Empowering and Enhancing Workers Through Building A Community-Centered Gig Economy

NSF Project_ID: 1952085

Haiyi Zhu, Carnegie Mellon University

SCC-IRG Track 1, FY2020

Principal Research Investigators

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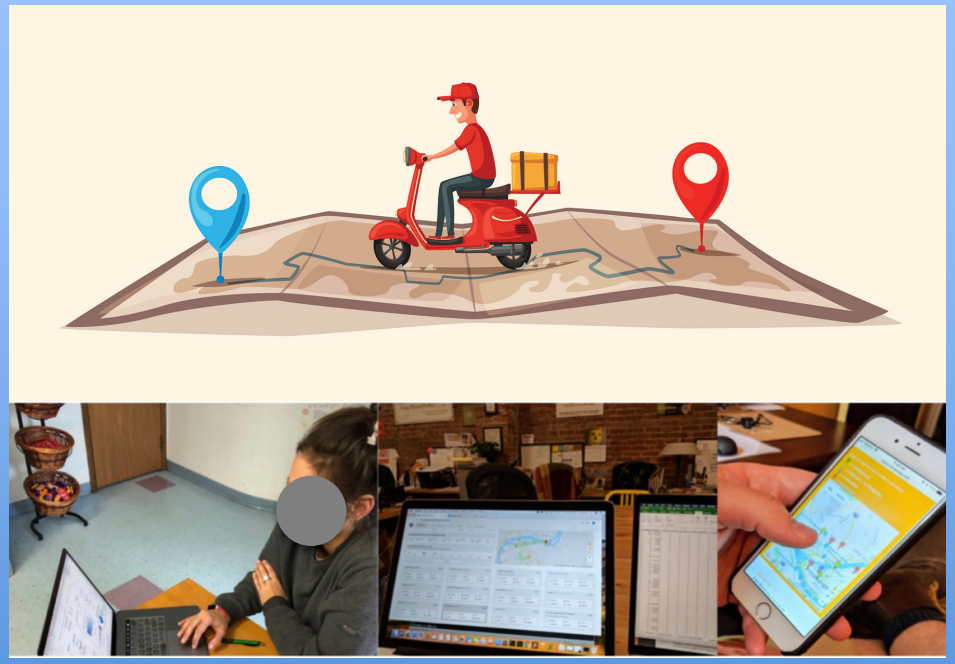
Community Partners

Allegheny County
City of Pittsburgh, Department of Innovation & Performance
Travis County
City of Austin, Economic development department
Metro 21: Smart City Institute
US Census Bureau
Uber
Upwork

Project Overview

Visual Schematic



Project Vision

- Developing a human-centered and data-driven decision-assistance environment to help gig workers make "smart" decisions in navigating and selecting gigs, and provide a macrolevel perspective for policymakers to balance their diverse set of objectives and constraints.
- Deploying and evaluating whether and how the above environment addresses the fundamental problems of worker wellbeing and systematic biases in the gig economy.

Project Overview

Use-Inspired Research

Working with workers who work for Uber, Lyft, TaskRabbit, and Instacart, and local policymakers (city of Pittsburgh and Austin) to understand their concerns, challenges, and considerations related to gig worker wellbeing, as well as the current practices, problems, and biases of existing gig economy platforms.

Fundamental Research Contributions

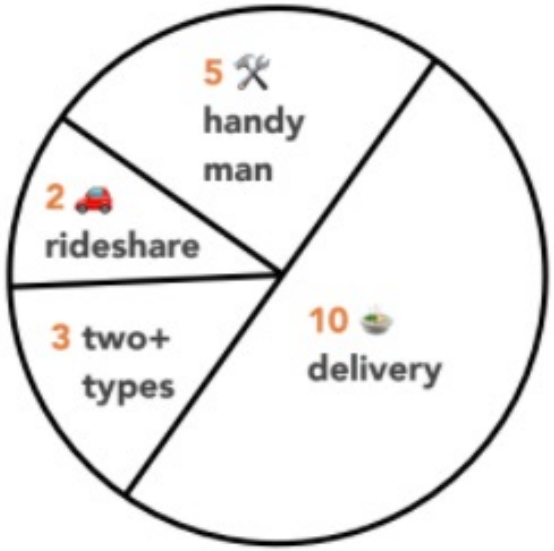
(1) We will generate knowledge about human behavior in complicated socio-technical systems.

(2) We will create novel algorithms to balance the diverse set of objectives and constraints of the workers and communities, along with interfaces to explain the algorithms.

Project Update

We have conducted in-depth semi-structured interviews with gig workers, content analysis using social media data, and decision modeling using trajectory data to understand gig workers' concerns, challenges, and decision-making strategies related to gig worker wellbeing, as well as the current practices and problems of existing gig economy platforms.

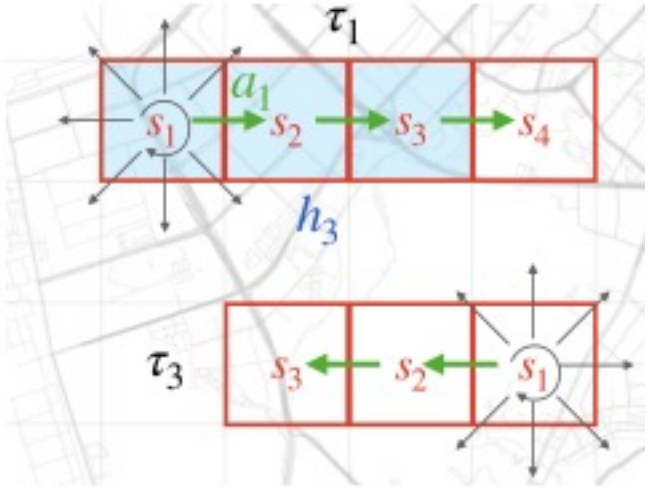
In-depth Interviews



Content analysis on 20 social media groups

Group Name	# of
Uber/Lyft Drivers Facebook Group	16,000
UBER DRIVERS	28,000
Uber & Lyft Drivers Los Angeles	12,000
UBER, VIA,LYFT, DRIVERS IN NEW YORK CITY	11,000
Florida - Uber Lyft Drivers	6,300
Arizona Lyft-Uber Drivers	2,500
Pittsburgh Uber	1,200
Uber & Lyft Drivers Seattle/WA	3,900
Lyft/Uber Women Drivers	14,700
Female Uber/Lyft Drivers	8,100

Trajectory data



Project Evolution

Worker-worker relationship

On one hand, gig workers provide informational and emotional support to each other on social media during the COVID-19 pandemic. For example, they answer each other's question like *"Do anyone know if it is possible to drive for uber or Lyft in the state of New York with Seattle Washington plates?"* or share information *"IRS issues warning as Bay Area workers receive 1099s from Uber, even though they've never driven a rideshare".*

On the other hand, workers see each other as competitors
"Because for me, honestly, every new driver is taking away business from me. You know, every new driver that joins is taking a piece of the pie. And there's only going to be so many customers, and there's basically an unlimited amount of drivers."

Worker-platform relationship

Power imbalance between individual gig workers and the mighty gig work platforms; workers are pessimistic about strikes.

"*Dude, get money while you can. Instacart is hiring 300000 more shoppers and has seen more groceries ordered over the last 72 hours than in its history. This strike will only hurt you*."

Anticipated outcomes & success measures for next year

(1) Conduct interviews with local policymakers to understand what goals government agencies have in relation to gig economy.

(2) Accumulate the information gathered in the interviews with gig workers and local policymakers, content analysis using social media data, and decision modeling using the trajectory data, synthesize and generate insights that inform the design.

(3) Will develop data-driven decision support systems for gig workers to navigate gigs on existing platforms

- *Formulating Individual Objectives and Constraints*
- *Formulating Community Objectives and Constraints*
- *Eliciting and learning workers' preferences.*
- *Multi-objective optimization*

(4) Will engage workers, local policymakers, and community stakeholders to co-design new possibilities for community-driven and community-owned gig platforms

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Visual Schematic

Project Vision

1) Developing a human-centered and data-driven decision-assistance environment to empower and enhance gig workers and policymakers.
2) Deploying and evaluating whether and how the above environment addresses the fundamental problems of worker wellbeing and systematic biases in the gig economy

Use-Inspired Research

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Fundamental Research Contributions

(1) Generate knowledge about human behavior in complicated socio-technical systems.
(2) Create novel algorithms to balance the diverse set of objectives and constraints of the workers and communities, along with interfaces to explain the algorithms.
(3) Exlore new possibilities for gig economy.