WHERE IN SOCIETY WILL AI AGENTS FIT? A PROPOSED FRAMEWORK FOR UNDERSTANDING ATTITUDES TOWARD AI OCCUPATIONAL ROLES FROM THEORETICAL PERSPECTIVES OF STATUS, IDENTITY, AND ONTOLOGY

Ekaterina Novozhilova
Boston University

Kate Mays
University of Vermont

Dongpeng Huang
Boston University

Hongchan Lee
Boston University

James Katz
Boston University

Introduction

Experts predict that almost half of American jobs will be replaced by artificial intelligence (AI) systems in the near future (Grace et. al., 2018; Frey & Osborne, 2017). Yet the public opinion research shows that people are not excited about being replaced with machines. People agree that AI will be transformative for society, but they are uncertain about whether this transformation will be positive or negative (Kelley et al., 2021).

In the United States, AI systems are being used for making high-level decisions, such as evaluating who is qualified for parole (Dressel & Farid, 2018) or sentencing decisions in courts (Angwin et al., 2016). However, the research shows that Americans are particularly averse to AI in advising roles, demonstrating much more comfort with AI assistants (Mays et al., 2021). This work builds on previous AI-perception research to

investigate attitudes about AI in higher-status occupations. We highlight different approaches in studying public perceptions and present a pilot study of public opinions on high-status jobs automation.

Approaches to understanding AI perceptions

There are disciplinary differences in researchers' approaches to explaining how and why people perceive AI in various roles. Within human-machine communication, some work on AI acceptance and attitudes is premised on how machines are perceived ontologically (Guzman, 2020). As examples, people who perceived machines as less biased and objectionable compared to humans, assigned more credibility to computer's decisions (Sundar, 2008). Depending on whether participants treated a humanoid robot as a pet or human showed different levels of technology acceptance (Edwards, 2018). These instances suggest that people's categorical distinctions between machine and human influence their further interaction and judgment about AI systems.

Automation anxiety, or people's fear of human labor replacement (Autor, 2015), is another lens through which researchers in public policy and labor domains have explored attitudes towards AI. For instance, Piercy and Gist-Mackey (2021) found that pharmacists whose work was more manual in nature experienced more automation anxiety than pharmacists whose work required judgment and decision-making. However, other research suggests that automation anxiety stemmed from the threat of AI to human intelligence. AI algorithms demonstrated the potential to play the same role as humans in creative or highly intellectually demanding jobs (Knight, 2022).

Another useful approach from social psychology focuses on aspects of power and status that influence the extent to which one perceives obstacles as opportunities or threats (Cho & Keltner, 2020). This is demonstrated in differing attitudes towards automation: those in lower-status jobs perceive automation as a threat compared to high-status employees, who perceive it as an opportunity (Qi, 2022). The research also suggests that occupational status may influence attitudes about automation. People are less comfortable with AI systems in higher-status roles, such as company leader or manager, compared to AI in peer or subordinate roles, such as a coworker and an assistant (Mays et al., 2021).

It is not yet clear the extent to which these differing approaches prevail in understanding AI perceptions. One's personal ontological understanding of AI may moderate or mediate how much they perceive an AI as an identity threat. These dynamics may also be influenced by the AI's role itself: certain domains may be more or less ontologically aligned with people's expectations, or more or less threatening to their status. Below we report on a pilot study that explores an assortment of relatively high-status and high-human interaction roles that may challenge people's conception of AI.

High-status AI domains

We propose to test whether jobs with different scores (low, middle, high) from the socioeconomic index of occupations (Smith & Son, 2014) will be perceived differently, and whether these differences would be based on the status of the job, identity of the

individual (including demographics), or human-machine ontology. In this pilot study we explored people's perceptions of AI replacement in high-status occupations, such as hiring manager, journalist, trial judge, and religious leader. While there are multiple instances of AI products used in human resource practices, journalism, and criminal justice, the literature suggests that people hold different views on automation of these occupations. The general public have less favorable attitudes towards adopting AI technologies in the recruiting procedures (Zhang & Yencha, 2022) and criminal justice (Araujo, 2020), while being more positive about automated journalism which is perceived as more objective compared to human's reporting (Cloudy et al., 2021).

Religion is an underexplored domain that is starting to see more AI integration. There are instances of using AI bots for praying (Öhman, Gorwa & Floridi, 2019), worship (Cheong, 2020) and funeral ceremonies (Gould et al., 2021). Thus, in a first descriptive step reported below, we compare the public's views on automation in the spiritual realm where it is less prevalent and arguably has higher ontological stakes against views on automation in domains where AI has been more commonplace.
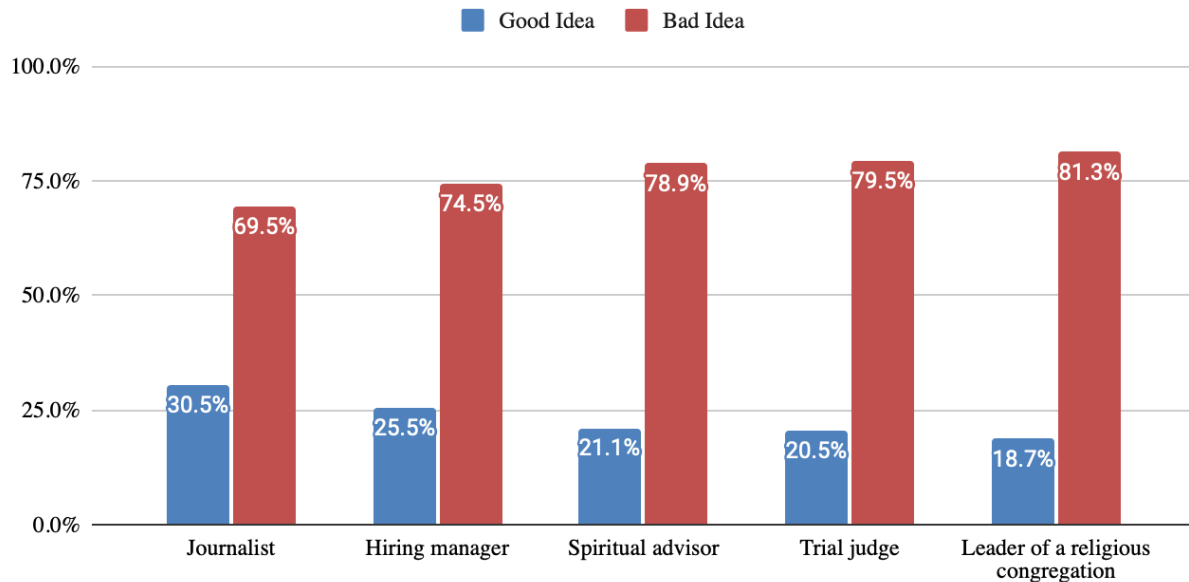
Initial Descriptive Findings of Pilot Study

The pilot study was conducted in September 2022 through the Ipsos eNation Omnibus platform. Our U.S. sample (N = 1,005) used nationally representative quotas on gender (50.8% female), age (M = 49.13, SD = 17.71), race (64.5% White or Caucasian), income (69.3% earned $74,999 or less), education (85.7% had some college degree or less), and employment status (36.1% were employed full-time).

The results demonstrate that a majority of participants hold negative attitudes about AI replacement in all domains presented (Figure 1). However there were differences between roles that were consistent with the socioeconomic index for various occupations: participants were more open to AI replacement in the relatively lower status roles (hiring manager and journalist) compared to the higher status roles (spiritual and religious leaders and trial judge). Interestingly, respondents believed an AI trial judge was a slightly worse idea than an AI spiritual advisor. Given the ontological distinction argument, we expected that pattern to be reversed, with more openness to a trial judge because of the associated machine heuristics of AI as more rational and objective.

Figure 1

AI replacement in the high-status occupations

What is your opinion of having AI replace humans in the following jobs?

■ Good Idea ■ Bad Idea

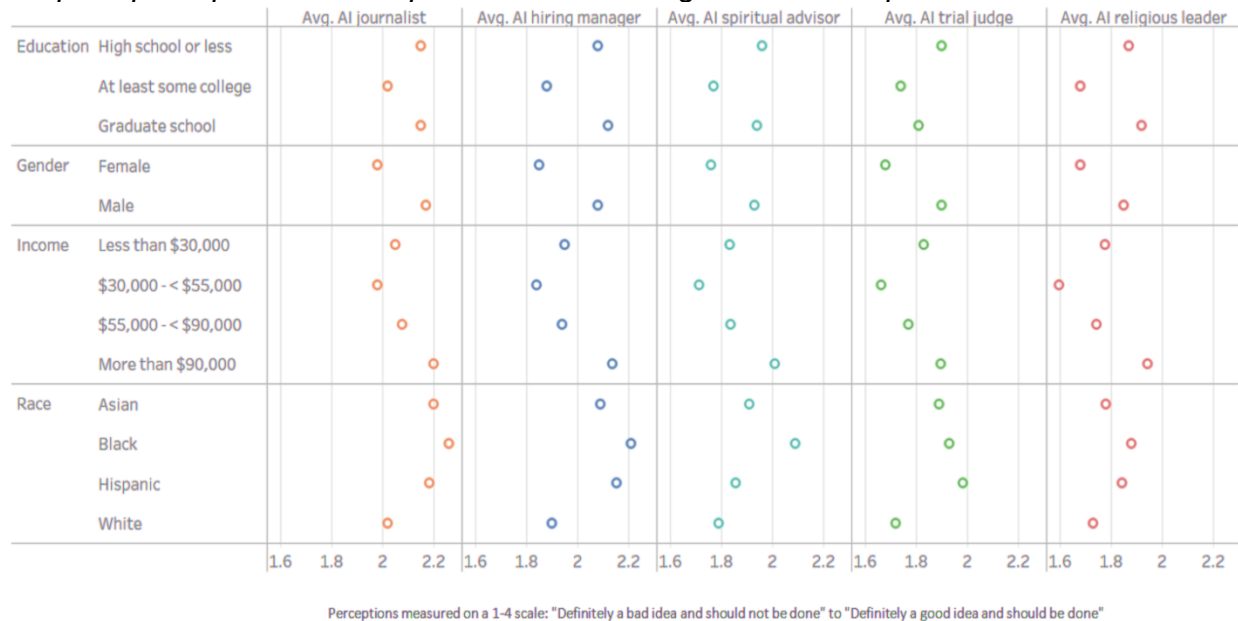| Occupation	Good Idea	Bad Idea
Journalist	30.5%	69.5%
Hiring manager	25.5%	74.5%
Spiritual advisor	21.1%	78.9%
Trial judge	20.5%	79.5%
Leader of a religious congregation	18.7%	81.3%

Looking at demographic differences, our findings suggest that more vulnerable populations, such as women, people with lower income and education, are more reluctant to accept AI in the majority of occupations (Figure 2). These findings are in line with previous public opinion surveys (Smith & Anderson, 2017; Zhang & Dafoe, 2019) and demonstrate that individuals with lower levels of power and status are more likely to be reluctant in acceptance of new technology and potentially perceive it as a threat.

Compared to other ethnicities, Whites are least comfortable with AI replacing high-status jobs. One possible explanation is that guided by machine heuristics, minorities might perceive algorithms as more objective and less biased in high-status roles that historically were occupied by Whites. However, the growing body of evidence reveals a great amount of explicitly racial biases encoded in AI systems that do not serve in favor of ethnical minorities (Benjamin, 2019).

Figure 2
People's perceptions of AI replacement in the high-status occupations

Perceptions measured on a 1-4 scale: "Definitely a bad idea and should not be done" to "Definitely a good idea and should be done"

Building on this initial work, we plan to conduct an online experimental survey that further delves into the interplay of varying AI domains by occupational status and individual differences across ontological perceptions, automation anxiety, perceived status, and identity threat. This examination will help tease out explanatory mechanisms driving the public's view of AI integration and highlight ways to buffer against the detrimental effects of AI on society.

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