔

I've taken a total of 31 rides and those 2 rides were the only ones I've gotten below 5 stars so I'm just confused

Group Discussion

How do you feel about evaluation systems on gig work platforms in general?

- What information will you look for when you use gig work services?
- What additional information do you want to have?
- The paper suggests introducing an algorithmic evaluation system. What do you think?

Algorithmic Management Reimagined For Workers and By Workers: Centering Worker Well-Being in Gig Work (CHI2022)

Angie Zhang, UT-Austin
Alexander Boltz, UT-Austin
Chun Wei Wang, UT-Austin
Min Kyung Lee, UT-Austin

Design to Improve Worker Well-being

The screenshot displays the Turkopticon browser add-on interface. At the top, it shows 'All HITs' and '61-70 of 1581 Results'. Below this, there's a 'Sort by:' dropdown set to 'HIT Creation Date (newest first)' and a 'GO!' button. A 'Show all details' link is also present. The interface is divided into sections for different HITs. The first section is titled 'yelp Reviews Information' and shows a requester 'ReachLocal Presence Grader Prod' with a 'HIT Expiration Date' and 'Time Allotted'. The second section is titled 'Identify the Main Subject Categories for 5 Images' and shows a requester 'Tagasauris' with a 'HIT Expiration Date'. A tooltip is visible over the 'Tagasauris' requester, displaying a table of worker ratings for various traits: communicativity (2.64 / 5), generosity (1.96 / 5), fairness (3.76 / 5), and promptness (2.76 / 5). The tooltip also includes a link to 'What do these scores mean?' and a note that scores are based on 46 reviews. The third section is titled 'Find a Coupon' and shows a requester 'What do these scores mean?'. The bottom of the interface has a link to 'Edit filtered Zappos product reviews for grammar'.

All HITs
61-70 of 1581 Results

Sort by: HIT Creation Date (newest first) GO! Show all details

yelp Reviews Information

Requester: ▼ ReachLocal Presence Grader Prod HIT Expiration Date
Time Allotted:

Identify the Main Subject Categories for 5 Images

Requester: ▼ Tagasauris HIT Expiration Date

Trait	Score	Max
communicativity	2.64	5
generosity	1.96	5
fairness	3.76	5
promptness	2.76	5

What do these scores mean?
Scores based on 46 reviews
[Report your experience with this requester »](#)

Edit filtered Zappos product reviews for grammar

Fig. 2: The Turkopticon browser add-on adds information about requesters provided by other workers.

Irani, Lilly C., and M. Six Silberman. "Turkopticon: Interrupting worker invisibility in amazon mechanical turk." Proceedings of the SIGCHI conference on human factors in computing systems. 2013.

Design to Improve Worker Well-being

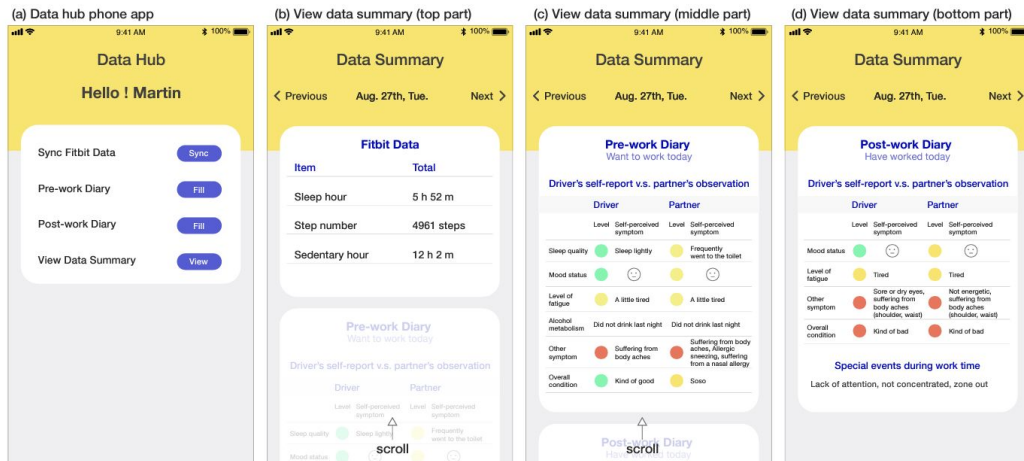


Figure 1: The user-interface screenshots of the DriveProbe system. (a) The main page of Data Hub app and (b ~ d) the Data Summary webpage. Users can scroll to view the three tables at the top (Fitbit data), the middle (pre-work diary data), and the bottom (post-work diary) of the webpage.

You, Chuang-Wen, et al. "Go gig or go home: enabling social sensing to share personal data with intimate partner for the health and wellbeing of long-hour workers." *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. 2021.

Research Gap and Questions

- Gig workers are rarely engaged in designing solutions
 - ***RQ1: How do gig work's algorithmic management and platform design affect worker well-being?***
 - ***RQ2: What do gig workers desire to see in technology designs that support their well-being and work preferences?***

Method

- Participatory design with 24 unique participants
 - Focus groups
 - Interviews
 - Participatory design sessions

Algorithmic Imaginaries

- "*ways of thinking about what algorithms are, what they should be and how they function*" in order to imagine, perceive, experience, and eventually design algorithms

How do you feel about using *Algorithmic Imaginaries* or similar imagination methods in user studies? Have you ever tried similar methods? What's your experience?

Key Findings

- lack of well-being support
- problematic gamification and differential incentives
- information asymmetry and opacity
- individualized work

Solutions Proposed by Drivers

Problem	Solution Themes	Involved Entities
Unaddressed Well-Being Support on Platforms	Data-Driven Insights in Support of Worker Well-Being, Well-Being Centered Nudges	Workers, Platform
Unfair Differentials Imposed By Gamification	Flexible Incentive Configuration, Rewarding Driver Loyalty	Workers, Platform
Uneven Information Access	Translucency in Task Assignment, Improving Information Visibility Between Drivers and Riders	Workers, Customers, Platform
Working and Learning in Isolation	Collective Information Sharing for Investigation & Advocacy, and for Driver Support & Knowledge Building	Workers, Customers, Platform

Table 2: Addressing algorithmic management shortcomings with workers: this table summarizes the four areas of platform limitations and solution themes intended to address them as conceived by workers themselves.

Group Discussion

What would make online gig work unique from traditional workplaces?

What would make it challenging to promote worker well-being on gig work platforms?

What do you think would be helpful to promote worker well-being on gig work platforms?

Summary of Implications

- System
 - Improving transparency or translucency of algorithmic system
 - Supporting collective sense-making
 - Accommodating workers' needs, e.g., motivations, work patterns, and emotions
- Design Practices
 - Involving workers in key stages of design