

Labor and Intellectual Property in the Age of Artificial Intelligence

January 16, 2024

1 Introduction

The rapid development of artificial intelligence (AI) technology, particularly the significant breakthrough in large language models (LLMs), marks not only a new era of technological innovation but also has profound impacts on our social structure and daily lives. Its impact is complex and dual-faceted: AI is both a disruptor of existing systems and a creator of new values. This report delves into two frontier issues of the AI technological revolution: the impact of AI on the labor market and the ownership of intellectual property generated by AI.

There is no doubt that AI brings new job opportunities and leads to the obsolescence of existing positions. However, it remains to be seen which will prevail in the dynamic relationship that emerges between these two aspects. The first part of this report will focus on this question, analyzing how AI and automation technologies will reshape the labor market in the future and exploring the complex interplay between the emergence of new opportunities and the disappearance of old positions.

The second question addresses the ownership rights of AI-generated content: Who rightfully owns it? Is it the original data and content creators, the prompt engineers who train the models, or the technology companies? This part of the report explores the intellectual property ownership issues surrounding AI-generated content, involving multiple stakeholders. The objective is to discuss and evaluate the legality and fairness of the various claims to ownership by these stakeholders. Furthermore, it aims to establish effective legal and ethical frameworks in this emerging field.

2 Topic 1: The Emergence and Disappearance of Jobs in the AI Era

2.1 Media Perspectives

Technology leaders assert that jobs will disappear. CEO of OpenAI Sam Altman stated, Jobs are definitely going to go away, full stop. Elon Musk also predicted that AI will take jobs away. An article in The Atlantic vividly describes the potential impact of general AI on the labor market, especially on knowledge workers. The article explores whether knowledge worker jobs will become indispensable or be completely replaced, citing Sam Altman's view that jobs will definitely disappear, while emphasizing the significant advancements AI may bring to all aspects of human life, along with the accompanying disruption and alienation.[1]

An article in the New York Times also highlights the vulnerability of white-collar jobs under the threat of AI. The report emphasizes a paradigm shift: tasks once considered immune to automation, such as creative and professional work, are now within the realm of AI. This shift is supported by research using the O*Net database, showing that AI models could provide substantial help in a vast array of tasks across various professions.[2]

On the other hand, contrasting with the pessimistic predictions, a Forbes columnist offers an optimistic perspective. The article suggests that while AI may render some jobs redundant, it also paves the way for new forms of employment. It emphasizes, The reason we work is not just for the paycheck. It promotes our mental health and is part of our desire for goals, a sense of achievement, satisfaction, and pride through making contributions and collaborating with others, which in turn promotes happiness. One of the most significant benefits of artificial intelligence is that it enhances productivity and takes on boring, repetitive tasks, freeing up unlimited creative potential in the workplace. As the mundane is eliminated and human creativity is enhanced, professionals will begin to enjoy more meaningful work.[3]

The World Economic Forum's report also supports this view, estimating that although AI and machine learning might replace about 85 million jobs, approximately 97 million new roles may emerge, better suited to the new division of labor between humans, machines, and algorithms. This prediction highlights the dynamic nature of the labor market, constantly evolving in response to technological advancements.[4]

2.2 Academic Insights

When exploring the impact of artificial intelligence on the labor market, it is essential to deeply understand the findings of academic research. Academic studies show that the impact of AI technology is multidimensional, with potential threats and opportunities.

2.2.1 Global Perspective: The Impact of Generative AI on Professions

From a global perspective, the impact of generative AI, particularly pre-trained generative models (such as GPTs), on various professions and work tasks is becoming an important issue. Studies using the GPT-4 model have estimated the potential risks faced by work tasks and analyzed the differences in these risks across different income groups globally. The results indicate that clerical jobs are the most impacted, with 24% of tasks highly exposed to AI influence and an additional 58% facing moderate risk. These findings suggest that AI's most likely role is to enhance rather than entirely replace work, i.e., automating certain tasks while leaving more time for other responsibilities. However, the impact varies significantly between countries, closely related to each country's occupational structure and economic environment.[5]

2.2.2 The U.S. Labor Market: The Impact of LLMs

Specifically in the United States, research has found that the introduction of large language models (LLMs) could impact partial work tasks of about 80% of the U.S. workforce. This finding indicates the broad potential impact of AI on the labor market, an impact not limited to specific industries.[6]

2.3 Two Futures: Optimistic and Pessimistic Perspectives

In discussing the relationship between AI and human labor, academia has proposed two distinctly different future scenarios. Optimists envision a jobless world where AI takes on most workloads, allowing humans to enjoy leisure supported by universal payments. In contrast, pessimists predict a future dominated by uncontrolled AI, where people displaced by AI receive little support. This dichotomy highlights the uncertainty of AI's impact on the labor market and the necessity of developing balanced and proactive policies to manage these transitions.[7]

2.3.1 The Role of Demand: Technological Progress and Employment

A key study focused on the importance of demand in understanding the impact of new technology on employment. This study emphasizes that the pace of technological change itself does not determine its impact on employment. Instead, the key lies in the elasticity of demand and the market's response to new technology. If demand is sufficiently elastic, technological progress may not entirely replace human labor but could create new job opportunities. Historically, despite significant increases in productivity, technology has mostly only partially automated work. This implies that even though AI may outperform humans in some tasks, current AI still underperforms in many other tasks. Therefore, in the short term, AI might completely automate some jobs, but the goal of most applications is likely just to automate specific tasks within a profession.[8]

3 Topic 2: Intellectual Property Ownership in the AI Era

3.1 Media Perspectives

Forbes raised critical questions about the ownership of AI-generated works. The article explored the legal ambiguities surrounding content produced by AI platforms such as ChatGPT. Current U.S. copyright law requires human creative input for copyright eligibility, placing AI-generated works in a legal gray area.[9]

European news has also discussed the challenges faced by European legislators in determining the ownership of AI-generated content, especially regarding the uncertainties of human involvement and training data. The emergence of popular generative AI tools has sparked debates over the ownership of such content, particularly when these tools are often trained on copyrighted material from online sources without the original creators' consent.[10]

3.2 Academic Perspectives

In academic community, there's an evolving discussion about the impact of AI on intellectual property and ownership. Akanksha Bisoyis study, Ownership, Liability, Patentability, and Creativity Issues in Artificial Intelligence, highlights the challenges of determining the ownership and authorship of

AI-generated works, especially against the backdrop of AI’s autonomous decision-making capabilities. The paper suggests that establishing robust regulatory bodies and safety standards, along with comprehensive patent protection for AI inventions, is necessary to address these legal concerns.[11]

Meanwhile, Rafael Dean Brown’s paper, Property Ownership and the Legal Personhood of Artificial Intelligence, examines the consequences of giving legal personhood to AI systems, especially regarding property rights. It explores the interrelationship between legal personhood and property rights, proposing that property rights could be granted to weak AI but not to strong AI, as the latter requires a model based on human will.[12]

4 Conclusion

This report concludes with key insights on the impact of AI on the labor market and intellectual property.

Firstly, AI’s influence on the labor market is dual-sided. While it may render certain jobs obsolete due to automation, it also creates new job opportunities in areas that harmonize human, machine, and algorithmic labor. This evolution requires new skills and adaptability from workers, as well as collaborative efforts from policymakers, educators, and industry leaders, to ensure a smooth and equitable transition.

Secondly, the issue of intellectual property ownership for AI-generated content presents a significant legal and ethical challenge. The existing legal framework has not yet fully adapted to the new realities of AI technology, especially in defining authorship and ownership rights. This calls for innovative thinking on legal, ethical, and moral levels to establish reasonable standards and mechanisms, assessing and determining the ownership of AI-generated content, taking into account the contributions of data providers, model trainers, and the AI itself.

Furthermore, this report emphasizes that the development of AI technology is not merely a technical challenge but also a concentration of social and ethical issues. Therefore, decisions about AI applications in the fields of labor and intellectual property should consider their widespread impact on society, ensuring the balance and protection of the rights and interests of all stakeholders.

References

- [1] Ross Andersen. *Does Sam Altman Know What Hes Creating?*. The Atlantic, 2023. <https://www.theatlantic.com/magazine/archive/2023/09/sam-altman-openai-chatgpt-gpt-4/674764/>
- [2] Claire Cain Miller and Courtney Cox. *In Reversal Because of A.I., Office Jobs Are Now More at Risk*. The New York Times, August 24, 2023. <https://www.nytimes.com/2023/08/24/business/ai-office-jobs-automation.html>
- [3] Rachel Wells. *Elon Musk Says AI Will Take Jobs Away. Heres Why That Wont Happen*. Forbes, November 6, 2023. <https://www.forbes.com/sites/rachelwells/2023/11/06/inside-elon-musks-future-of-work-there-is-none-thanks-to-ai/?sh=18354d4551fb>
- [4] Emma Goldberg. *A.I.s Threat to Jobs Prompts Question of Who Protects Workers*. The New York Times, May 23, 2023. <https://www.nytimes.com/2023/05/23/business/jobs-protections-artificial-intelligence.html?searchResultPosition=4>
- [5] Pawel Gmyrek, Janine Berg, and David Bescond. “Generative AI and jobs: A global analysis of potential effects on job quantity and quality.” *ILO Working Paper*, 96, 2023.
- [6] Tyna Eloundou, Sam Manning, Pamela Mishkin, and Daniel Rock. “Gpts are gpts: An early look at the labor market impact potential of large language models.” *arXiv preprint arXiv:2303.10130*, 2023.
- [7] Syed AbuMusab. “Generative AI and human labor: who is replaceable?” *AI & SOCIETY*, pages 1–3, 2023. Springer.
- [8] James Bessen. “Artificial intelligence and jobs: The role of demand.” In *The economics of artificial intelligence: an agenda*, pages 291–307, 2018. University of Chicago Press.
- [9] Joe McKendrick. “Who Ultimately Owns Content Generated By ChatGPT And Other AI Platforms?” Forbes, 2022. <https://www.forbes.com/sites/joemckendrick/2022/12/21/who-ultimately-owns-content-generated-by-chatgpt-and-other-ai-platforms/?sh=4d0477585423>

- [10] Imane El Atillah. “Copyright challenges in the age of AI: Who owns AI-generated content?” Published on 10/07/2023 - 18:02, Updated 11/07/2023 - 10:46. <https://www.euronews.com/next/2023/07/10/copyright-challenges-in-the-age-of-ai-who-owns-ai-generated-content>
- [11] Akanksha Bisoyi. “Ownership, liability, patentability, and creativity issues in artificial intelligence.” *Information Security Journal: A Global Perspective*, 31(4):377–386, 2022. Publisher: Taylor & Francis.
- [12] Rafael Dean Brown. “Property ownership and the legal personhood of artificial intelligence.” *Information & Communications Technology Law*, 30(2):208–234, 2021. Publisher: Taylor & Francis.