High-Intensity Ambivalence:

How Reddit Occupational Forums Respond to Developments in Artificial Intelligence

Using quantitative and qualitative analysis, we study the volume, sentiment, and content of AI discussions on Reddit occupational forums. We find that recent improvements in generative AI have engendered a state of *high-intensity ambivalence*, especially in highly exposed occupations, wherein the volume of AI-related posts rises, negative sentiment increases, and positive sentiment increases even more. Follow-on analysis reveals that the labor-saving and labor-improving potential of AI generates feelings of delight, ecstasy, and enthusiasm, whereas the labor-enslaving, labor-replacing, and labor-impeding potential of AI reduces acceptance. Overall, the disparate sentiments and changes to work life surfaced by our analysis all appear to derive from a common cause, the massive potential of AI to improve productivity, with important implications for the theory and practice of managing new technologies.

1. INTRODUCTION

Organizations today face unprecedented external expectations from stakeholders to adopt entire categories of emerging innovations to unlock new value (Anthony, Bechky, & Fayard, 2023; Doshi, Bell, Mirzayev, & Vanneste, 2025). These "broad technology adoption pressures" (e.g., undergoing a digital transformation) create expectations for firms to embrace emerging technological categories without specifying which tools to implement, how to measure success, or what might follow non-adoption (Koljonen & Chan, 2024). Firms respond to these pressures by seeking to acquire new technologies as strategic resources within competitive factor markets (Barney, 1991), while their ultimate success hinges on organizational absorptive capacity—the ability to recognize, assimilate, and commercially exploit external technological knowledge (Cohen & Levinthal, 1990). These acquisition and assimilation dynamics underscore why the integration of transformative technologies redefines both strategic behavior and performance outcomes (Gómez & Vargas, 2012; Sabherwal & Jeyaraj, 2015; Sinha & Noble, 2008).

At the forefront of the broad adoption pressures stands the dramatic push to integrate artificial intelligence (AI) capabilities into organizational processes and workflows. Rapidly advancing AI capabilities are among the most widely discussed technological developments of recent years, leading to an explosion of interest in AI among organizations and individuals. This surge in attention is primarily driven by the emergence of generative AI tools, which boast unprecedented adoption rates, surpassing previous technological milestones in reaching a massive global user base (Hu, 2023). The publicity and attention have a substantive foundation; more and more businesses are using AI systems for an ever-wider range of applications, including talent acquisition (Elfenbein & Sterling, 2018), decision-making (Choi, Kang, Kim, & Kim, 2022; Doshi et al., 2025), fraud detection, idea generation, customer service, and supply chain management (Haan & Watts, 2023). Some experts predict that AI will surpass human

capabilities in all tasks within the coming decades (Grace, Salvatier, Dafoe, Zhang, & Evans, 2018).

Longstanding theories of the individual acceptance of new technologies help explain the rapid proliferation of generative AI tools (Venkatesh, Morris, Davis, & Davis, 2003). The *Technology Acceptance Model* (Davis, 1989) highlights that *perceived usefulness* drives adoption, and generative AI systems have demonstrated immediate tangible benefits to both individuals and teams (Dell'Acqua et al., 2025). Similarly, the *Diffusion of Innovations* theory (Rogers, 1995) suggests that the *relative advantage* of the innovation compared to the technologies it supersedes determines the rate of adoption within organizations, and generative AI outperforms the capabilities of previous technologies. *Social Contagion* theory completes this picture by showing how innovations spread through *social networks* – as high-profile early adopters showcase compelling generative AI applications, they create robust infection vectors that rapidly transmit adoption behaviors through organizations and industries (Angst, Agarwal, Sambamurthy, & Kelley, 2010; Dahlke et al., 2024).

While these theories explain the rapid adoption of generative AI, they fail to address several factors that make this technology uniquely challenging compared to previous innovations—factors that may require entirely new frameworks for understanding effective organizational implementation. First, while technology champions typically drive innovation adoption through prominent structural positions in organizations (Compagni, Mele, & Ravasi, 2015) generative AI in the workplace represents a newly "contested terrain" where workers are individually and collectively resisting algorithmic management through emerging "algoactivism" tactics (Kellogg, Valentine, & Christin, 2020). The effectiveness of well-positioned technology champions in this environment remains unclear, especially considering how implementation now depends on influence flowing through digital networks and remote working environments

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(Cohen, Hsu, & Dahlin, 2016; Lawless & Price, 1992). Additionally, individual traits like employee locus of control (Cheng, Lin, & Kong, 2023) and perceptions of AI as "mysterious and nonhuman" (Elsbach & Stigliani, 2019) create unique psychological barriers that traditional technology adoption models fail to address.

Importantly, few of these models directly engage with the labor implications of AI adoption—how such technologies may enhance, replace, constrain, or transform human work. Carlopio's (1988a) framework stands out as a rare exception, offering a typology of technology's impact on labor that remains highly relevant considering the rapid proliferation of AI tools. By focusing explicitly on how technology restructures work, Carlopio provides a valuable lens for understanding employee sentiment in response to AI and serves as a foundation upon which we build in the present study.

Building on this foundation, we offer an empirically grounded account of how employees react to generative AI in real time, addressing a critical need among scholars and practitioners for a robust understanding of employee sentiments and attitudes toward this transformative technology. Emergent literature on AI-human collaboration has addressed adjacent topics, such as using AI as a tool for providing feedback or emotional support (Qin, Jia, Luo, Liao, & Huang, 2023; Tong, Jia, Luo, & Fang, 2021; Yin, Jia, & Wakslak, 2024) and how AI affects creativity (Jia, Luo, Fang, & Liao, 2024). However, as we explain further below, there remains a lack of comprehensive multiperiod studies covering multiple occupations that assess employee attitudes towards AI as they exist today. Specifically, how aware are employees of recent developments in generative AI? How quickly do they react to these developments? Is employee sentiment generally negative (as suggested by much coverage of AI) or positive (if AI reduces employee burdens or improves task performance)? How have employee attitudes evolved as AI has

evolved? Do attitudes vary systematically across occupations, for example, with occupational exposure to AI?

The purpose of the present study is to address these related questions. To do so, we analyze the volume, sentiment, and content of discussions of AI on Reddit occupational forums. Reddit, one of the most visited websites in the US (Reddit, 2024), offers a unique opportunity to observe unsolicited, candid expressions of workplace sentiment, providing a more organic alternative to traditional self-reported methods. Our research responds to recent calls for naturalistic data (Kelly, Kaye, & Oviedo-Trespalacios, 2023) by analyzing voluntarily submitted posts from occupational communities (e.g., an online forum for graphic designers). In the first part of our analysis, we map occupation-specific subreddits to a recently introduced measure of AI Occupational Exposure (AIOE) (Felten, Raj, & Seamans, 2021; Felten, Raj, & Seamans, 2023) to create the Occupation-to-Reddit Mapping Dataset (ORMD).[1] The AIOE allows us to capture the effects of key AI events across different professional communities.

Our examination of AI-related post volumes reveals a phenomenon we term "high-intensity ambivalence," in which both positive and negative sentiment spike in response to significant developments, such as the surprise release of GPT-4—though positive sentiment increased *substantially more*. Further analysis reveals four distinct clusters of occupations, categorized by their AIOE scores and the frequency of AI-related posts (Felten et al., 2021; Felten et al., 2023): manual labor, specialized services (e.g., arts), professions (e.g., law), and pioneers (e.g., computer scientists). While AI-related post volume and sentiment intensity rise with exposure, the emotional tone is marked by sharp contrasts—delight and enthusiasm coexist with fear and resistance. Our abductive qualitative analysis of the content of individual Reddit

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[1] We are willing to make this dataset available to other researchers.

posts confirms this pattern, where users frequently exhibit both positive and negative emotions concerning AI's potential effects on jobs within the same thread.

In line with prior literature on the history of technological adoption (Carlopio, 1988a), posters exhibit positive sentiments about the *labor-saving* potential of AI and negative sentiments regarding AI's *labor-enslaving* and *labor-replacing* effects. Building on this framework, our analysis also surfaces two new labor-related effects of AI adoption: AI may be *labor-improving* (making possible what the employee could not do before) and *labor-impeding* (for example, by enabling undesirable behaviors in others). We contribute to theory by extending Carlopio (1988b) typology, demonstrating that emerging technologies not only displace or degrade labor but also restructure it in ways that can empower or frustrate workers in emotionally complex ways.

2. BACKGROUND

These questions are particularly significant given the complex emotional landscape surrounding generative AI. This technology has generated significant anxiety among workers relative to other emerging technologies (Mollick, 2024), with job displacement fears extending even to white-collar creative professions like Hollywood editors – one veteran noting, "If AI could put together a credible version of the show for a first cut, it could eliminate one-third of our workdays. We'll become electronic gig workers" (Scheiber, 2024). Beyond displacement concerns (Felten et al., 2021; Tong et al., 2021), some employees express reluctance to trust AI due to transparency issues and insufficient oversight (Glickson & Woolley, 2020; Vanneste & Puranam, 2024). Although the popular imagination may often conceive of AI as a pure substitute for human labor, a growing corpus of research argues that AI will more often enhance or augment human effort rather than substitute for it entirely (Anthony et al., 2023; Tschang & Almirall, 2021). This complementary relationship between AI and humans makes employee

attitudes critically crucial for successful implementation (Carlopio, 1988a; Davenport & Short, 1990; Lichtenthaler, 2020).

This tension, between widespread anxiety about AI and research suggesting its collaborative potential, presents a significant puzzle for organizations seeking to realize productivity benefits through AI implementation. Other well-established models of innovation adoption and diffusion inadequately capture the unique characteristics of generative AI—its ability to create novel content, learn continuously from interactions, adapt to user preferences, and operate across diverse domains simultaneously. Existing technology adoption models typically study more straightforward technologies, such as digital hospital records replacing analog systems or infrastructure like 3G networks, which broadly influence organizations rather than creating personalized individual experiences. Additionally, traditional approaches often rely on self-reported data rather than capturing actual technology use in context. This gap makes ethnographic approaches essential, as Anthony et al. (2023) note, "Ethnographic approaches thus may help to counter superficial narratives about AI by illustrating how it is used on the ground." Accordingly, given "limited theory and existing data about a key phenomenon" (Bennett & Chatterji, 2023: 88), we follow these authors and other recent work (e.g., de Stefano, Bidwell, & Camuffo, 2022; Mitchell, Wu, Bruton, & Gautam, 2022; Seo, Luo, & Kaul, 2021) by adopting a question-driven, abductive approach (Behfar & Okhuysen, 2018).

Since the Industrial Revolution, work life has been constantly disrupted by technological changes. In general, employees react aversely to technological changes that are *labor enslaving* (which result in inferior working conditions and deskilling) and *labor replacing* (which result in job loss). In contrast, workers are more enthusiastic about *labor-saving* technologies (which

make their jobs easier) (Carlopio, 1988a). Employee attitudes toward productivity-enhancing technologies are critical for their successful implementation (Lichtenthaler, 2020) and will be pivotal for AI implementation, as well, given the importance of human-AI collaboration (Anthony et al., 2023; Choudhary, Marchetti, Shrestha, & Puranam, 2023; Raisch & Fomina, 2023). Therefore, it is crucial for practitioners and scholars to understand employee attitudes toward AI as an essential input into fostering AI-employee complementarity.

In that regard, an emergent literature on AI-human collaboration has addressed topics such as difficulties in communication (Lebovitz, Lifshitz-Assaf, & Levina, 2022; Waardenburg, Huysman, & Sergeeva, 2022), AI as a tool for providing feedback or emotional support (Qin et al., 2023; Tong et al., 2021; Yin et al., 2024), how AI affects task performance (Jia et al., 2024; Tang et al., 2022), and, in a vignette-based laboratory experiment, whether humans would accept AI as a team member (Dennis, Lakhiwal, & Sachdeva, 2023). As detailed in a recent review article (Glickson & Woolley, 2020), another related research tradition has studied cognitive and emotional trust of both robots and AI programs, finding, among other things, that factors like anthropomorphism and reliability are important factors. Although we have learned much from this work, it is not focused per se on measuring AI-related awareness or sentiment among employees across occupations or time.

Closer in spirit to our inquiry are studies in fields like telematics and informatics of employees' willingness to work with AI, primarily using surveys (e.g., Chiu, Zhu, & Corbett, 2021; Gerlich, 2023; Li & Huang, 2020; Vu & Lim, 2022) or, secondarily, through interviews, as detailed in recent review articles (Bankins, Ocampo, Marrone, Restubog, & Woo, 2024; Kelly et al., 2023). Although this work has generated valuable insights, it has some important limitations. First, in virtually all of the published work, the data were collected before the most widely discussed developments in AI had occurred (e.g., the emergence of generative AI in November

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2022). Second, and as a consequence, the studies do not align with major recent developments in AI and, thus, do not allow for an assessment of how quickly subjects react to these developments, if at all. Third, for a variety of reasons (most commonly, from studying a single professional setting), existing work does not examine how effects vary across professions, for example, with a job's exposure to AI (Felten et al., 2021; Felten et al., 2023). Fourth, attitude is measured coarsely (e.g., how positive or negative) rather than disaggregated into different emotions (e.g., ecstasy or acceptance versus terror or sadness); and, to the extent emotions are considered, the focus has primarily been on negative emotions rather than on positive emotions (Bankins et al., 2024), despite some research suggesting that some employees are positively disposed towards AI (Zhu, Corbett, & Chiu, 2021). Fifth, as scholars have noted about this stream of research (Kelly et al., 2023), surveys and interviews generate self-reported data, which may be less accurate than naturalistic methods where participants are observed unobtrusively engaging in their typical behaviors. Finally, while previous research has examined artificial intelligence through the lens of news media (Garvey & Maskal, 2020; Xian, Li, Xu, Zefeng Zhang, & Hemphill, 2024), these studies often overlook the perspectives of ordinary citizens (Sun, Zhai, Shen, & Chen, 2020). By analyzing Reddit posts, we capture a more authentic representation of how employees across different fields perceive and discuss the influence of AI on their work. This approach provides insights that may be absent from more formal or curated media discourses.

Our study addresses these shortcomings. Specifically, our study covers June 2022 to December 2023, when the AI field reached an inflection point, dramatically increasing public awareness of AI capabilities through advancements in text and image generation. We match Reddit posts to the time they occurred and, thus, how they represent reactions to cotemporaneous AI-related events. Our study encompasses 19 distinct professional occupational categories,

aligning with the AI Occupational Exposure (AIOE) measure (Felten et al., 2021; Felten et al., 2023). Lastly, we analyze sentiment using 24 separate emotions, 12 positive and 12 negative.

3. DATA SOURCES

3.1 Reddit

Founded in 2005, Reddit has grown into one of the world's largest social news and discussion platforms, boasting over 73.1 million unique daily users (Reddit, 2024). Reddit is organized into over 100,000 topic-specific communities called "subreddits," ranging from broad subjects like r/business,[2] with 2.3m members, to niche interests such as r/supplychain, with seventy-two thousand members (r/business, 2024; r/supplychain, 2024). Users self-select into subreddits and contribute content by creating posts that include descriptive titles or captions to engage with other like-minded Redditors. Community members interact with subreddit posts primarily through comments and replies, with moderators enforcing community standards (e.g., "Posts must be pertaining to a supply chain topic" (r/supplychain, 2024)).

Reddit's anonymity and community-driven structure often result in candid, unprompted discussions that offer unique insights into diverse perspectives and emerging trends across disciplines and topics. For this reason, researchers from diverse fields have relied on Reddit as a source of organic user-generated data on "interest-based topics" (Boulianne, Hoffmann, & Bossetta, 2024: 6). In the past year alone, Reddit has been the research context for quantitatively analyzing large-scale consensus formation in investment communities (r/wallstreetbets) and qualitatively analyzing entrepreneurial loneliness (r/Entrepreneur) (Cardon & Arwine, 2024; Mancini, Desiderio, Di Clemente, & Cimini, 2022), to cite just two examples. Analyzing Reddit

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[2] The prefix "r/" denotes a specific subreddit on Reddit. For example, r/business refers to the business subreddit, accessible at reddit.com/r/business.

or similar message-board-oriented social media, as has been more common in management research (e.g., Autio, Dahlander, & Frederisksen, 2013; Haas, Crisculo, & George, 2013; Mathias, Huyghe, & Williams, 2020; Sharkey, Pontikes, & Hsu, 2022; Walsh & Bartunek, 2011), offers researchers a unique window into authentic, diverse perspectives across countless topics, providing a nuance that traditional research methods may be unable to capture.

3.2 AI Occupational Exposure

AI Occupational Exposure (AIOE) is a measure that quantifies an occupation's exposure to artificial intelligence (AI), bridging the gap between typical AI applications and workplace abilities required for various occupations (Felten et al., 2021; Felten et al., 2023). The AIOE scores, computed for 774 occupations, are standardized to a mean of zero and a standard deviation of one across all occupations. This normalization step results in some occupations having negative AIOE values, which does not imply negative exposure per se but rather indicates relatively lower exposure than occupations with positive AIOE scores.

Figure 1 provides box-and-whisker plots of occupational categories in the AIOE dataset, sorted by AIOE from low to high. Because of within-category variation in AIOE, neighboring categories overlap. Nonetheless, there is evident variation across the dataset in terms of the mean, and categories that are several places apart do not overlap much or at all.

Insert Figure 1 about here

3.3 Occupation-to-Reddit Mapping Dataset (ORMD)

To assess the relationship between AI exposure and professional discourse, we map each of the 774 occupations in the AIOE dataset to corresponding subreddits. This process involves searching Reddit using relevant keywords for each occupation. For instance, the occupation

"Lawyer" (SOC: 23-1011) is matched with subreddits such as r/law, r/LawSchool, and r/attorneys. The result is the *Occupation-to-Reddit Mapping Dataset* (ORMD) we use herein.

4. INITIAL ANALYSIS

4.1 Data Collection & Processing

Our data preparation process involves collecting subreddit submissions using RedditHabor (Oh, 2024a) from October 2023 to February 2024, encompassing posts between June 2022 and December 2023. 3,930,559 submissions are allocated according to the ORMD, grouping submissions by subreddits associated with specific Standard Occupational Classification (SOC) codes. The allocated submissions are first pre-processed, which includes removing deleted or removed submissions (preprocess 1) and eliminating URL-only posts or those lacking self-text (preprocess 2).

We then employ BERTopic (Grootendorst, 2022), a state-of-the-art topic modeling technique, to extract common topics from the submissions. This approach is similar to traditional methods like Latent Dirichlet Allocation (LDA), but BERTopic uses unsupervised learning to group submissions into topics without predefined categories. For each SOC code-based submission group, BERTopic autonomously extracts topics and further groups submissions. To identify AI-relevant topics, we filter each group's top three classes based on their cosine similarity to AI-related keywords.[3]

Despite high cosine similarity scores, our approach sometimes yields topics semantically unrelated to AI. For example, in the Legal category (SOC: 23), a class labeled "112_tax_llm_nyu_uf" with the representation [tax, 11m, nyu, uf, program, income, gpa, gulc]

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[3] The keywords include "ai", "gpt", "chatgpt", "midjourney", "stablediffusion", "llm", "dall-e", "dale", "openai", "artificial intelligence", "mid journey", "stable diffusion", "dall e", "gen ai", "generative ai", "open ai", "deep learning", "language model", "image generation", "ai model", "large language model", "generative artificial intelligence", "generative language model", and "generative image model".

was initially included due to its similarity to the keyword "LLM" (large language model in an AI context, but meaning Master of Laws in a legal context). To address mismatches, we manually filter the results to ensure the selected topics genuinely reflect AI-related discussions within each occupational category. We then remove duplicate submissions from subreddits allocated to multiple occupational categories to ensure accuracy. The final dataset comprises 5,633 unique AI-relevant submissions. Table 1 provides data on these processing steps and quantifies AI-related discussions within each occupational category.

Insert Table 1 about here

4.2 Temporal Analysis of AI-Related Discussions on Reddit

To assess how major AI events, such as the initial release of ChatGPT, impacted activity within Reddit communities, we analyze the fluctuations in AI-related submissions over time. Figure 2 presents a time series plot of these submissions, using a 3-day moving average to smooth short-term fluctuations and highlight broader trends. The plot reveals a clear upward trajectory in AI-related discussions from mid-2022 to late 2023, indicating growing interest and/or concern about AI across occupations. Several sharp increases in AI-related posts are visible, potentially corresponding to major AI events or announcements. For instance, a notable spike occurred around November 2022, coinciding with the public release of ChatGPT.

Insert Figure 2 about here

To statistically analyze the impact of AI events on submission volumes, we conduct two experiments: (i) Interrupted Time Series Analysis (ITS) to analyze total submissions as a

function of time, with separate level and slope changes for each AI event, allowing us to quantify the impact of individual events on the time series; and (ii) a Gaussian Hidden Markov Model (HMM), to complement the ITS by providing a broader view of how the discourse around AI has evolved over time, potentially revealing longer-term trends or shifts in community behavior.

Interrupted Time Series Analysis (ITS). To conduct an ITS, we first categorize AI events into two groups—language models and image models—based on the distinct nature and potential impacts of these technologies. Language models, such as GPT-3.5 and GPT-4, primarily affect text-based tasks and communication, potentially impacting a wide range of occupations that involve writing, analysis, or customer interaction. Image models, like Midjourney and Stable Diffusion, primarily affect visual-oriented professions such as graphic design, photography, and digital art. By separating these categories, we can better isolate and compare the effects of different AI technologies on various occupational discussions. The analysis yields the following results, as shown in Table 2.

Insert Table 2 about here

Language model releases show varied effects on levels. The release of ChatGPT had the most substantial impact, increasing submissions by approximately 9.8 posts ($p = 0.000$). The GPT-4 release also showed a significant increase of 4.5 posts ($p = 0.043$). This could indicate increased interest or discussion following these events. Other language model releases do not show statistically significant changes. Interestingly, only the language model releases by OpenAI have had a noticeable impact on the overall level of submissions. None of the releases affected the slope of submissions.

Image model releases generally had less pronounced effects on submission levels. However, image events appear to have influenced submission trends (slopes) over time. It is also interesting to note that the earliest commercial models released during November 2022 (Midjourney and Stable Diffusion) significantly altered the slope of submissions. The varying significance across events might indicate that not all AI releases equally impact the public. Factors such as the perceived importance of the release, marketing, media publicity, or concurrent events could influence the degree of response.

Gaussian Hidden Markov Model (HMM). We utilize HMM to identify distinct, underlying states of community engagement that may not be immediately apparent from the raw time series data. HMM is a statistical model that assumes the modeled system has unobserved (hidden) states that follow a Markov process, with each state generating observable outputs according to a Gaussian distribution. The model yields the following results, as shown in Figures 3 and 4.

Insert Figures 3 and 4 about here

The Gaussian HMM suggests three distinct phases of community engagement. First, a low engagement phase ($State\ 1, \mu = 2.32$) was predominant from early November 2022 onward. Second, a medium engagement phase ($State\ 2, \mu = 9.31$) emerged periodically, especially after events that showed significant level changes (e.g., the initial release of ChatGPT). Finally, a high engagement phase ($State\ 0, \mu = 14.57$) became increasingly prevalent from late 2022 onwards. We thus see clear evidence that employees in diverse occupational categories have transitioned from relatively little interest in AI (State 1) to a state of high interest and attention (State 0), which persists until the end of the sample period. In the remainder of the paper, we dig deeper into the reasons for and nature of this transition.

4.3 Correlation between AIOE and Posting Volume

One possible reason for the increase in AI-related posts is that society as a whole was becoming more interested in AI. Another possibility is that the engagement reflects the potential impact of AI on Reddit posters' jobs. To investigate these possibilities, we assess the relationship between the percentage of AI-relevant submissions in each occupational category and AI exposure (AIOE) by calculating Pearson's correlation coefficient, which provides a straightforward assessment of the linear relationship (effectively a bivariate regression).

The analysis yields a Pearson's correlation coefficient of 0.7198 ($p = 0.000$), indicating a strong positive linear relationship between the percentage of AI-relevant posts and average AIOE. This finding provides strong initial evidence that the increase in posting volume derives significantly from Reddit posters' interest (or concern) about AI's effect on their jobs.

Insert Figure 5 about here

As seen in Figure 5, occupational categories such as "Computer and Mathematical" demonstrate high AIOE scores and a large proportion of AI-relevant posts. Conversely, occupational categories like "Construction and Extraction" show lower values on both axes. This pattern reinforces the correlation we observed statistically.

5. CLUSTER BASED ANALYSIS

5.1 Initial Cluster Mapping

Close inspection of Figure 5 suggests both (a) a potential increasing concave relationship between AI-related posting volume and AIOE and (b) some clustering of occupations. To assess these possibilities rigorously, we employ a k-means clustering algorithm, using both the elbow method and silhouette analysis to determine the optimal number of clusters. Our algorithm

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suggested either three or four unique clusters based on our dataset. We chose to analyze four distinct clusters to capture a more nuanced categorization of occupations, allowing for finer-grained analysis of potential subgroups within broader AIOE score categories. The resulting clusters, visualized in Figure 6, offer insights into how occupations group together based on their AIOE scores and AI-related discussion patterns.

Insert Figure 6 about here

Cluster 0 (hereafter "professions") includes eight[4] occupations: This cluster represents professional and managerial occupations highly aware of AI's potential impact on their fields. Yet, these occupations have only a moderate level of AI-related discussions, suggesting they are actively engaging with AI topics, but it is not dominating their discourse. The high AIOE score indicates that AI advancements will likely significantly impact these professions. These occupations may be integrating AI into their practices or preparing for future AI-driven changes. Notable key characteristics include white-collar professional services, decision-making and strategic roles, and a high potential for AI to augment rather than replace human work. For example, AI could likely help salespeople generate leads and marketing materials but is unlikely to replace the need for human contact by a salesperson.

Cluster 1 (hereafter "manual labor") includes nine[5] occupations: This cluster primarily comprises manual labor, service, and blue-collar occupations. The very low level of AI-related

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[4] 11: Management, 13: Business and Financial Operations, 17: Architecture and Engineering, 19: Life, Physical, and Social Science, 21: Community and Social Service, 23: Legal, 41: Sales and Related, and 43: Office and Administrative Support.
[5] 31: Healthcare Support, 33: Protective Service, 35: Food Preparation and Serving Related, 37: Building and Grounds Cleaning and Maintenance, 45: Farming, Fishing, and Forestry, 47: Construction and Extraction, 49: Installation, Maintenance, and Repair, 51: Production, and 53: Transportation and Material Moving.

submissions suggests that AI is not a significant topic of discussion in these fields. Indeed, as seen in Table 1, some professions have no AI-related submissions at all. The low AIOE score indicates that AI may not directly impact these occupations in the near future. Notable key characteristics include hands-on physical labor, direct service provision, and skills that are currently challenging to automate.

Cluster 2 (hereafter "pioneers") includes two[6] occupations: This small cluster represents occupations at the forefront of AI development and application. The comparably high level of AI-related submissions indicates that AI is a central topic of discussion in these fields. The inclusion of "Educational Instruction and Library" occupations alongside "Computer and Mathematical" ones is interesting, possibly indicating a high level of discussion in the media about AI's impact on educational settings.

Cluster 3 (hereafter "specialized services") includes three[7] occupations: This cluster represents creative and specialized service occupations. The moderate level of AI-related submissions, similar to the professional cluster, suggests an active engagement with AI topics. However, the lower AIOE score indicates that while these occupations are discussing AI, they may not be as directly impacted by it as those in the professional and pioneer clusters. This could represent fields where AI is seen as a tool or a potential disruptor but not necessarily a core component of the occupation. Notable key characteristics include creative and interpersonal skills, specialized knowledge and expertise, and the potential for AI to enhance rather than replace human creativity and judgment.

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[6] 15: Computer and Mathematical, 25: Educational Instruction and Library.
[7] 27: Arts, Design, Entertainment, Sports, and Media, 29: Healthcare Practitioners and Technical, 39: Personal Care and Service.

These four clusters not only reveal a varied landscape of AI's impact across occupations but also that AI exposure only partly predicts AI posting volume; pioneers discuss AI far more than professions despite similar AIOE scores. Overall, from AI-centric fields to those barely touched by the growing AI discourse, we see a spectrum of engagement and potential impact. This clustering suggests that while some occupations are at the forefront of AI development and implementation, others are in a phase of adaptation or preparation. Meanwhile, a significant group of occupations remain relatively untouched by AI, possibly due to AI's current limitations in replicating certain physical and manual tasks.

5.2 Sentiment Analysis

The foregoing analysis did not address the nature of AI engagement. In particular, are AI-related discussions generally positive or negative vis-à-vis AI? How do sentiments towards AI vary across these occupational clusters? Are there distinct patterns of optimism, concern, or ambivalence characterizing each group's relationship with AI technology? As explained in detail below, in our analysis to address these questions, we find a consistent pattern of high-intensity ambivalence in AI discussions, wherein both positive and negative emotions are strongly evident.

We analyze how emotional reactions to AI vary across occupations by conducting a sentiment analysis using SenticNet lexicons (Cambria, Liu, Decherchi, Xing, & Kwok, 2022), accessed through the sentibank library (Oh, 2024b).[8] The emotion representation in SenticNet (Cambria et al., 2022) is defined by the 24 basic emotions – 12 positive emotions and 12 negative emotions – within the Hourglass of Emotions (Susanto, Cambria, Ng, & Hussain, 2022:

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[8] We exclude three Standard Occupational Classification (SOC) codes present in the AIOE (33: Protective Service, 37: Building and Grounds Cleaning and Maintenance, 45: Farming, Fishing, and Forestry) since the subreddits associated with these occupations contain no AI-relevant submissions.

Figure 1). This model captures four affective dimensions, each with six activation levels indicating emotion intensity. The Hourglass of Emotions is an affective categorization model originally developed by Plutchik (2001). It represents emotions along four key dimensions: Pleasantness, Attention, Sensitivity, and Aptitude. Different combinations and activation levels along these dimensions characterize distinct emotional states. Rather than classifying emotions into basic categories, Hourglass of Emotions captures the concurrent, independent nature of emotional dimensions. This framework was revisited by Susanto et al. (2022: 97-100) to address limitations in the original formulation of Plutchik (2001). The dimensions were redefined as Introspection, Temper, Attitude, and Sensitivity. We utilize a bag-of-words approach to capture and quantify emotional responses in terms of these 24 basic emotions, counting the frequency of lexicons associated with each sentiment dimension within individual submissions. To ensure comparability across submissions of varying lengths, we normalize these raw frequency counts into percentage values, representing the relative strength of each emotion within a given submission.

Correlational Analysis of Sentiment Data. We begin by analyzing Reddit post data, including the correlations between the length of Reddit posts, the number of user comments, and the 24 basic emotions present in the data. Our analysis reveals a clear relationship between the length of a post determined by word count (mean $=$ 117.02 words, median $=$ 75 words) and the sentiments expressed within it. Posts with larger word counts are strongly correlated with *positive* sentiments, with the emotions correlating most strongly with the length of a given post being ecstasy, delight, enthusiasm, acceptance, and serenity. The five emotions least correlated with post length are disgust, responsiveness, anxiety, anger, and rage. In contrast to post length, posts that attract more user engagement are predominantly associated with *negative* sentiments. Our analysis reveals a robust relationship between the number of comments a post garners

(mean = 15.01 comments, median = 4 comments) and the sentiments expressed within it. The emotions that correlate most strongly with the number of user comments are disgust, terror, anger, sadness, and fear. The emotions that least correlate with user engagement are eagerness, joy, contentment, pleasantness, and calmness.

Our correlational analysis suggests that posts expressing negative emotions about AI are typically shorter in nature but generate more engagement and discussion, while AI-positive posts are longer but receive less user engagement. These findings suggest that while positive sentiments about AI tend to encourage longer, more reflective posts, negative emotions are more likely to prompt brief but highly engaging discussions. This divergence highlights the differing ways users engage with AI, with optimism fostering exploration and concern prompting quick "visceral" interactions. Interestingly, these patterns are similar to those found by Chuan, Tsai, and Cho (2019) in their analysis of AI discourse in news media, where discussions about AI benefits were more frequent, but discussions of risks were more specific. This parallel between social media and news discourse suggests a consistent pattern in how AI is perceived and discussed across different platforms. The specificity of risk-related content may explain why negative posts, despite being shorter, generate more engagement: They likely touch on concrete concerns that resonate strongly with readers, prompting focused responses.

Binary Level Analysis. Next, we conduct a high-level binary sentiment analysis to establish a broad understanding of sentiment trends. Submissions are classified as "positive" if the sum of the 12 positive sentiment percentages exceeds 50%, with the remainder labeled as "negative." This binary classification provides a foundation for our more detailed analysis, visualized in Figure 7, which illustrates the distribution of positive and negative submissions across each occupational cluster.

Analyzing the 7-day moving averages of scaled post numbers across clusters reveals interesting patterns specific to each occupational group. The specialized services cluster demonstrates a relatively stable but slight increase in negative sentiment over time. In contrast, the pioneers cluster exhibits more volatile sentiment patterns with frequent crossovers between positive and negative sentiments. A significant spike in negative sentiment is observed in early 2023, followed by increased volatility. This cluster's positive and negative sentiments gradually increased over time, suggesting growing engagement and potential polarization in AI discussions.

The manual labor cluster shows generally lower overall engagement than other clusters. The reduced volatility in manual labor compared to pioneers and specialized services indicates more stable perceptions of AI within these occupations. The professions cluster exhibits a strong positive sentiment trend, especially in the latter half of 2023. Negative sentiment also increases over time but remains below positive sentiment levels. Spikes in both sentiments around key AI events, such as new model releases, are particularly evident in this cluster.

Cross-cluster observations reveal several significant common patterns. All clusters show an overall increase in AI-related discussions over time, reflecting growing interest and impact across various occupations. While positive sentiment generally outweighs negative sentiment across all clusters, the magnitude of this gap varies significantly: The groups with the highest AIOE scores (pioneers and professions) exhibit the smallest gaps between positive and negative sentiment. The vertical dashed lines marking key AI events often coincide with sentiment spikes across clusters, indicating widespread responsiveness to AI developments across occupational boundaries. The varying patterns across clusters suggest that different occupational groups have

distinct relationships with and perceptions of AI technology, possibly reflecting the disparate impacts on different types of occupations of specific developments in AI.

Difference Stacked Bar Charts. Following our binary sentiment analysis, we conduct a more granular examination of emotional responses to AI-related topics across different occupational clusters. We employ a comparative approach to isolate each cluster's unique sentiment patterns specific to AI discussions. This method involved controlling for broader sentiment trends across all occupations, allowing us to discern the distinctive emotional signatures associated with AI-related discourse in various professional contexts.

This involves several key steps. First, we randomly sample non-AI-related submissions from each occupational subreddit, ensuring that the sample size matches the number of AI-related submissions for that occupation. We then calculate sentiment percentages for each submission using the same approach applied to AI-related posts. Next, we compute the weekly average sentiment percentage for both AI-related and non-AI-related submissions. Finally, we subtract the weekly average sentiment percentages of non-AI-related submissions from those of AI-related submissions, yielding a difference score highlighting the unique emotional characteristics of AI discussions within each occupational cluster.

Figure 8 visualizes these difference scores over time for each cluster. The stacked bar charts represent the various emotions, with colors corresponding to the legend. Positive values (bars above the zero line) indicate emotions more prevalent in AI-related posts. In contrast, negative values (bars below) show emotions less prevalent in AI-related discussions compared to general posts.

Insert Figure 8 about here

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Analysis of these figures reveals several intriguing patterns across the clusters. In the professions cluster, we observe a more balanced emotional profile in the granular analysis. The granular view reveals more minor differences between AI-related and general discussions, suggesting a more measured or normalized view of AI. Manual labor clusters, which we earlier characterized as having lower overall engagement, present a more complex picture in the granular analysis. While the binary analysis showed positive sentiment dominating, with occasional negative spikes, the granular view reveals more dramatic swings between positive and negative sentiments. This cluster shows higher positive (e.g., enthusiasm, joy) and negative (e.g., fear, anxiety) emotions in AI-related discussions compared to general posts. This nuanced view suggests that while overall sentiment might lean positive, there is significant ambivalence or volatility in how these occupations perceive AI's impact.

In the pioneers' cluster, we observe a consistent predominance of positive emotions in AI-related discussions, particularly enthusiasm and joy. This suggests that occupations in this cluster, likely those at the forefront of AI development and implementation, maintain an optimistic outlook toward AI. This aligns with our binary analysis showing strong positive sentiment trends, especially in the latter half of 2023. However, the granular view also reveals periodic spikes in anxiety and fear, suggesting that while overall sentiment remains positive, there are moments of concern, possibly tied to specific AI developments or their potential implications. Specialized services, which in the binary analysis showed consistently higher positive sentiment, display the most pronounced emotional responses to AI-related topics in the granular view. We observe substantial positive differentials in enthusiasm, joy, and contentment, particularly in the latter half of the observed period. This reinforces our binary analysis findings.

Radar Charts. We use radar charts for each occupational cluster to provide a comprehensive view of the *average* emotional differences between AI-related and general discussions. These

radar charts offer an intuitive representation of how various emotions are more or less prevalent in AI-related discussions compared to general conversations within each occupational cluster. The red circular boundary in these charts represents the baseline (0 difference) between AI-related and general discussions. When the blue area extends outward from this boundary, it indicates that the corresponding emotion is more common in AI-related discussions. Conversely, when the blue area extends inward, falling below the red boundary, it suggests that the emotion is more prevalent in general discussions.

Insert Figure 9 about here

Although the four clusters show some differences, they share intriguing common patterns. Compared to discussions on other topics, conversations about AI tend to express heightened emotions of delight, ecstasy, and enthusiasm while showing less of the positive emotion of acceptance (except for pioneers) and fewer negative emotions such as grief, loathing, anxiety, and fear.

5.3 High-Intensity Ambivalence

Putting it all together, our quantitative analysis finds that disruption from the massive potential productivity improvements of generative AI has generated a state of heightened arousal and awareness in employees across occupations. This heightened state is growing in AIOE, our measure of AI exposure. Yet, AIOE is not entirely dispositive because the pioneers' cluster is no more exposed to AI than the professions cluster, but it discusses AI more. The heightened state of arousal is primarily positive in that it stimulates more delight, ecstasy, and enthusiasm, but also negative, especially around specific AI-related events for specific clusters, even though AI-related posts exhibit less negative sentiment along some dimensions than non-AI-related posts.

Moreover, the positive emotion of acceptance (perhaps, the most critical emotion from the standpoint of AI adoption in the workplace) is markedly lower for AI-related discussions. Thus, AI discussions exhibit heightened emotional arousal but ambiguous emotional valence, i.e., *high-intensity ambivalence*. In the next section, we conduct an abductive qualitative analysis of individual posts to delve into the specific causes of this high-intensity ambivalence.

6. ABDUCTIVE QUALITATIVE ANALYSIS OF REDDIT POST CONTENT

As we explain in detail below, in line with prior research, our abductive analysis finds that positive sentiment is often associated with AI acting as a *labor-saving* technology, where tasks are made easier and more efficient through automation, reducing workers' physical or cognitive load. Likewise, negative sentiment usually stems from concerns about AI functioning as a *labor-replacing* technology, where AI displaces workers or reduces the value of specialized skills, or where AI leads to *labor-enslaving* roles, where human labor is reduced to merely monitoring or assisting AI with little room for human input.

In contrast to prior research, however, we also find two additional mechanisms whereby AI is expected to influence work patterns and thereby affect employee reactions. AI may be *labor-improving*, wherein AI tools not only save time and automate routine tasks but actively enhance the quality and scope of occupational tasks not yet exposed to AI, and AI may be *labor-impeding*, wherein AI tools hinder the productivity of an occupational class by, for example, enabling misbehavior in those the employee supervises. Specific examples of these sentiments and mechanisms are provided in the text and Table 3. (Note: all quotes of Reddit posts are presented verbatim except where noted.)

Insert Table 3 about here

6.1 Positive Sentiment Toward AI

Reddit users across occupational clusters clearly articulated the perceived benefits of emerging AI tools. For example, a Reddit user in r/Teachers (1.1m members) expresses high levels of ecstasy, enthusiasm, and delight when articulating how generative AI has influenced their day-to-day work (e.g., *"ChatGPT has completely changed the game for me and I feel like a better teacher now"*). Similarly, in the r/veterinaryprofession subreddit (23k members), a user expresses a similarly favorable view of the productivity-enhancing benefits of AI systems, with both likening AI augmentation to having a fully capable colleague at their disposal (e.g., *"[AI] can be especially nice if you don't have another vet working with you that you can bounce ideas off of."*). Additionally, a user from the r/pharmacy subreddit (169k members) suggests that the productivity benefits of generative AI occur only after being adapted into highly specialized and complex professional contexts (e.g., *"So, I figured what if I combine with a semantic search model to pull information from legit sources and then prompt to only answer from the context I gave it? To my great delight, it worked wonderfully."*).

These examples are typical of the positive sentiment driven by AI's role as a labor-saving technology seen in discussions of AI systems across occupational forums. Moreover, these examples also demonstrate an emergent *labor-improving* potential of AI in that it allows employees not only to economize on effort but even to do what they literally could not do, or could not do as well, without AI. For example, the teacher mentioned above perceived a positive correlation between personal usage of generative AI and creative confidence in the classroom (e.g., *"The more i use it, the more I realize it can do, the more confidence I have to apply my ideas…"*).

6.2 Negative Sentiment Toward AI

While scores of Reddit users expressed myriad positive sentiments regarding the labor-saving and labor-improving capabilities of AI systems, they represent only part of the picture. Reddit users across occupational clusters clearly articulated a threat of ever-improving AI systems that could disturb individual career outcomes via job loss, with many expressing concerns about AI functioning as a *labor-replacing* technology. For example, a Reddit user in r/Accounting (887k members) expressed heightened levels of anxiety and grief when discussing how generative AI could be a high-quality substitute for their day-to-day tasks (e.g., *"I'm concerned that my job, my bosses job, and my bosses job could all be easily done by a sufficiently advanced AI"*). For some occupations, such as r/graphic_design (2.3m members), the labor displacement effects of generative AI have already manifested (e.g., *"Today I had my first run in with a client telling us they were going to use A.I. To generate results for something that the studio I work at usually produce for them. Telling us that 'it can now be done in seconds' and they'd come back to us with results later."*).

While some Reddit users self-report losing opportunities to current AI systems, most negative sentiments towards AI are *forward-looking* about how labor displacement *could* happen to their occupation. Consequently, our qualitative analysis indicates that this fear has had a downstream impact on how *nascent* members of an occupational class (e.g., students in law school) view AI systems. For example, in the r/LawSchool subreddit (740k members) and r/medicalschool subreddit (741k members), users feared AI's labor-displacing potential on their anticipated legal and medical career trajectories (e.g., *"I am halfway done with law school and I have gotten fairly good grades at a lower-ranked school but I am afraid I am just wasting time and money if there are no jobs available for me. I hope this is just an irrational fear."*). These and related posts within occupational subreddits suggest that AI systems not only induce

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negative emotions in current professionals but also influence how individuals self-select into specific careers based on the growing capabilities of AI tools.

This pattern of nascent and current members of an occupational class expressing fear, uncertainty, and doubt regarding labor displacement via AI tools is also apparent in software development, a field in the top quartile of AI exposure. Students in the r/softwareengineering subreddit articulate a growing widespread fear of labor displacement in their field and the prospect that AI would be *labor-enslaving*, whereby a small group of software engineers oversees complete AI systems that act autonomously, not only dramatically reducing the availability of programming roles for nascent software engineers but also reducing the value added of these human overseers, whose jobs would be deskilled (e.g., *"I obviously dont think software engineering will completely go away but with the way things are headed it seems there will be only a small pool of them just to watch over the Ai."*) [emphasis added].

In some professions, AI also demonstrates the emergent characteristic of being *labor-impeding*, that is, making an employee's job harder. To wit, professors report strong negative sentiments as AI systems *impede* their productivity by generating unprecedented amounts of AI-infused academic dishonesty (e.g., *"On a personal level, this is taking a massive toll on me mentally and emotionally…I'm losing sleep, feeling a sense of dread, and am becoming so frustrated with all of this… for taking a principled stand on academic integrity."*) [emphasis added.] Here, the productivity enhancements of AI are being illicitly used by students, making the professor's job of monitoring them harder. Another example of AI being labor-impeding is when it demotivates, not only impeding the efforts of those who are demotivated but also the efforts of those who might work with them as colleagues or clients in the future. One particularly plaintive example is the following lament from a would-be software engineer: "*Why do we learn if AI will replace humans in every field in the near future?*

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6.3 High-Intensity Ambivalence within Posts and Occupations

Our quantitative and qualitative analysis uncovered evidence that within occupations, the prospect of a future working with AI systems elicits both positive and negative sentiments, a phenomenon we refer to as high-intensity ambivalence. Intriguingly, the qualitative evidence also reveals that high-intensity ambivalence extends to the individual, too, rather than just to the occupational level. The mix of emotions from a single user is apparent in occupations across industries. For example, in r/Architects (37k members), a user expresses complex sentiments regarding AI (e.g., *"I cant tell if I should be excited or scared about AI... I don't know, I've sort of been looking at it from two different perspectives."*). High-intensity ambivalence also occurs at the individual level when the user reflects on the impact of AI within their industry. For example, in r/LandscapeArchitecture (47k members), a user speculates on the labor displacement ramifications of AI in landscape design, while expressing excitement at this possible future (e.g., *"I can only speculate, but this is not gonna be a good thing for many people in this profession... the core skillset of the profession will be largely automated and this will absolutely reduce billable hours...*<u>*Personally, I can't [deleted] wait.*</u>*"*) [emphasis added, curse word expurgated].

Perhaps no occupation has experienced the complex mix of sentiments generated by advanced AI systems more than postsecondary educators. Above, we noted the labor-impeding concerns related to students using AI to cheat on assignments. In addition, many professors report feelings of delight and excitement (e.g., *"Confession: ChatGPT is making my work easier!"*) at the prospect of the labor-saving and labor-improving nature of AI systems, but expressions of anger, loathing, and terror are also common regarding labor-replacement or labor-enslavement in higher education and across society (e.g., *"my class is doomed, my field is doomed, and my students are doomed too."*).

6.4 Labor Impact as a Unitary Process

Our qualitative analysis of Reddit posts suggests that the perceptions of AI as labor-saving, labor-improving, labor-enslaving, labor-replacing, and labor-impeding may appear to be analytically separable but are, in fact, different manifestations of a common mechanism, namely the disruption caused by AI's potential for massive productivity improvements. To wit, the labor of educators is impeded by AI because AI (illicitly) improves the productivity of students. Likewise, software engineers are concerned that AI may deskill their work by turning them into mere overseers of AI programming systems. Still, this possibility only arises because AI is so good at many programming tasks. Reddit posters may exhibit high-intensity ambivalence about AI because AI's effects are so multifaceted and unpredictable.

7. DISCUSSION AND CONCLUSION

We conducted a quantitative analysis of discussions on Reddit occupational forums. We found that recent releases of generative AI technologies caused increases in the level and slope of the volume trendline of AI-related discussions on these forums, ultimately leading to a persistent new state of higher AI-related posting activity. Based on AI exposure and posting volume, occupations formed four clusters: (a) manual labor: low exposure to AI and little discussion of AI (in some cases, none); (b) specialized services: moderate exposure, moderate posting volume about AI; (c) professions: high exposure, moderate posting volume about AI; and (d) pioneers: high exposure and much discussion of AI. Thus, in general, the more exposed to AI an occupation is, the more AI-related discussions increase on Reddit in the corresponding forum, but some pioneering professions increased their posting volume more than others despite similar levels of exposure.

Positive and negative sentiment increased with posting volume, with positive sentiment increasing substantially more, reflecting a high-intensity ambivalence about AI. A fine-grained

analysis of the emotional content of discussions revealed that there could be isolated spikes of positive or negative sentiment within individual occupational forums. Vis-à-vis non-AI-related discussions on a given occupational forum, AI-related discussions exhibited notably more of the positive emotions of delight, ecstasy, and enthusiasm but substantially less acceptance, again reflecting high-intensity ambivalence.

We then turned to an abductive qualitative analysis of individual Reddit posts, finding several consistent patterns. In line with prior literature on technology introductions, we found that positive sentiments are driven by the potential for AI to be *labor-saving*. In contrast, negative sentiments were driven by AI's potential to be *labor-enslaving* (deskilling) and *labor-replacing*. We found two additional labor-related mechanisms: Positive sentiments were associated with the potential for AI to be *labor-improving* (allowing employees to do what they could not do before). Negative sentiments could be associated with AI's potential to be *labor-impeding* (creating negative externalities that make employees' jobs harder, as when students use AI illicitly for schoolwork). Importantly, both positive and negative sentiments were expressed in the same occupational forum, even the same post, again reflecting high-intensity ambivalence.

Implications for Theory. All told, our results suggest that the increase in posting volume, increase in positive and negative sentiment, and associated changes to employees' work life, though in principle analytically separable, all stem from a common underlying mechanism: the disruption caused by the potential for AI to usher in massive productivity improvements. We believe that a similar pattern of disparate effects arising from a common root cause may accompany other major technological changes. Previous major technological breakthroughs from distant and recent history (e.g., the introduction of the steam engine or automated teller machine) could simultaneously eliminate some jobs, enhance the productivity and ease of other jobs, and create hard-to-foresee externalities. Thus, it stands to reason that individual employees would

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have been highly ambivalent about these other technologies until it became clear what effects they would have. Future research should look for signs of high-intensity ambivalence in non-AI settings and to integrate it into explorations of how AI can complement human intelligence.

The most common theoretical framework for predicting employee acceptance of a new technology is the technology acceptance model, which focuses on usefulness and ease of use. Although we did not directly observe employees' workplace behaviors, the content and tone of their posts on Reddit strongly suggest that the technology acceptance model is incomplete. Employees are profoundly concerned with how AI will impact their personal situations, positively and negatively, beyond how useful or easy AI is to use.

Moreover, although an emergent literature is studying applications of AI in field experiments, we are unaware of much research that compares and contrasts different ways of marketing an AI system to employees to maximize acceptance. Given the high level of ambivalence employees have about AI, especially in exposed occupations, more research is needed on maximizing employees' positive sentiment (e.g., enthusiasm, acceptance) and lessening employees' demotivating fears about deskilling and displacement. This research could lead to new, more expansive models of employee acceptance of new technology that include employees' emotional responses.

Implications for Practice. Our analysis has important implications for practicing managers. The high ambivalence toward AI, not just within occupations but also in individual employees, suggests that managers who wish to implement AI systems must find strategies to maximize enthusiasm to promote acceptance, assuage fears, and achieve AI-human complementarity. Although it is beyond the scope of this work to propose specific strategies, our analysis suggests that most employee anxiety relates to deskilling and job loss, which could be present even in the presence of—or perhaps because of—possibly significant productivity enhancements from AI.

Indeed, these potential productivity improvements could simultaneously positively and negatively affect employees, so it is reasonable that employees would be highly ambivalent about them. Thus, the more valuable an AI system is, the harder managers will need to work to find ways to present its implementation as a win for employees and not just shareholders.

Our study had limitations, which could serve as opportunities for future research. Notably, we did not directly observe employee behaviors. This limitation could be addressed in field work, but it would be difficult for field work to replicate the breadth of occupations in our study. Our study is also limited to a particular place and time. It is possible that employee reactions to AI developments may change or become muted, as AI becomes more familiar. Future work should follow employee perspectives and how they evolve over a long time horizon.

AI has the potential to be one of the most important and disruptive technologies in the workplace in recent business history. We need more research on how employees view AI to develop the best strategies for fostering AI acceptance among employees. Our quantitative and qualitative analysis of candid discussions by employees on Reddit provides a foundation for these future efforts.

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TABLES AND FIGURES

Table 1. AI-related Discussions within each Occupational Category

Standard Occupational Classification	Reddit Submissions	Preprocess 1	Preprocess 2	AI-Submission (Frequency)	AI-Submissions (%)
11: Management	661,347	472,617	256,194	956	0.373
13: Business and Financial Operations	230,403	157,556	121,146	529	0.437
15: Computer and Mathematical	180,572	111,621	44,398	530	1.194
17: Architecture and Engineering	158,595	110,681	77,527	326	0.42
19: Life, Physical, and Social Science	524,143	358,673	223,930	759	0.339
21: Community and Social Service	42,761	26,237	24,982	61	0.244
23: Legal	64,311	47,915	27,245	117	0.429
25: Educational Instruction and Library	728,531	487,187	219,007	1757	0.802
27: Arts, Design, Entertainment, Sports, and Media	384,693	287,022	165,632	634	0.383
29: Healthcare Practitioners and Technical	303,082	194,480	152,886	195	0.128
31: Healthcare Support	210,969	134,138	107,191	151	0.141
33: Protective Service	36,190	26,632	19,771	0	0
35: Food Preparation and Serving Related	55,394	45,886	33,908	33	0.097
37: Building and Grounds Cleaning and Maintenance	66,206	56,984	35,209	0	0
39: Personal Care and Service	132,888	91,431	70,420	373	0.53
41: Sales and Related	202,726	143,226	92,276	223	0.242
43: Office and Administrative Support	280,838	204,139	164,990	490	0.297
45: Farming, Fishing, and Forestry	46,883	40,220	20,164	0	0
47: Construction and Extraction	354,111	298,101	186,626	54	0.029
49: Installation, Maintenance, and Repair	357,720	296,191	180,037	12	0.007
51: Production	458,722	359,986	181,193	39	0.022
53: Transportation and Material Moving	189,112	149,509	78,812	10	0.013
Total	5,670,197	4,100,432	2,483,544	7,249	0.292

Table 2 Interrupted Time Series Analysis

		Language Model Release		
Event Date	Level Change	p-value	Slope Change	p-value
11/30/2022	9.83	0.000	-0.11	0.308
3/14/2023	4.53	0.043	0.02	0.887
3/21/2023	1.54	0.507	-0.18	0.177
7/17/2023	2.40	0.244	-0.02	0.893
12/6/2023	1.52	0.613	-0.30	0.120

		Image Model Release		
Event Date	Level Change	p-value	Slope Change	p-value
8/22/2022	-0.31	0.680	-0.05	0.267
9/28/2022	0.52	0.539	0.08	0.085
11/5/2022	-0.75	0.502	0.15	0.020
11/23/2022	1.63	0.424	0.34	0.004
5/3/2023	2.89	0.223	0.09	0.509
6/22/2023	6.07	0.015	0.21	0.135
7/25/2023	1.57	0.416	0.04	0.705
10/1/2023	-3.40	0.147	0.00	0.988
11/27/2023	2.78	0.345	-0.33	0.048
12/21/2023	-2.03	0.556	-0.62	0.219

Table 3. Representative Posts from Reddit Users

Occupation	Subreddit Post (Title in bold)	Sentiment	Mechanism
Teacher	***ChatGPT has completely changed the game for me and I feel like a better teacher now:*** *ChatGPT is literally my favourite thing ever. I cannot express how much it has helped me every day for the past few months. The more i use it, the more I realize it can do, the more confidence I have to apply my ideas, because I feel like i can accomplish more because I have all of this help. It's like having a personal research assistant and colleague. Obviously, your professional knowledge and judgement are hugely important when using chatgpt, but it just makes everything I do so much more efficient, and my creativity and passion for my work is just more powerful than it was. It is less limited by time, and the more ideas I explore the more ideas I get and so I have started to feel like I am in a new era of my career.*	Positive	Labor-saving, Labor-improving
Veterinarian	***Ai can make your life easier:*** *I've just been playing around with the free version of ChatGPT in the last few months and I really want to share how much work it's saved me. You can use it to write discharges, client education, medical records, articles, etc. The biggest help to me is that you can set it up to ask questions, which is great for brainstorming differentials and tests — it's not like you don't know this stuff without a robot helping you, but if you're like me by the time you've seen 15 clients and the coffee has worn off sometimes your brain doesn't always do the best medicine by itself. It can be especially nice if you don't have another vet working with you that you can bounce ideas off of.*	Positive	Labor-saving
Pharmacist	***I trained an AI on the IDSA guidelines:*** *Anyway, I spend the last 3 months tinkering with GPT. As all of you noticed, it's great for bulls--t tasks, but you can't really rely on it to be accurate, so the applications in healthcare are limited. So, I figured what if I combine with a semantic search model to pull information from legit sources and then prompt to only answer from the context I gave it? To my great delight, it worked wonderfully.[curse expurgated]*	Positive	Labor-saving
Accountant	***What do you think this profession will look like in 5-10 years?:*** *Just started at big 4 tax in June, and it just hit me one day that what I'm doing right now is data entry, and all the way up the chain until maybe manager or even director, everyone is either just doing more data entry or review of someone else's data entry. I'm concerned that my job, my bosses job, and my bosses job could all be easily done by a sufficiently advanced AI. It's not like it takes a ton of actual thought to move numbers from a spreadsheet to some database that then runs calculations for you and prints reports. I'm no expert but it seems that with enough experience and training with a large enough dataset an AI could do the job better, faster, and with less error than pretty much any person. With Big 4 already outsourcing most of their data entry work to lower paid regions like India and Mexico, and them very publicly developing AI applications to "help our teams", it looks like the writing is on the wall that my current job, and the job that I want to have in the future (some cushy 6 figure industry position) might not exist by the time I'm experienced enough to qualify for those positions.*	Negative	Labor-replacing

Graphic Designer	**The advent of A.I. Into the industry and the graphic design industry. How do you feel:** *Today I had my first run in with a client telling us they were going to use A.I. To generate results for something that the studio I work at usually produce for them. Telling us that 'it can now be done in seconds' and they'd come back to us with results later. I wasn't exactly taken aback I've been actively following the ai innovations for a while now and have been opening impressed and equally fearful of the capabilities of such tools. I've seen so that can do simple photoshop tasks, illustrate(the obvious one), make repeats from assets etc etc. What's worrying to me is the level and quality that these things are putting out, I've been in the industry for over 10 years now and I've never seen anything like it...Over the next 5 years I believe we will see a cataclysmic shift in design services.*	Mixed	Labor-saving, Labor-replacing
Attorney	**Should we be afraid of AI replacing lawyers?:** *I recently saw multiple articles about how ChatGPT could write accurate briefs and how some experts suggest they can get better with time. Some argue we shouldn't worry because AI can serve to supplement our work but I am afraid that its introduction could at the very least cause significant job losses in the legal profession. I am halfway done with law school and I have gotten fairly good grades at a lower-ranked school but I am afraid I am just wasting time and money if there are no jobs available for me. I hope this is just an irrational fear.*	Negative	Labor-replacing, Labor-impeding
Nascent Physician	**How much does AI impact your specialty decision?:** *I feel like I consider AI a lot in specialty decision-making (in terms of which specialties are most easily automated). From my speculation alone, I could imagine, for example, that specialities that have a clear cut "right" and "wrong" way of interpreting data (e.g. radiology) might be the first to have AI introduced. In addition, I could imagine that AI might be more easily introduced into algorithmic-based specialities such as ID. Do you consider this? Is AI a threat to job security? Just wanted to open the conversation to hear other perspectives. I cognitively know that there is a role for AI to enhance the role of a clinician, as well, and it is not necessarily a threat to job security, but I'm still a bit skeptical.*	Mixed	Labor-saving, Labor-replacing, Labor-impeding
Nascent Software Engineer	**On OpenAi:** *Dont know if this is the right subreddit but Im in my second year of college and Im a compsci major, people have been talking about Ai taking over jobs like software engineering and I never believed it until now as OpenAi just announced gpts. I obviously dont think software engineering will completely go away but with the way things are headed it seems there will be only a small pool of them just to watch over the Ai. Idk Im pretty new to this, what do you guys think?*	Negative	Labor-replacing, Labor-enslaving
Software Engineer	**Why do we learn if AI will replace humans in every field in the near future?:** *I used to be very productive and learn new things every day, including doing Leetcode problems. But after the introduction of ChatGPT, I lost all motivation to learn. I started to think that AI will replace humans in every field in the near future, so why bother learning? I know that AI is not perfect and that humans still have a lot to offer. But I'm still struggling to find the motivation to learn when I think about the future of AI. I'm curious to hear what others think about this. Why do we learn if AI will replace humans in every field in the near future*	Negative	Labor-replacing, Labor-impeding

|			
Architect	***I cant tell if I should be excited or scared about AI.*** *Despite the current state of AI tools, many of my coworkers seem pretty convinced that AI is going to be capable of automating a lot of the stuff we do in the not so distant future. It's not really a doomer "we're all gonna lose our jobs", more like a fact of life that we'll just have to learn to adapt to, similar to the effects that CAD and then BIM had on the industry. From that perspective, AI doesn't really seem like that big of a deal. If anything it's something we could get excited about, rather than nervous. I don't know, I've sort of been looking at it from two different perspectives. At the same time though, it's kind of exciting to think about how technology could streamline the work we do to a massive degree, and could potentially give us more time and freedom to work on more creative work. I guess I don't know if I should be scared that AI tools will cause developers and clients to say "why should I pay you when I can get my computer to do it for me?", or if I should be excited that there will be tools that will enable architects to spend less time doing menial tasks, more time doing actual design.*	Mixed	Labor-saving, Labor-replacing, Labor-improving
Landscape Architect	***AI is gonna fundamentally change this profession:*** *I can only speculate, but this is not gonna be a good thing for many people in this profession. It may be a good thing for the few LAs that read the writing on the wall and learned how to program, work with data, and develop strong technical skills, but the core skillset of the profession will be largely automated and this will absolutely reduce billable hours…Personally I can't [deleted] wait. This profession is awesome in theory, but in practice gets bogged down by a lack of innovation and an emphasis (at least in academia) on superficial, pretentious "theories" of landscape. [curse expurgated]*	Mixed	Labor-saving, Labor-replacing
Professor	***AI, College Support, and My Mental Health:****…On a personal level, this is taking a massive toll on me mentally and emotionally. It's hard to stay as engaged and involved in my class discussions, student projects, and maintain my optimistic and positive outlook on my program and my school when I feel repeatedly unsupported and rejected by the institution. I'm losing sleep, feeling a sense of dread, and am becoming so frustrated with all of this. I recognize that I'm not alone in this and this is hardly a "unique to me" circumstance, but I also have a really difficult time when others essentially won't hold the line with me and seem to be consistently undercutting me for taking a principled stand on academic integrity. I'm now on break and I just want to completely disconnect. At the same time, I've never felt that way before in my 16+ years of teaching. I've always taken my evaluations and final results and immediately gotten excited about tweaks to make to my classes for the next term. I've always had a positive outlook on academia and felt a sense of belonging (even when I previously lost jobs due to budget cuts while on the tenure track). Now, I feel isolated, alone, and unsteady. I don't know what to do. Am I going crazy or do I simply just care too much? Should I just "let it go" and let the proverbial criminals run free? Do I double down on this fight? What do I do? What do WE, as faculty, do? Thanks to anyone who can give me some moral support, sound judgment, or profound wisdom at this time!*	Negative	Labor-impeding
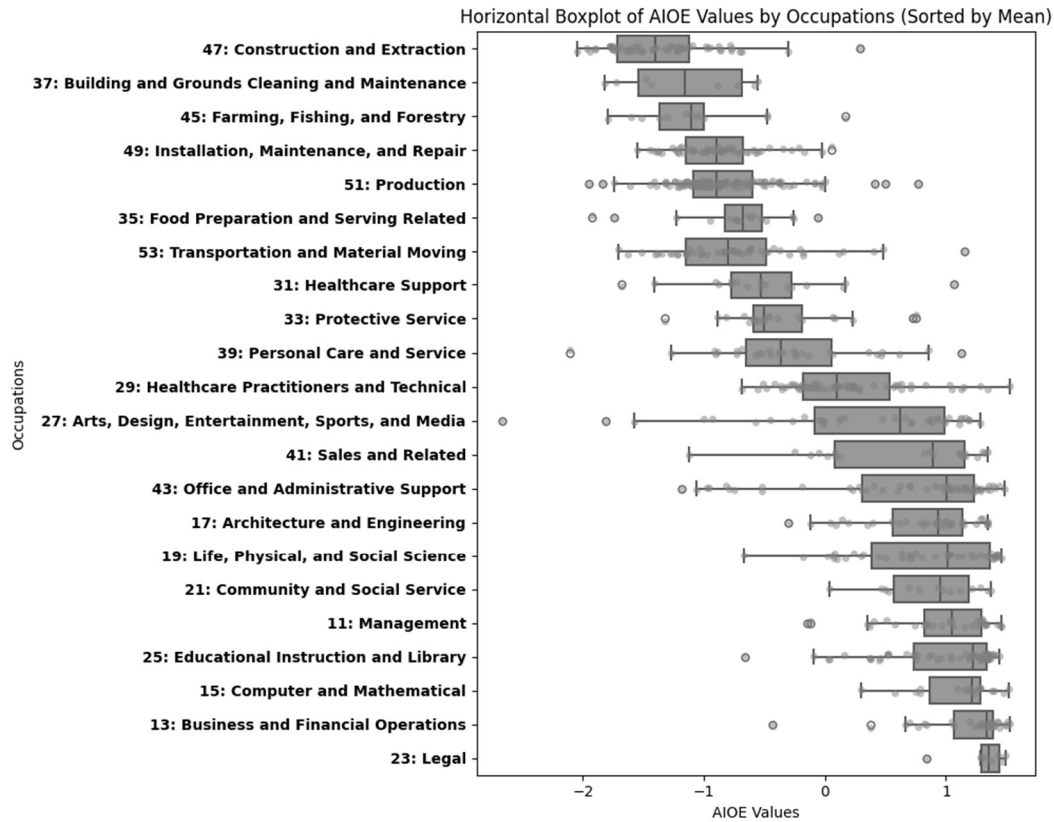
Figure 1 Box-and-Whisker Plot of AIOE Values by Occupations
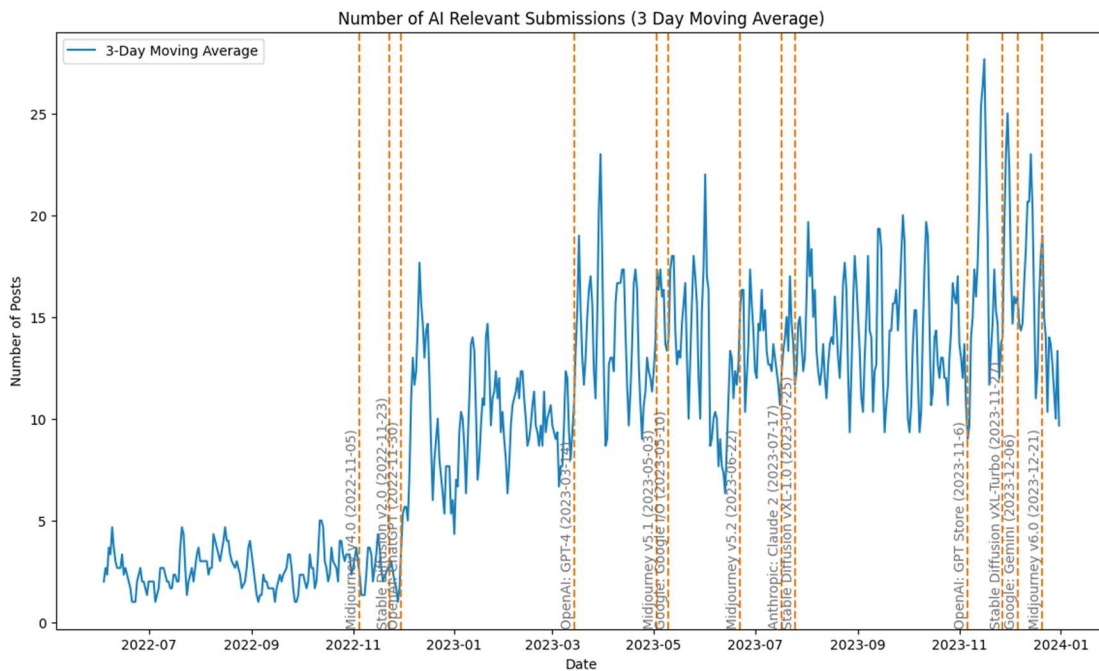
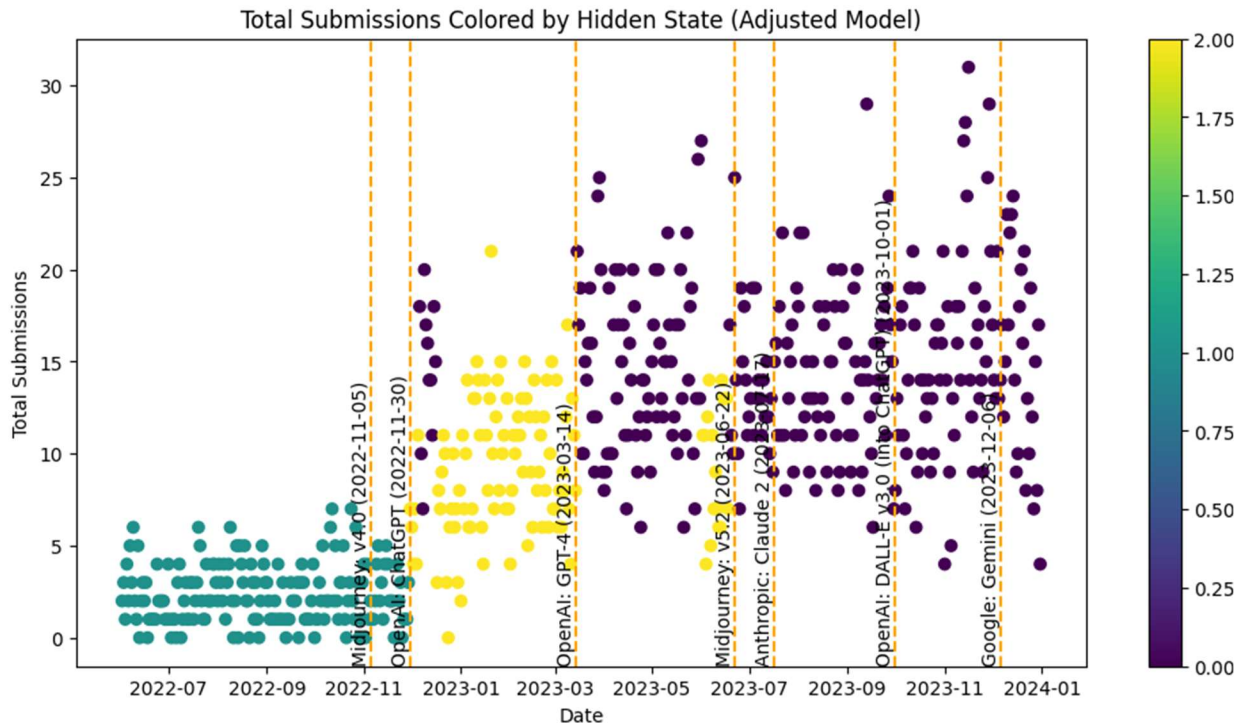**Figure 2 Number of AI Relevant Submissions**
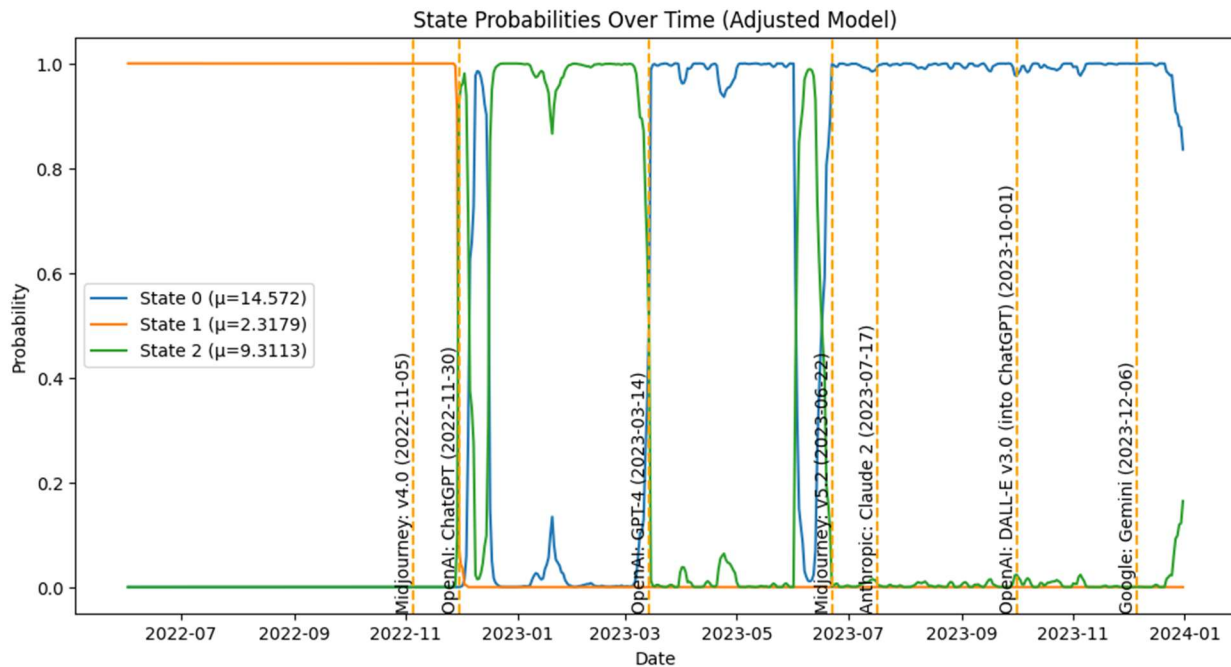
Figure 3 Gaussian Hidden Markov Model

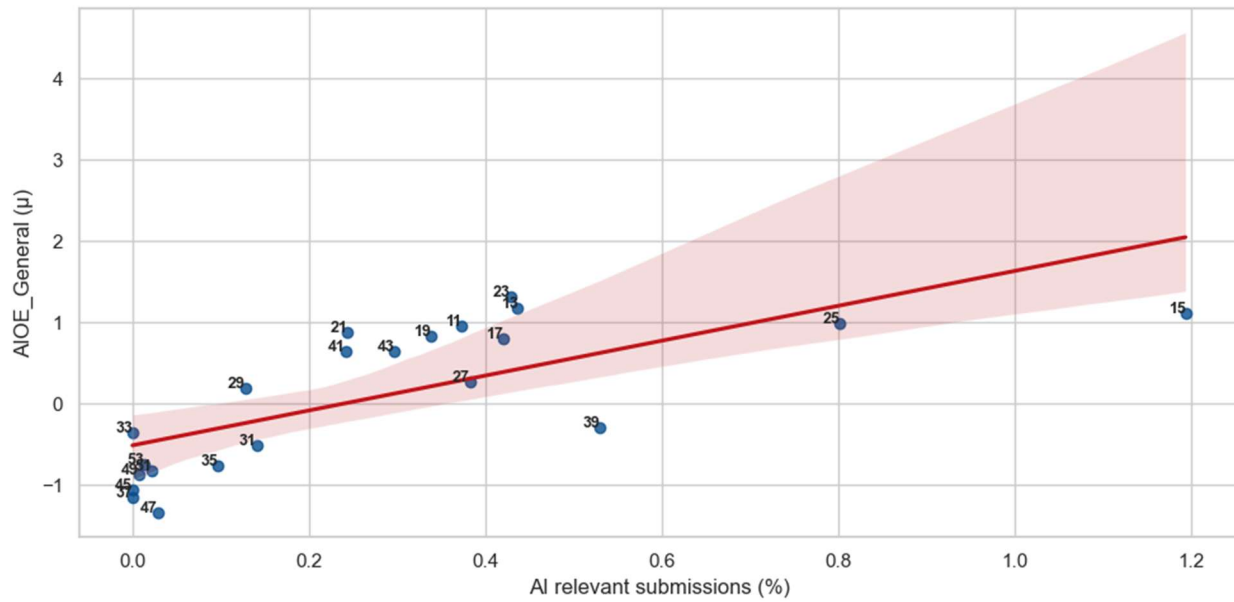**Figure 4 State Probabilities Over Time**

Figure 5 Correlation between AIOE and Posting Volume
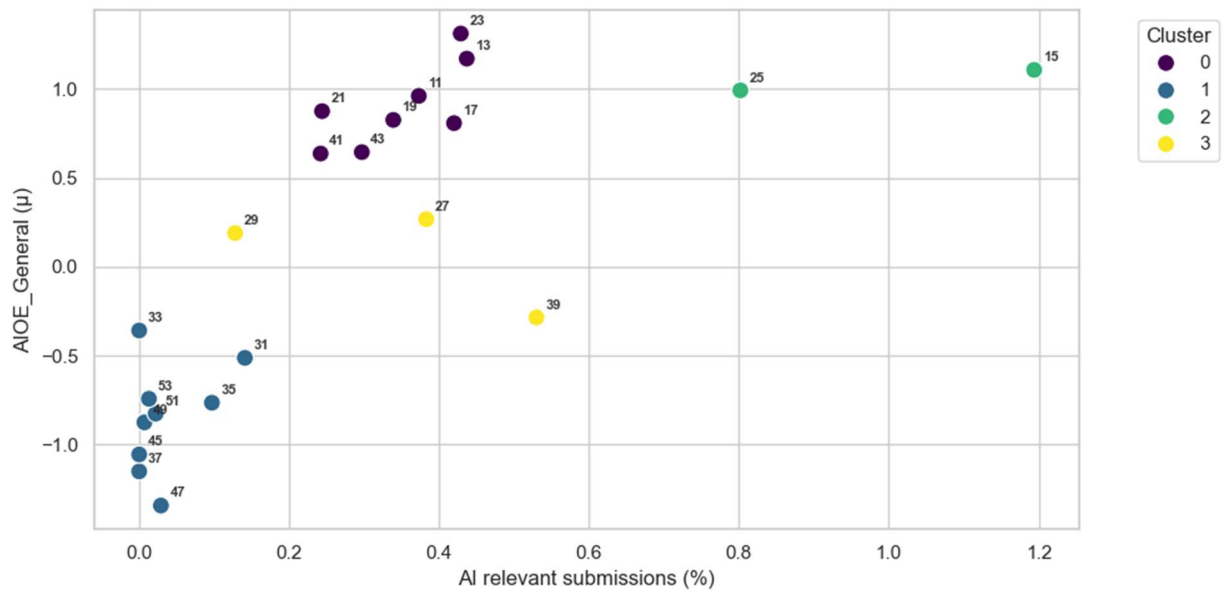

 Figure 6 Initial Cluster Mapping

Note: Cluster 0 is professions; Cluster 1 is manual labor; Cluster 2 is pioneers; and Cluster 3 is specialized services. To see how occupation numbers correspond to occupation names, refer to Table 1.
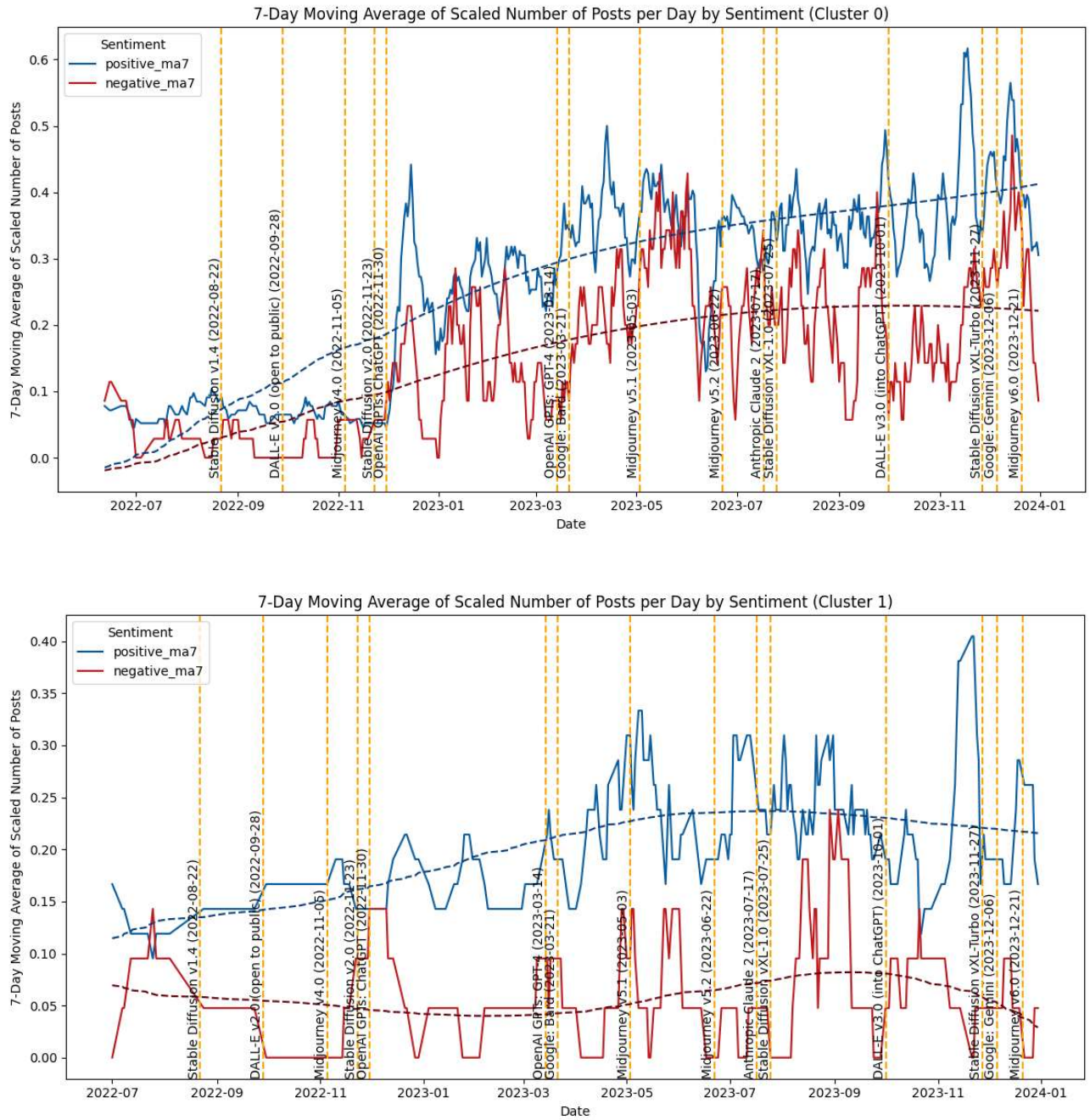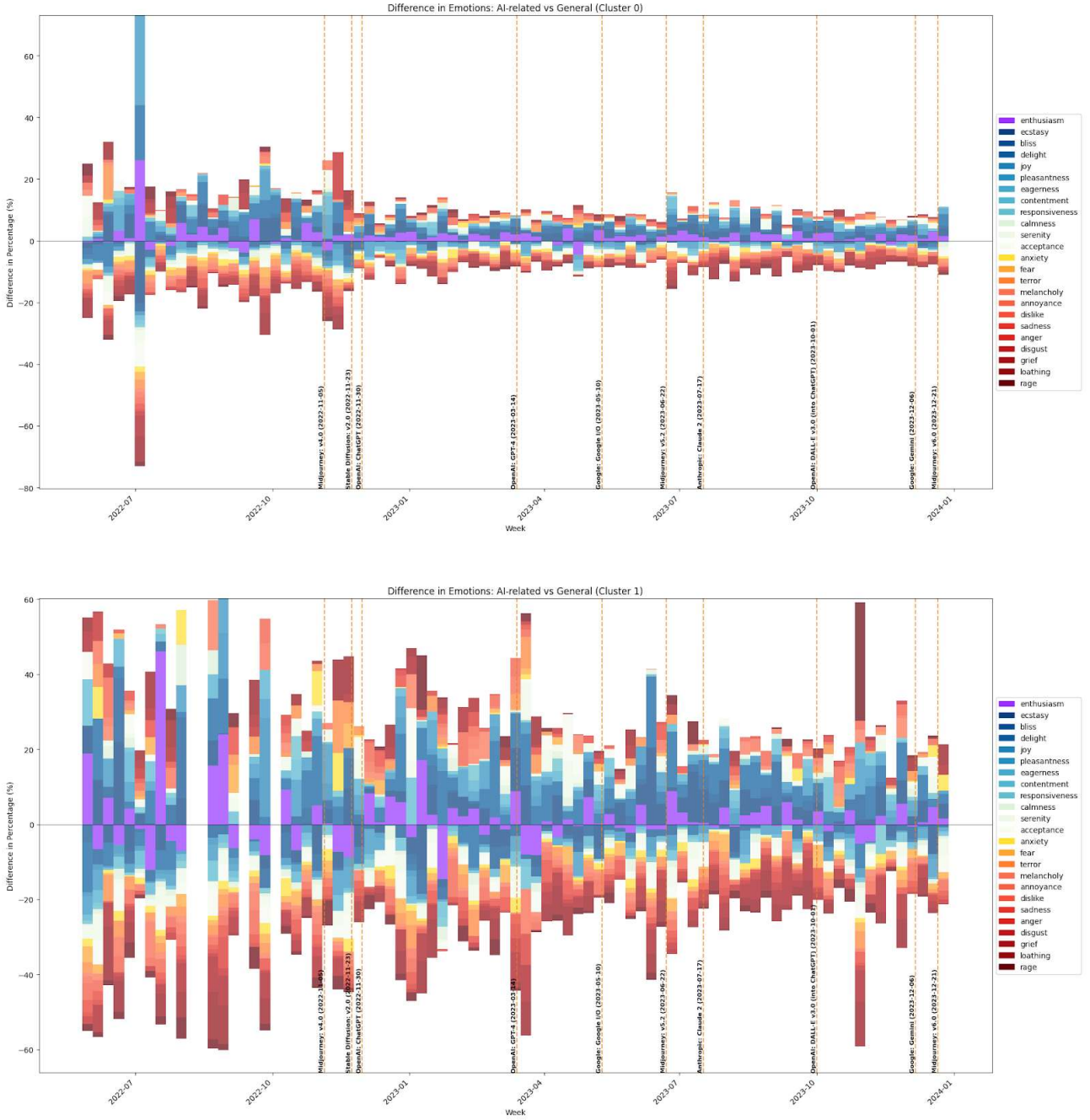
Figure 7 Distribution of Positive and Negative Submissions Across Occupational Clusters

Note: Cluster 0 is professions; and Cluster 1 is manual labor.
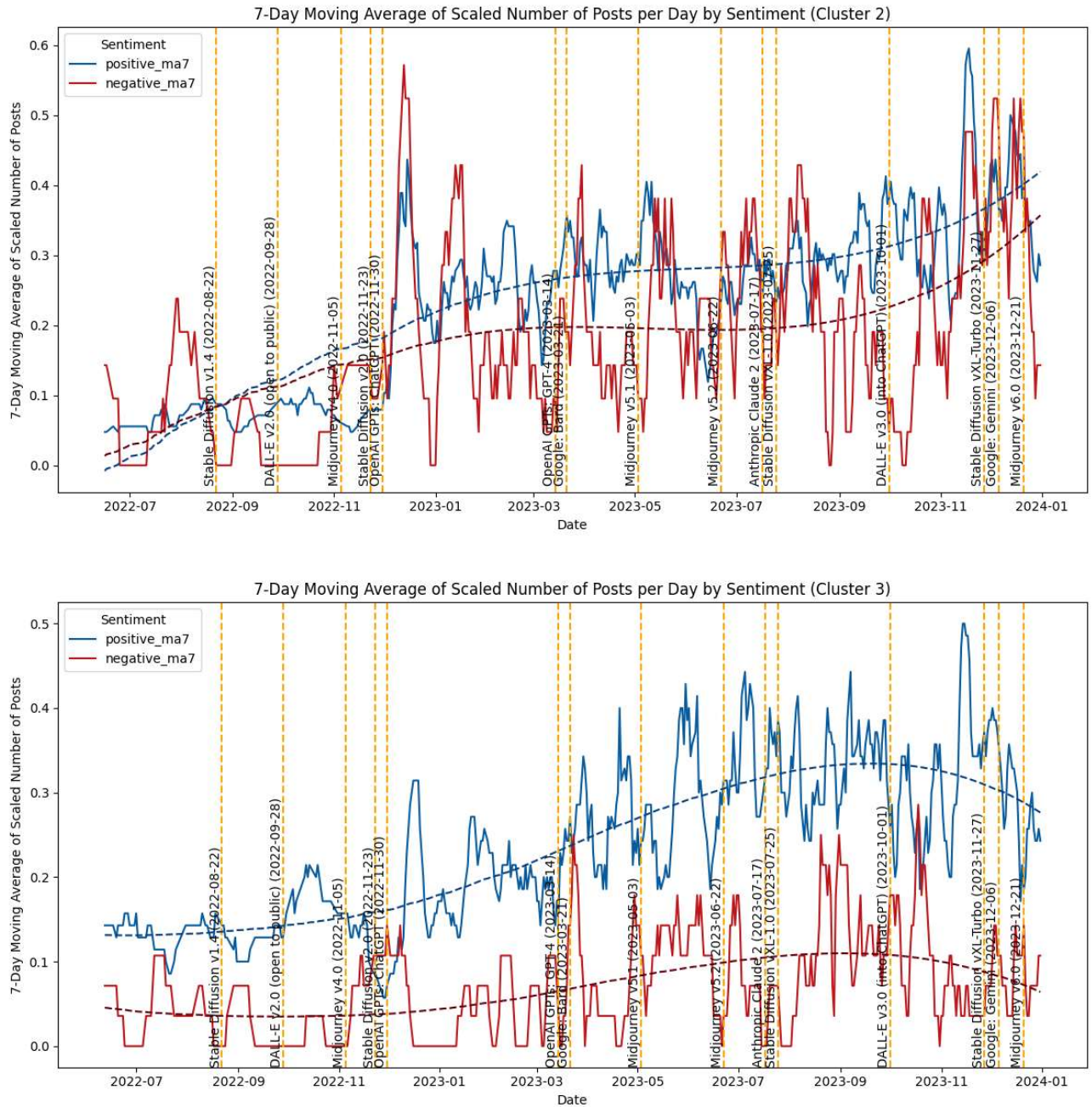
Figure 7 Continued

Note: Cluster 2 is pioneers; and Cluster 3 is specialized services.

Figure 8 Differences in Emotion by Occupational Cluster

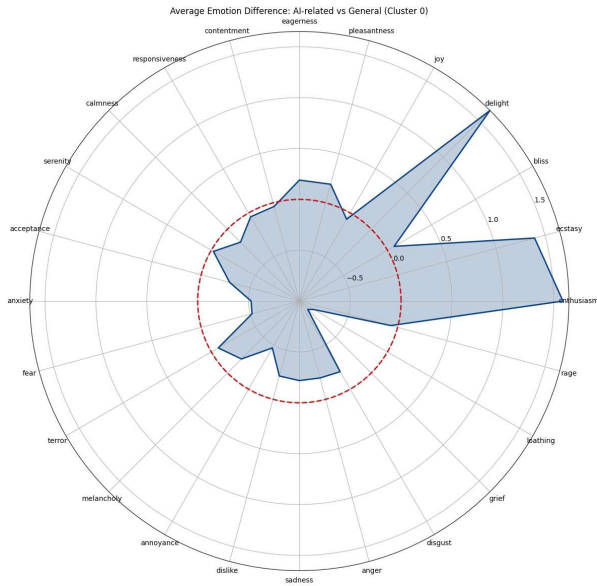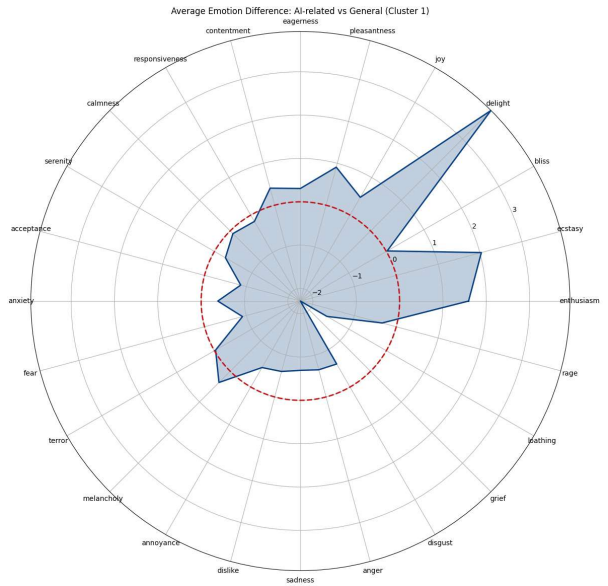Note: Cluster 0 is professions; and Cluster 1 is manual labor.
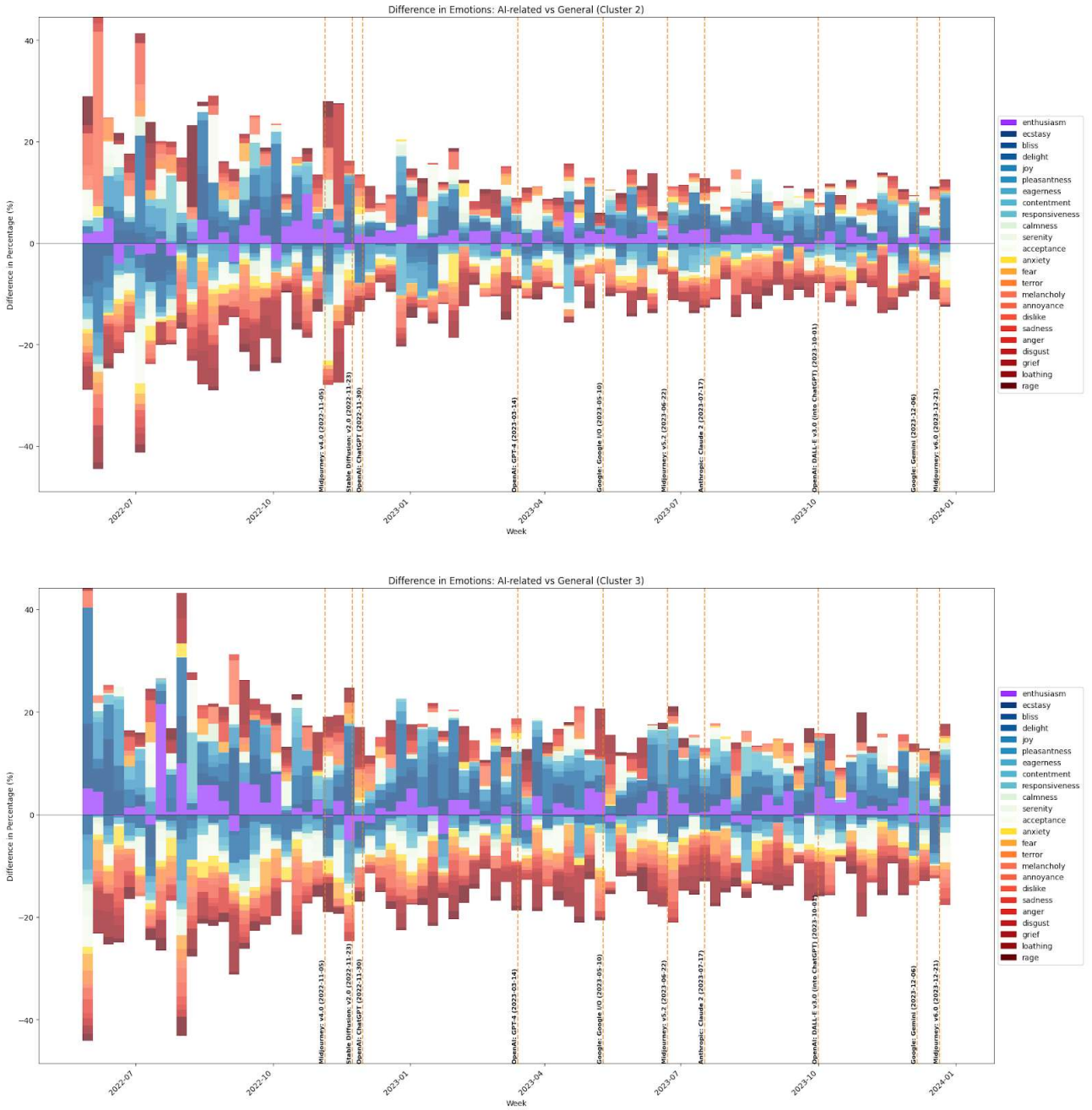
Figure 8 Continued

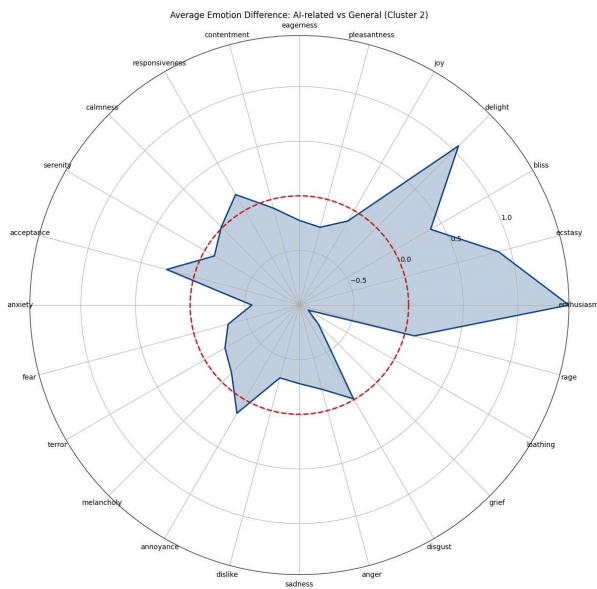Note: Cluster 2 is pioneers; and Cluster 3 is specialized services.
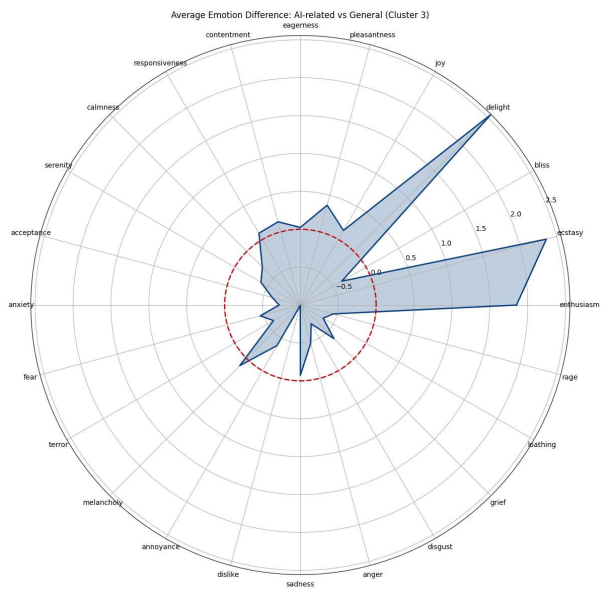
Professional

Manual Labor

Pioneers

Specialized Services

Figure 9. Radar Charts by Occupational Cluster