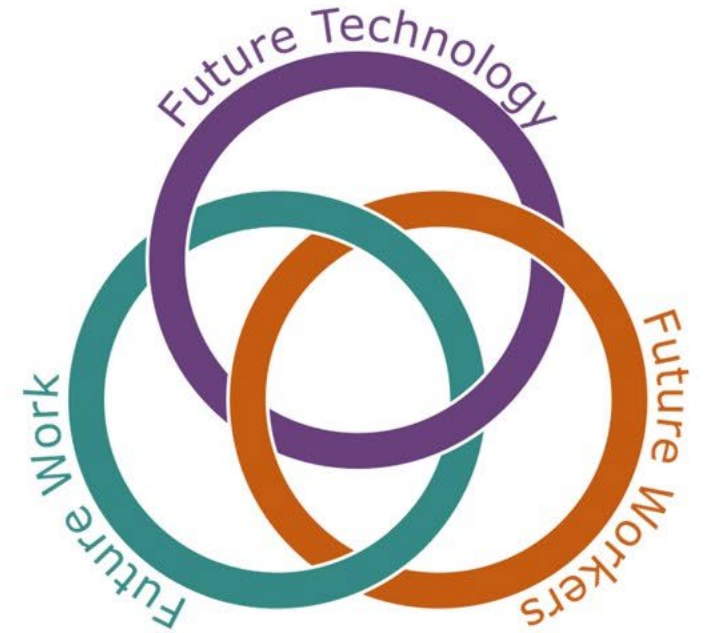
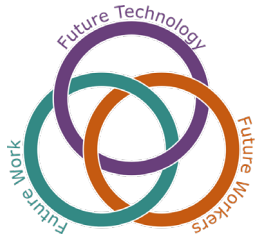


Panel 2:

Workplace of the Future; Gig and Self-Employed Workers

- Augmentation for Tomorrow: Expanding the Future Capacities of Independent Workers
- Building Research Capacity by Technological Interventions in Support of Mixed-Ability Workplaces
- Exploring Tools to Help Workers and Organizations Adapt to AI-enabled Robots
- First Person View and Augmented Reality for Airborne Embodied Intelligent Cognitive Assistants
- The Next Mobile Office: Safe and Productive Work in Automated Vehicles
- Understanding the Algorithmic Workplace: A Multi-Method Study for Comprehensive Optimization of Platforms





#1928573 Collaborative Research: FW-HTF-RM: Augmentation for Tomorrow: Expanding the Future Capacities of Independent Workers

PI(s): Ingrid Erickson, Syracuse University (imericks@syr.edu)
Melissa Mazmanian, University of California, Irvine (mmazmani@uci.edu)

We seek to understand how independent workers, and the ways that they fashion and sustain their work/lives, can help reveal new opportunities for the augmentative potential of AI in the future of work.

Future technology should help individuals *manage across spaces*. Technologies might augment a worker's capacity to "contextualize" quickly and seamlessly.



Future work will likely be an act of *assembling small pieces into larger wholes*. The question is how much autonomy workers will have to fashion their own assemblage(s).

7. SHOWER & P.J.s- 30 MIN. 8. PACK GYM BAG 9. FREE TIME - 9:30PM MAX. (SCREEN/ CREATIVE) 10. BRUSH & FLOSS - 10 MIN. 11. SKIN ROUTINE - 10 MIN. 12. SET GOALS - 15 MIN. 13. READ/ WIND DOWN	8. SHOWER & P.J.s- 30 MIN. 9. FREE TIME - 9:30PM MAX. (SCREEN/ CREATIVE) 10. BRUSH & FLOSS - 10 MIN. 11. SKIN ROUTINE - 15 MIN. 12. SET GOALS - 10 MIN. 13. READ/ WIND DOWN
WORK ROUTINE: 11AM-5:45 PM REVIEW GOALS/ SCHEDULE - 15 MINS EMAILS - 1 hr. LUNCH/ ERRANDS - 1 hr. BREAKS - 30 MINS MAIN TASK - 3 hrs. ADD/ MISC. FUCK-OFF TIME - 1hr. PROFESSIONAL/ ORGANIZATIONAL DEVT: 4 hrs/WK	MID-DAY BREAKS: 1. DRINK WATER 2. STRETCH/ P.T. 3. GET SOME STEPS IN 4. LUNCH 5. EYE EXERCISES 6. DE-CLUTTER

Place Presenter's Zoom
Image/Video Here

Augmentation for **future workers** needs to account for knowledge work, in particular, as an affective experience as much as it is a cerebral one.



FW-HTF-P: Building Research Capacity for Crafting Technological Interventions to Support Mixed-Ability Workplaces

Presentation By
Abhijeet Saxena

Introduction

- How to empower **people with physical and cognitive disabilities** who work at university libraries.
- Reported **lower employment** and pay than people without disabilities.
- Misunderstandings or negative attitudes from their coworkers.

Explorative Research

- Looking into cognitive disabilities
- Problems People Face
- Existing solutions
- The indifference created by the society
- How it impacts lives of people.

What are Cognitive Disabilities?

“Limitations in mental functioning and in skills such as communication, self-help, and social skills”

- *Michigan Alliance For Families*

Types of Cognitive Disabilities

- Autism
- ADHD
- Alzheimer's Disease
- Cerebral Palsy
- Dyslexia

Problems People Face

- Lacking educational infrastructure.
- Depression
- Anxiety
- Self-Loathing
- Joblessness
- Difficult to find life partner
- Start a life on their own

Existing Solutions

- Simplifying Content for People with Cognitive Disabilities
- Additionally, passage by the U.S. House and Senate of the Workforce Innovation and Opportunity Act (WIOA) demonstrates a growing emphasis on hiring more individuals with disabilities.
- Although people may think that a cognitive disability indicates an inability to perform complex work, most cognitive disabilities are related to processing issues such as difficulty tracking rapid speech or cognitive fatigue.

Existing Solutions

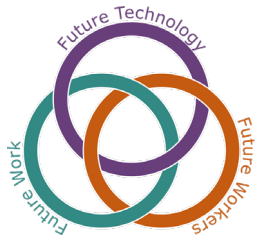
- It's estimated that, at any given time, 25% of the workforce may be experiencing some type of cognitive issue.
- Madelaine Sayko, president and co-founder of Cognitive Compass, an organization that advises businesses on approaches and resources to accommodate employees with cognitive disabilities.
- My Bionic Brain® - work and personal life management tool.
- thinkcollege.network

Indifference

- Source of motivation and inspiration
- Treated with exceptions.
- Not considered worthy enough for many jobs and responsibilities.
- Psychological difficulties are not responded

Impacts

- People don't want to get out of their couches to avoid social interactions
- Only 15% of people with cognitive disabilities are employed
- They don't want to be treated with exceptions
- Existing systems don't accommodate them



Award 1928122; Exploring Tools to Help Workers and Organizations Adapt to AI-enabled Robots

Matt Beane, UC Santa Barbara, mattbeane@ucsb.edu

Erik Brynjolfsson, Stanford, erikb@stanford.edu

Early, constructive adaptation to new automation should be rare and imperfect;
Unclear how prior automation findings apply to learning systems; FW-HTP-P for
proposal to develop technologies to facilitate constructive adaptation at scale

Research Program to Date

Primary focus: AI-enabled robotics in
pick-and-pack work

Field data: 3/2019 – Present; Eight
vendors, 37 multi-day observations
at 14 diverse implementation sites,
350+ interviews; operational data

Survey data: Longitudinal worker
survey; US MOPS of >800k
manufacturing organizations on
technology use

Barriers to Constructive Adaptation

Workers: “Total institution” facilities
and time famine restrict worker
welfare, contribution and skill

Work: Fragmented oversight of
simultaneous, diverse automation
efforts limits organizational learning

Technology: Technologists,
customers and investors seek
substitutes for skilled human input

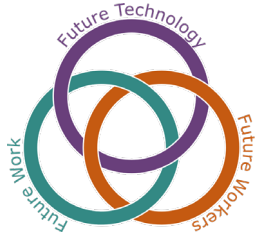
Future Technology, Work, Workers

Invite-only workshop in Jan 2021

Participants from academia,
nonprofits and industry

Purpose: Review findings on rare
constructive adaptation, decide on
target(s) for FW-HTP-R proposal

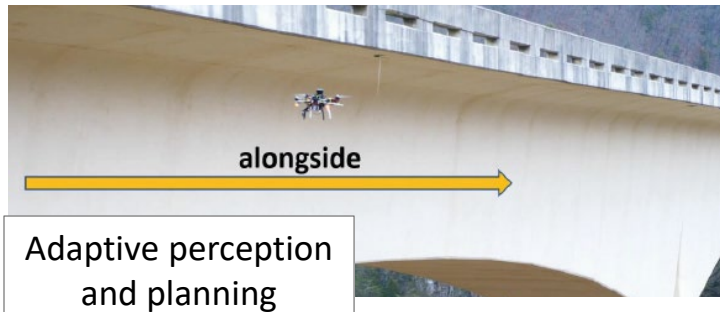
Submit FW-HTP-R by March 9



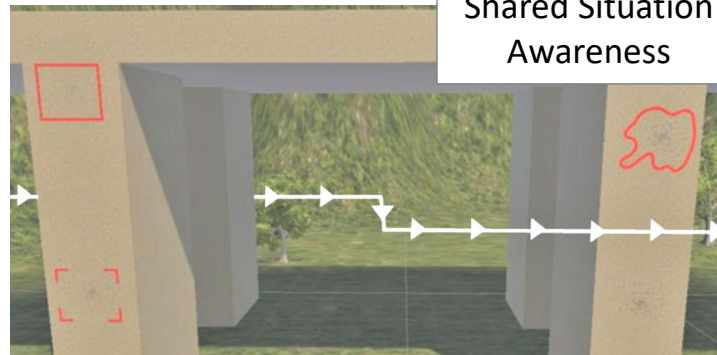
FW-HTF: First Person View and Augmented Reality for Airborne Embodied Intelligent Cognitive Assistants (Award No. IIS-1840044)
PI: Craig Woolsey, Virginia Tech (cwoolsey@vt.edu)

Project Goal: Develop theory and technology that improves the efficiency and effectiveness with which workers can inspect civil infrastructure using aerial robots.

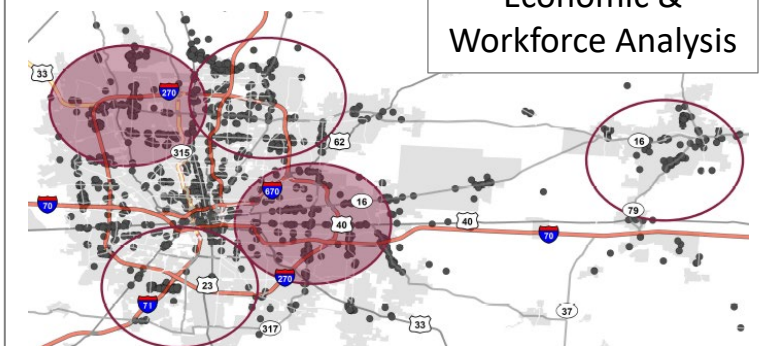
Future Technology

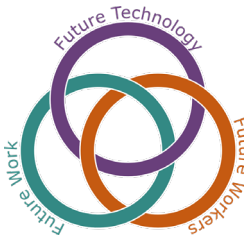


Future Work



Future Workers





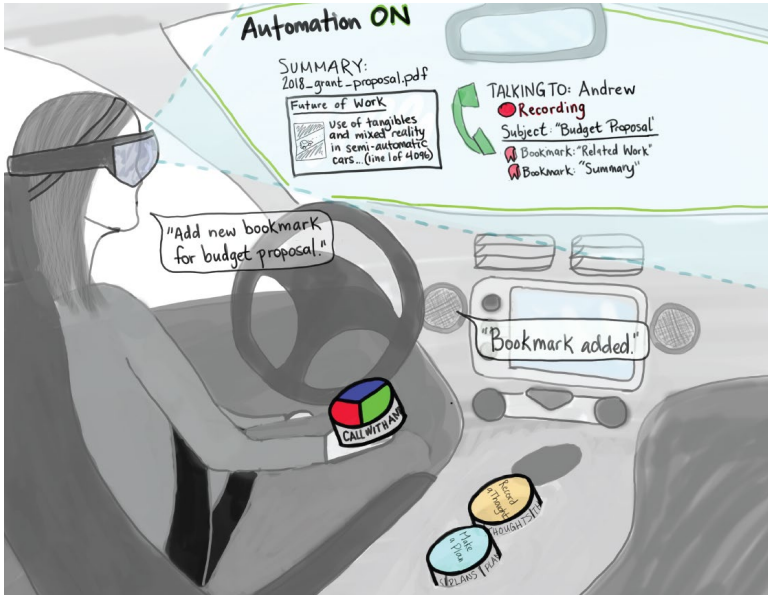
1840085 The Next Mobile Office: Safe and Productive Work in Automated Vehicles

Pls: Andrew Kun, UNH (andrew.kun@unh.edu); Linda Boyle (UW); John Lee (U. Wisc.); Raffaella Sadun (Harvard); Orit Shaer (Wellesley)

In automated vehicles workers will engage in non-driving tasks, but with obstacles: interruptions, no access to tools and colleagues. WFH presents similar challenges. How can we help workers in cars, and WFH, be productive and maintain wellbeing?

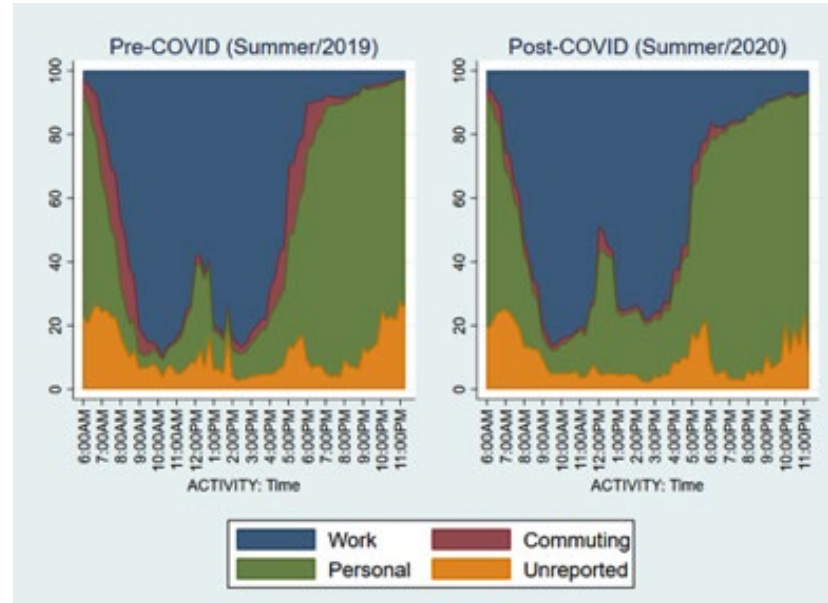
Tech:

- Interleaving driving/non-driving
- VR for wellbeing when WFH



Work and workers:

- Time use, surveys (~2k participants)
- Commuting, WFH, connecting



Bringing it together:

HCI & FoWW: A series of conversations

- 27 conversations in 2020



Speaker: Anna Cox



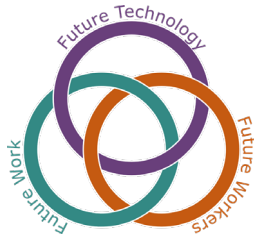
Speaker: Shamsi Iqbal



Speaker: Stephen Brewster



Speaker: Gregory Welch



Understanding the Algorithmic Workplace: A Multi-Method Study for Comprehensive Optimization of Platforms (#1928453)

H.C. Robinson, Michael Kane, Ozlem Ergun, Steven Vallas (Northeastern University)

Juliet Schor (Boston College)

Project components 225 interviews w platform workers and data from online forums, analysis of a delivery platform's data and experience, and development of an Agent-Based Model of the algorithmic workplace

Data collection and analysis year 1

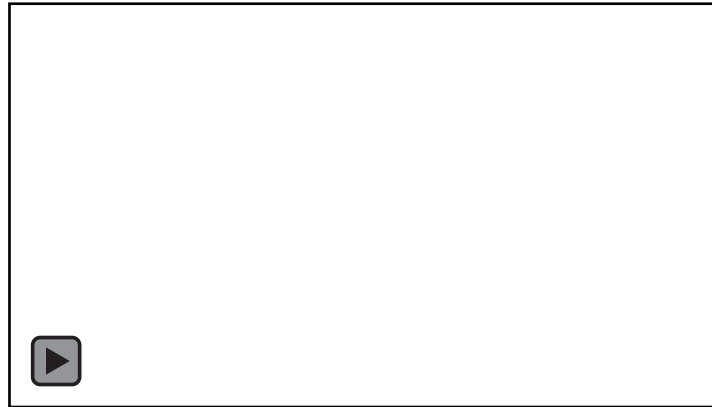
75 interviews with shoppers, food and package delivery workers

Interviews with managers at Deliv, a package delivery platform

Analysis of Deliv data focusing on **pre-post routing algorithm** and shift from **independent contractor to employee model**

UberPeople data scraped and analyzed pre and post pandemic

UberPeople: workers' posts pre and post pandemic



How do workers experience algorithmic management? Coding scheme for our ABM

