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Dialogues of Creation: Collaborative Content Generation by the Human Author and ChatGPT and its Impact on the Evolving Intellectual Property Landscape

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ABSTRACT

The paradigm of content creation and intellectual property (IP) is undergoing an unprecedented shift fueled by AI, with ChatGPT at its forefront. This study presents a distinctive approach—a dialogue between a human author and ChatGPT—to explore their collaborative impact on creative content generation, redefining authorship and reimagining the intellectual property landscape.

As AI blurs distinctions between traditional authorship and machine-generated influence, questions emerge about attributing creative ownership, ethical considerations, and the economic valuation of AI's contributions. The human author's collaboration with ChatGPT reveals motivations that extend beyond innovation, encompassing a horizon of narrative experimentation with unique challenges. The subsequent interviews capture the evolving discourse, uncovering that while AI-generated concepts may not inherently spark entirely novel ideas, with careful human guidance, they act as catalysts for enhancing creativity. This dialogue also delves into the complexities of authorship in an AI-infused landscape. It probes the extent to which AI-generated ideas resonate with the author's artistic intent and the challenges of maintaining authorial voice in a dynamic, collaborative environment.

Utilizing qualitative methods, this research seeks to illuminate AI's influence on human authors' creative processes, dissect the intricate interplay between human creativity and AI-generated content, and critically assess the profound implications for established concepts of authorship and the evolving dynamics of the IP economy—an arena witnessing disruption due to the increased prevalence of AI-infused work. The evolving definition of authorship and content ownership catalyzed by AI-generated contributions calls for a fundamental reassessment of the traditinoal IP models.

Lastly, as AI-generated content becomes integral to creative works, it necessitates the emergence of new models for valuing, distributing royalties, and upholding ethical standards. We delve into the complexities of establishing fairness within this emerging model, which encompasses licensing issues related to the training data used by generative AI companies and these companies' stance on copyright ownership of the generated work. To address these challenges and the limitations inherent in current AI systems, we propose the concept of a Knowledge Graph as a valuable tool to serve as human guidance in AI-generated work. We suggest that the design of these knowledge graphs may play a pivotal role in shaping the future of the intellectual property economy.

In essence, the research presents an unconventional exploration of the partnership between human authors and AI. Through this dialogue, the study not only unveils how they redefine creativity and authorship but also highlights the transformative impact on the IP economy. The outcomes of this research offer valuable recommendations for creators, industries, and policymakers to navigate this evolving landscape.

Keywords: ChatGPT, Artificial Intergence, Collaborative content creation, Intellectual property economy

1. INTRODUCTION

In the rapidly evolving landscape of creative content generation, the partnership between human authors and artificial intelligence(AI) has introduced new dimensions to the concept of authorship. This research delves into this transformative relationship, focusing on the interplay between a human author and the AI model ChatGPT. Through this unique collaboration, we aim to uncover the intricate dynamics that emerge when human creativity converges with AI assistance.

One of the key contributors to this study is Wang, who is also a co-author of this research paper. Wang is an accomplished author, playwright, and editor with a portfolio of published works in wide-ranging genres from film critics, social and cultural issues to psychology. Wang's experience in using ChatGPT to create three original e-books to date serves as a focal point for exploring the nuances of collaborative content creation. By delving into Wang's journey, we seek to unearth the challenges he encountered and the novel perspectives he gained on the essence of authorship in the age of AI.

Beyond the personal narrative, this research extends its focus to the broader implications of AI-augmented authorship. By examining the collaborative writing process between Wang and ChatGPT, we aim to unravel the multifaceted implications for creativity, authorial identity, intellectual property, copyright, and the overall dynamics of the publishing industry. From a creative, industrial, social, ethical, and legal perspective, this study endeavors to shed light on the transformations AI brings to the realms of content creation, authorship, and the intricate web of intellectual property economy. As AI becomes increasingly integrated into the creative process, understanding these implications becomes pivotal for both scholars and industry stakeholders alike.

In summary, here are the research questions we aim to explore:
1. How does the collaborative integration of ChatGPT as a creative partner influence the creative content generation process for a human author?
2. In light of the evolving partnership between human authors and AI models like ChatGPT, how does the concept of authorship undergo transformation?
3. What are the ethical considerations associated with attributing creative ownership in the collaborative authorship between human authors and AI, and how do these considerations intersect with the changing landscape of content generation and intellectual property rights?
4. How does the incorporation of AI-generated content into creative works impact the traditional models of the intellectual property economy, and what innovative frameworks are required to ensure fair compensation for both human and AI contributions?

LITERATURE REVIEW

Evolution of AI in Creative Content Generation

Advancements within the field of artificial intelligence (AI) have been monumental. Notably, we have already witnessed IBM's computer Deep Blue achieving victory over human chess champions in 1997 (IBM, 2011), as well as AlphaGo, a computer program, surpassing professional human players in the ancient board game of Go in 2015 (AlphaGo, 2023). Furthermore, Google's DeepMind AI demonstrated its prowess by defeating skilled human players in the complex realm of StarCraft II (Vincent, 2019). However, it is evident that the trajectory of AI development continues to extend beyond these accomplishments. Leading the charge in AI research and development are industry giants like OpenAI and DeepMind (Lin, 2023). A prominent strand of these advancements is the emergence of generative pre-trained machine learning models, exemplified by the likes of ChatGPT (GPT stands for Generative Pre-trained Transformer), which strive to replicate human creative capabilities.

OpenAI, established in 2015, as a prominent AI research and development firm headquartered in the United States, introduced ChatGPT in May 2020 and made it publicly available in late 2022. Since its release, it is reported to have attracted over 100 million monthly users in two months' time (Garfinkle, 2023), breaking the records of TikTok or Instagram. ChatGPT is a meticulously trained AI model designed for interactive dialogue (OpenAI, 2022). It is able to answer follow-up questions, admit mistakes, and even challenge incorrect premises in reasoning or reject inappropriate requests. It also adeptly executes instructed tasks in response to written prompts provided by human users.

ChatGPT has impressed the world with its remarkable capability to generate content in various structured languages, encompassing a spectrum of formats including but not limited to poetry, PowerPoint presentations, culinary recipes, essays, computer codes, and even facilitate language translation tasks. Additionally, it excels in the art of summarization, efficiently condensing lengthy texts, and has the aptitude to craft well-structured outlines. Moreover, it provides editing assistance for written compositions, enhancing the overall quality of the content. (Gleason, 2023).

AI-Human Collaboration in different sectors
Human Collaboration in the Music Industry
The integration of AI and human collaboration in creative endeavors is already evident in the music industry. According to Deltorn and Macrez (2018), the utilization of computers in music composition traces its origins back to the late 1950s when productions began to leverage compositional rules encoded in algorithmic languages. Recent advancements in deep learning techniques, accompanied by increased access to substantial computational resources and digitized training datasets, makes it now feasible to train neural networks on compositions by classical maestros, resulting in polished musical compositions with minimal human intervention.

These developments have given rise to a new generation of creative musical tools that cater to both professionals and amateurs, paving the way to the production of musical artworks en masse, signifying the potential of AI-Human collaboration in the creative industry. Accoridng to Dysart (2018), AI music composers may inspire millions of music consumers to start creating their own songs, whereas Jean-Pierre Briot, research director at France's National Center for Scientific Research, took the view that AI's main role should be to help musicians to compose and produce good music, rather than to look to AI alone either for head-turning compositions or to help amateurs produce a masterpiece.

Impact of ChatGPT in the Academic writing

In the realm of scientific writing, ChatGPT and similar generative AI tools has fundamentally transformed the existing ecosystem. Scholars such as Lucey and Dowling (2023) contend that AI can produce academic papers good enough for academic journals. As of January 2023, the journal Nature reported ChatGPT being recognized as a co-author in at least four academic papers (Stokel-Walker 2023). In response to this development, some of the world's most famous academic journal publishers have banned their authors from using Chatbot. Their rationale cites concerns related to accountability, credibility, transparency of information sources, as well as the potential impact on issues of authorship and originality (Holden Thorp, 2023).

On the other hand, Polonsky and Rotman (2023) emphasize the value of ChatGPT in helping to identify previously unidentified relationships in the research data and its ability in synthesising and explaining information to external audiences, and further argue for its formal co-authorship status in the academic publishing context. Alshami et al. (2023) highlight the exceptional performance in supporting the systemic review process, significantly reducing the time needed for literature search, screening, data extraction and content analysis. Ueda and Yamada (2023) argue for the essential value of ChatGPT in working alongside non-English-speaking researchers as an english proofreader in scientific writing to overcome language barriers.

Certain scholars have posited that the integration of AI into academic writing prompts inquiries concerning transparency and authorship. Additionally, it alludes to a potential transformation in the role of scholars, wherein emphasis shifts from merely seeking and articulating conclusions to the more critical task of formulating precise questions. (Jabotinsky and Sarel, 2023)

AI-Human Collaboration in the Content Generation Industry

The emergence of AI-generated content represents a pivotal shift in the content industry. Researchers such as Lin (2023) highlight the transformative impact of generative AI technology, with models like ChatGPT pushing the boundaries of what AI can achieve in creative content generation. AI models are increasingly capable of producing diverse forms of content, blurring the lines between human and machine-generated works.

In the context of book publishing, ChatGPT has been credited as the sole author or coauthor of over 200 books available for purchase on Amazon's online bookstore as of February 2023 (Nolan 2023). It should be noted that the actual count of books authored by ChatGPT may potentially exceed this number, as Amazon's guidelines do not mandate users to explicitly disclose the utilization of AI in the creation of literary works. The genres of these publications encompass a diverse range, including instructional guides on operating ChatGPT, literature tailored for young readers, collections of poetry, and other literary forms. One of the most topical example is the book "Impromptu: Amplifying Our Humanity Through AI", co-authored by ChatGPT and Reid Hoffman, the LinkedIn cofounder, and former board member of OpenAI. This book was released in March 2023, first book written with GPT-4. (Varanasi 2023).

Books generated by or with ChatGPT typically require significantly shorter production times in comparison to those authored by humans. However, critiques of these AI-generated books often center on issues such as subpar writing quality and a perceived lack of emotional depth. Additionally, notable instances, such as the case of the renowned Sci-Fi magazine Clarkesworld Magazine, have come to light wherein the inundation of AI-generated stories has necessitated the suspension of submissions. This highlights the publishing industry's ongoing challenge of effectively adapting to and managing the rapidly advancing landscape of technological innovation. (Cao 2023)

How AI-augmented Authorship Challenges Traditional Authorship Paradigms

The nature of AI-Human collaboration in the content generation process, where human authors often work alongside AI systems to co-create content, challenges traditional notions of authorship, as creative input becomes a shared effort between humans and machines.

In the context of academic writing, the utilization of ChatGPT presents intricacies in terms of transparency (Jabotinsky and Sarel, 2023). While it may not assume the role of a co-author in the traditional sense, its capacity to produce original text necessitates a nuanced equilibrium between recognizing its input, on one hand, and upholding accountability for the ultimate outcome, on the other hand.

Deltorn and Macrez (2018) emphasized that in the context of artwork generated through an "algorithmic pipeline," discerning the distinct contributions of the human creator from those of the AI system can be a notably challenging endeavor. These emerging technical intermediaries have a propensity to obscure the boundary between human and machine contributions. Such disentanglement of inputs is of paramount significance in the context of copyright attribution, where authorship hinges upon the original contributions of a human agent.

In the context of creative content generation, the integration of AI in the creative process has raised questions about authorial identity. Jabotinsky and Sarel (2023) argue that a notable qualitative distinction emerges when considering two approaches: (i) instructing AI to generically "write an article" and (ii) directing AI through detailed inquiries to elicit specific responses. While precisely demarcating these boundaries can be intricate, there should be clear distinctions at the extremes of this spectrum. Therefore, to avoid categorizing the outcome as solely AI-generated, a researcher ought to exhibit a degree of independent thought and involvement in the creative process.

Intellectual Property and Copyright

AI-Human collaboration has posed significant challenges to the traditional frameworks of intellectual property and copyright. The prevailing standard posits that a work eligible for copyright protection should arise from the creative endeavor of a human author, distinct from being a mere replication of an existing work. This fundamental tenet underpins a critical criterion for copyright protection: the necessity of originality (Deltorn and Macrez, 2018).

The author needs to be a natural person

The Court of Justice of the European Union has further elucidated the criterion of originality by asserting that an intellectual creation qualifies as the author's own if it mirrors the author's individuality. This condition is met when the author has been able to exercise their creative faculties in crafting the work through autonomous and innovative choices. Typically, this interpretation implies that the author must be a natural person. Consequently, when a creative work is entirely generated by a machine, the majority of national copyright laws would classify the work as falling into the public domain. (Deltorn and Macrez, 2018)

Assign to the user?

In the UK, the ruling for a 1985 case concerning a automatic process for the production of a sequence of letters for a game, stated unambiguously that computer-generated work could fall under copyright protection and suggested that the user of the system could claim authorship to the output work. However, as stated in another decision of the Court of Justice of the European Union (CJEU), the criterion of originality is not satisfied where the production of the work is only "dictated by technical considerations, rules or constraints which leave no room for creative freedom." (Deltorn and Macrez, 2018). As such, the assignment of copyright to the user of the generative process will hinge on whether the user has demonstrated sufficient creative control and originality during the process.

Prominent jurisdictions globally, such as the UK, the US, France, and Germany, have traditionally embraced a minimal standard of originality. Consequently, even a modest level of human engagement in the AI creation process may meet the criteria for originality. Conventionally, human authorship is associated with the act of molding or configuring expression or elements through choices, organization, or similar methods. As one commentator has asserted, the act of selection, in conjunction with establishing the conditions that gave rise to the work's existence, can constitute the requisite originality attributed to a human in the context of machine-generated creations (Burstyn, 2015).

Assign to the programmer?

When it comes to defining the authorship between the user of the generative process and the programmer, it makes the decision even more complex. Scholars such as Denicola (2016) postis that the copyright of the generated work will deem to belong to the user of the system or generative process. The reason for this is because the user of the generative system generally has already attained the licence or right to use the system. This gives the programmer and creator of the system the needed reward to the value of their creation. As such, it is not unfair to allocate the copyright to the person who initiated the computer generated work.

However, according to the UK law, "the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken." Under this provision, the assignement of the authorship can vary depending on how the creative process work. It can be interpreted as the user of the machine, the programmer who designed the machine, or even the investor who financed the development of the system (Deltorn and Macrez, 2018).

Assign to the machine?

The assignment of authorship to a machine seems to be outside of the current law framework, as the authorship status normally requires the presence of a "human author" (Chesterman 2023). The DABUS case in the U.S. illustrates this point further. When the inventor of DABUS filed an application for the patent to be assigned to the machine DABUS, which is itself an AI artist, the U.S. Patent and Trademark office and two other federal courts would not grant the machine itself the authorship status, reasoning that the machine is not human and therefore cannot own the invention. (Brittain 2023).

Currently, most jurisdictions require patent applications to disclose an inventor who is a natural person, and do not recognize AI systems as inventors or owners of patents. Some argue that this limitation hinders innovation and incentives for using AI to develop inventions, and that new policies and laws are needed to protect and acknowledge AI-generated inventions. Others contend that allowing AI systems to be named as inventors or owners of patents would have negative impacts on the patent system and on human rights and responsibilities. The USPTO, the UK Court of Appeal, and other authorities have rejected patent applications naming an AI system as the inventor, but the debate is ongoing and public consultations are being conducted. (Xie 2023)

Joint Authorship?

An alternative avenue to consider is the concept of joint authorship, as explored by Lu (2021). While this approach might appear enticing, it raises concerns about alignment with fundamental copyright principles. Joint authorship typically requires either both parties to genuinely intend to be co-authors (a common criterion in US law) or the fulfillment of collaboration criteria (more typical in UK law). However, establishing mutual intent or collaboration between an AI and a human is inherently challenging, particularly given the typical physical and conceptual separation between these entities. Similarly, achieving such mutual intent or collaboration between the user and the programmer presents difficulties, given the often considerable geographical and functional distances between them.

Potential Solutions

Padmanabhan and Wadsworth (2023) proposed a Common Law theory of ownership for AI created properties. They argued that the ancient principles originated from the handling of real and personal property can help us to navigate this rapidly changing landscape. These traditional doctrines, namely first possession and accession principles, can suitably apply in this context, and that they provide a solid foundation for allocating the human ownership of AI-generated properties.

Lu (2021) also proposes a theory of 'authorship transfer' to address the issue of allocation of authorship. The theory is based on the idea that the initial authorship of a work can be transferred from the actual creator to a constructive author who has exercised sufficient control over the creative process. Lu argues that this theory can provide a reasonable and justifiable explanation of how human authors can claim authorship of AI-created works, without violating the current copyright system and its founding principles.

Ethical Considerations

Ethical considerations loom large in discussions surrounding AI-augmented authorship. Authors like Jabotinsky and Sarel (2023) highlight the importance of accountability and transparency and the need to maintain ethical boundaries whilst make use of AI in their work. The ethical dimension of authorship is further complicated when AI-generated content is published without proper disclosure or attribution, not to mention the unlicensed content in training data. (Appel et al., 2023). Ongoing court cases have been filed against AI systems by artists and illustrators on the basis that AI systems scraped and collaging their work in training dataset without their consent. (Chen 2023).

According to Appel et al. (2023), the legal system faces the challenge of defining the scope of a "derivative work" within the context of intellectual property laws. The resolution of these legal cases against the AI systems is anticipated to depend on the interpretation of the fair use doctrine, which permits the use of copyrighted material without the owner's consent for purposes such as criticism (including satire), commentary, news reporting, teaching, scholarly research, or transformative utilization of the copyrighted content in a manner not originally intended.

Creativity and AI Assistance

Impact on Creativity

ChatGPT's capacity to amalgamate vast datasets in novel configurations, driven by user input, positions it as a potent tool for creative endeavors. This phenomenon has already catalyzed the integration of machine learning in the composition of narratives for television series, literary works, and even within scholarly domains (Farina and Lavazza, 2023).

When it comes to the impact of AI on the research process, scholars like Chen et al. (2021) and Jha et al. (2022) contend that AI has the potential not only to provide support to researchers but also to create structures and illuminate connections that might remain unnoticed by humans. Consequently, AI tools are increasingly transcending the role of mere support for academics and are evolving into instruments that generate, guide, and articulate ideas, thus advancing knowledge in a manner reminiscent of contemporary collaborative processes.

In the realm of marketing, ChatGPT has proven to be immensely valuable, showcasing its prowess in an array of domains. Notably, it excels in automating tasks such as the creation of marketing messages, product descriptions, and social media campaigns with remarkable effectiveness and efficiency. Moreover, ChatGPT exhibits the capability to generate insights into user behavior trends and contribute to the development of new product innovations. These insights are derived from the real-time data collected from diverse sources through ChatGPT's capabilities (Rivas and Zhao, 2023).

On the other hand, there has also concerns regaring the use of ChatGPT in the creative front. Eisikovits and Stubbs (2023) argued that for the conventional artist, the journey of artistic creation constitutes an inseparable, and perhaps the most significant, aspect of their calling. Artistic endeavors garner acclaim not solely for their final outcomes but also for the toil, the imaginative exploration, and the adept involvement in the creative process. Yet, the very essence of ChatGPT and DALL-E is to render this phase obsolete, representing a fundamental redefinition of the value of art and creativity.

Furthermore, as summarized by Eisikovits and Stubbs (2023), ChatGPT has the capacity to draw information from unreliable sources, thereby potentially disseminating erroneous information, posing a substantial challenge to accountability. Moreover, it formulates responses grounded in pre-existing, inherently outdated data, sometimes resulting in repetitive and unoriginal outputs.

The integration of ChatGPT can also precipitate workforce reductions by automating creative responsibilities previously performed by humans. Additionally, without meticulous design and rigorous testing, ChatGPT has the potential to perpetuate and exacerbate societal biases.

Creativity assessment

Several research endeavors have sought to discern whether regular readers possess the acumen to differentiate between AI-generated content and that crafted by human authors. In a recent investigation conducted by Schwitzgebel et al. (2023), 425 participants were tasked with distinguishing between the works of a human philosopher and four machine-generated responses. Remarkably, expert-level participants exhibited a discernment accuracy rate of 51%, notably surpassing the chance rate of 20%. Philosophy blog readers, on the other hand, achieved a slightly lower accuracy rate, just shy of 50%. In contrast, the ordinary research participants struggled to achieve an accuracy rate slightly above the chance rate, at 20%. This outcome underscores the formidable challenge associated with distinguishing machine-generated text from content authored by human philosophers.

Another pilot study by Landa-Blanco et al. (2023) analyzing whether people rated creative writing texts differently if they believed an AI tool such as ChatGPT or a person was the author. The outcome suggests that readers do not evaluate differently, in terms of creative writing, a text attributed to a human authorship than one believed to have been written by an AI.

Industry Transformations

According to Rivas and Zhao (2023), ChatGPT-based tools have the potential to bring about significant transformations in the marketing industry. They can expedite content creation for marketers, potentially achieving quality levels akin to human content creators. Additionally, these tools can enhance research efficiency, facilitate improved customer understanding, automate customer service processes, and optimize overall operational efficiency.

Furthermore, ChatGPT demonstrates substantial versatility and applicability across diverse domains, including but not limited to education, healthcare, finance, entertainment, creative writing, e-commerce, and many others (George et al., 2023). For instance, in the realm of e-commerce, companies could harness ChatGPT to provide uninterrupted automated customer service and streamline order fulfillment, thereby reducing reliance on human resources. Similarly, educators could utilize ChatGPT to craft personalized study plans tailored to individual student interests and progress, while also offering instantaneous feedback through automated grading and virtual support for answering queries. In healthcare, healthcare professionals could employ ChatGPT for symptom triage, initial consultations, and potentially even preliminary diagnoses.

The landscape of creative professions is witnessing a notable shift towards the automated generation of content, particularly evident in sectors such as sports and finance journalism, as highlighted by Wölker and Powell (2021). This transformation has the potential for further amplification, potentially leading to a reduction in staffing levels within newsrooms. Notably, the book publishing industry has also been impacted, with an increasing number of books either authored by or with the assistance of ChatGPT entering the market. However, this surge in AI-generated literary content has not been without its challenges. Many of these AI-assisted books have faced criticism due to issues related to the quality of writing and concerns about potential instances of plagiarism.

Mary Rasenberger, the executive director of the Authors Guild, a prominent writers' group, expressed apprehension about this trend. In a statement to Reuters, she remarked, "This is something we really need to be worried about, these books will flood the market and a lot of authors are going to be out of work." (Nolan, 2023) This sentiment underscores the disruptive potential of AI technologies, as they have the capacity to not only transform creative processes but also impact the livelihoods of human professionals within these sectors. This raises important questions regarding the ethical, economic, and artistic implications of AI-augmented authorship, which warrant further investigation and discussion within the academic and professional communities.

Research Gaps and Future Directions

While the impact of AI, particularly ChatGPT, on creative content generation in industries like journalism and publishing has garnered attention, there exists a pressing need for more comprehensive and qualitative research. We aim to contribute to this discussion by assessing the enduring consequences on the quality of creative outputs, delving into aspects of originality, authenticity, and artistic value. Additionally, there is a critical gap in our understanding of responsible AI use in creative content industries, necessitating further exploration and the formulation of clear guidelines.

Moreover, the collaborative potential of AI and human involvement within creative content industries demands in-depth examination. This includes an exploration of the evolving roles of human creators and AI in content production, with particular attention to their implications for the creative process, artistic identity, ownership, and intellectual property. Notably, there is a less explored avenue in evaluating the extent to which AI enhances or hinders human creativity.

The legal and ethical aspects of intellectual property and copyright concerning AI-generated content present a complex landscape. Transparency, attribution, and the use of AI in content creation without proper consent, are emerging issues. Aside from discussing the evoling legal frameworks and guidelines that address authorship, ownership, and copyright in the context of AI-generated works, few studies have ventured into the realm of innovative intellectual property (IP) models. These models would

need to seamlessly integrate AI-contributed elements while preserving the authenticity of human creativity. Our research has sought to address these questions, emphasizing the need for innovative frameworks that ensure fairness and accountability.

Finally, the transformative potential of AI, exemplified by ChatGPT, across diverse industries warrants meticulous examination. Our contribution to this field lies in providing insights into the specific mechanisms through which AI can enhance productivity, stimulate innovation, and reshape established systems and practices, with a particular focus on the publishing industry.

METHODOLOGY

Research Design

This research employs a qualitative approach to delve into the intricate dynamics of collaborative content creation between human authors and ChatGPT. The chosen research design incorporates a case study approach coupled with in-depth interviews to gain rich insights from the participant involved.

Case Study Approach

The case study approach allows for an in-depth exploration of a specific phenomenon within its real-life context. By focusing on a single published author's experience of using ChatGPT to write original e-books, this approach facilitates a comprehensive understanding of the collaborative process and its implications for creativity and authorship.

Interviews with Human Author and ChatGPT

To ensure a comprehensive understanding of the collaborative creative process, structured interviews were conducted with both the human author and ChatGPT. These interviews served a dual purpose: firstly, to extract valuable insights from ChatGPT regarding its role, inherent limitations, and contributions to the author's creative process; and secondly, to gain perspectives from the human author concerning motivations, creative processes, encountered challenges, and the intricate interplay between personal creativity and AI-generated content.

To facilitate an effective dialogue, we employed a unique approach by temporarily assigning ChatGPT the role of a human author. We presented ChatGPT with the same interview questions initially designed for the human author. This method draws from role theory (Taylor et al., 2020; Philipps & Mrowczynski, 2021), which offers a framework predicting how individuals perform in specific roles and under various circumstances. Role theory is instrumental in constructing a conceptual framework that connects the attributes of an organization or an individual (Schuler et al., 1977). This approach enabled us to delve deeper into ChatGPT's self-perception regarding its role in the collaborative creative process and its perceived value in assisting the human author. Through this exercise, we aimed to gain insights into ChatGPT's perspective on its role in enhancing human creativity and fostering a synergistic partnership.

Furthermore, as part of this dialogue, we solicited comments from the human author regarding ChatGPT's responses while it assumed the role of a human author. This process served as a means of facilitating a comparative analysis, highlighting differences between ChatGPT's perceptions and those of the human author in response to the interview questions. This comparative analysis adds depth to our exploration of the collaborative creative process.

Data Selection

Selection of Participants

The human author selected for this study is a published writer, Guo Hua Wang, who is also a co-author of this research paper. Wang is an accomplished author, playwright, and editor with a portfolio of published works in wide-ranging genres from film critics, society to psychology. He has been making a living on writing books over the past couple of decades. He wanted to test whether ChatGPT could really write books, so within nearly four months, he guided ChatGPT in creating three native e-books. The three original e-books are published by Li Ming Cultural Entreprise Co., Ltd. and available for sale on the mainstrem online bookstores in Taiwan for a sales price of 99 New Taiwan Dollars per e-book. These e-books have addressed different subjects, ranging from social psychology, motivation to personal growth.

Wang's background and familiarity with traditional writing methods and AI collaboration make him an ideal participant and serves as a focal point for exploring the nuances of collaborative AI-Human content creation.

On the other hand, ChatGPT's responses, based on the prompts and interview questions furnished by the authors of the research paper, constitute the second participant.

Interview Protocols

Structured interview protocols will guide our interviews with both Wang and ChatGPT. The interview with Wang will delve into various facets of his engagement with ChatGPT, including his motivations for utilizing the AI, insights into the creative process, the criteria governing the incorporation of AI-generated content, and reflections on the collaborative experience as a whole.

Conversely, the same interview questions for Wang are used for interviewing ChatGPT, who is asked to assume the role of the human author. ChatGPT's responses during the interview will provide insights into its self-perceived role within the creative

process. This will encompass its perceived values, strengths, and limitations, and how it navigates its creative contributions. These interviews are designed to shed light on the multifaceted dynamics of human-AI collaboration in the creative domain.

Data Analysis
Qualitative Analysis
Qualitative analysis will be conducted on the interview transcripts to extract rich and nuanced insights. Thematic analysis, guided by the research questions and objectives, will be employed to identify recurring themes, patterns, and variations in the participants' responses. This analysis approach will allow for a comprehensive exploration of the complex interplay between human creativity and AI assistance.

Thematic Coding
Thematic coding involves systematically categorizing segments of the interview data into themes that capture key concepts and patterns. Initially, open coding will be conducted to identify emerging themes. Subsequently, axial coding will be performed to establish relationships between these themes, offering a deeper understanding of the collaborative authorship process. This process ensures rigor, consistency, and reliability in interpreting the qualitative data.

By combining a case study approach, in-depth interviews, and rigorous data analysis, this research methodology aims to provide a comprehensive exploration of the evolving dynamics of authorship, creativity, and intellectual property within the context of human-AI collaboration.

FINDINGS
These findings arise from extensive interviews conducted with the study participants: the human author, Gui Hua Wang (hereafter referred to as "Wang"), and ChatGPT itself. Identical interview questions were presented to both Wang and ChatGPT, and their responses are presented herein. This section offers a synthesis of their viewpoints while emphasizing the disparities observed in their responses.

The Role of AI in Enhancing Creativity: Extending Creativity with Human Guidance
The integration of Artificial Intelligence (AI) in the creative process has ignited discussions about its impact on human creativity. This section delves into the various dynamics of human-AI collaboration in creative endeavors, shedding light on both positive aspects and critical viewpoints.

Both participants concur that ChatGPT can be most effectively employed to augment and enrich human creativity as an exploratory collaborator. This collaborative creative process entails harnessing AI-generated prompts to stimulate reflection and evoke unconventional concepts, thereby fostering more inventive narratives. Moreover, its ability to introduce intricacy into the storyline efficiently saves Wang time that would otherwise be spent initiating the creative process from scratch. Consequently, Wang can concentrate on refining the content generated by ChatGPT to achieve the desired result.

Nonetheless, while ChatGPT plays a role in expediting the creative process and facilitating drafting and ideation, Wang underscores the pivotal role of human guidance in curating meaningful content. Drawing from Wang's experiences, while ChatGPT indeed contributes innovative concepts and engages in collaborative ideation, the "innovative concepts" suggested by ChatGPT may exhibit repetitiveness or standardization when users lack knowledge of how to adapt the "prompts." On certain occasions, even after altering the "prompts," ChatGPT may persist in proposing concepts that fall within the scope of its training data, thereby revisiting previously provided ideas.

Furthermore, ChatGPT's limited coherence and depth in generating ideas signify constraints in shaping the creative trajectory of content. Its limitations in applying common sense and logical reasoning sometimes result in ideas that are somewhat irrational or impractical. Finally, it may not possess a complete understanding of human emotions, values, and the subtle nuances within specific cultures, making it prone to producing biased content.

For authors seeking to incorporate AI into their creative process, a key perspective shift suggested was to view AI as a tool that enhances creativity rather than a replacement for human ingenuity. Human authors were advised to consider AI as a source of inspiration and innovation, using its suggestions to stimulate their own creative thinking. The overarching recommendation was to maintain a balance between AI-generated ideas and human artistic judgment.

In conclusion, while AI contributes novel cues and ideas, it remains crucial for authors to retain their artistic judgment and perspective, recognizing AI's role as a collaborative partner rather than a sole decision-maker. These findings underscore the potential of AI as a catalyst for creative exploration and innovation when used in conjunction with human creativity.

Unveiling the Dynamics of Human-AI Creative Collaboration
Delving into this collaborative framework, the conversation explores various aspects, shedding light on the motivations, interaction dynamics, decision-making balance, workflow intricacies, effectiveness, and encountered challenges within this innovative process.

Motivation for Usage: Exploration of New Technology and Efficiency

While ChatGPT places emphasis on the creative stimulation it can provide as the primary driver for Human/AI collaboration, Wang, on the other hand, articulated that his primary motivation to begin employing ChatGPT for book authorship stemmed from a sense of curiosity and a fascination with experimenting with advanced AI models. His curiosity was centered around understanding the extent of ChatGPT's capabilities in enhancing the creative process. Additionally, Wang identified increased writing efficiency as another significant motivator. He noted that ChatGPT's capacity to rapidly generate book outlines and drafts effectively reduces the time needed for pre-writing activities.

Collaboration Workflow: Iterative Interaction

Drawing from Wang's extensive experience in collaborative book writing with ChatGPT, the collaborative workflow commences with a clear blueprint of the intended content, and a concise prompt, with AI-generated responses acting as the initial seeds for further elaboration. Subsequently, Wang engages in an iterative editing process, meticulously refining the AI-generated content to harmonize with his artistic vision. Crucially, he iteratively updates the prompts based on the quality of the AI-generated output during this refinement phase. Maintaining emotional resonance, narrative coherence, and alignment with the overarching writing objectives are central considerations during the editing process. Stricking a balance between personal creative vision and AI-generated content emerged as a critical consideration.

Wang underscores that the primary strategy for enhancing the text generated by ChatGPT hinges on "optimizing the content of prompts." Ensuring that the text produced by ChatGPT attains substantive depth necessitates that the prompts supplied to ChatGPT exhibit a corresponding level of intricacy and profundity.

Challenges and Limitations

Based on insights gleaned from interviews conducted with both Wang and ChatGPT itself, it becomes apparent that despite ChatGPT's impressive ability to produce text that closely mimics human writing, a spectrum of notable challenges and limitations comes to the fore. These observed constraints, which manifest during its operational deployment, serve to provide a comprehensive perspective on its performance within diverse contextual scenarios. Table 1 below summarizes its limitations.

Table 1: ChatGPT"s Challenges and Limitations

Limitation	Description
1. Keyword-based Response	Responses rely heavily on keywords, potentially missing context.
2. Context Awareness	Struggles with maintaining coherent conversation threads.
3. Seamless Integration	Difficulty integrating generated content into narratives.
4. Emotional Depth	Often lacks emotional nuance and depth in responses.
5. Repetition and Verbosity	Tends to produce repetitive, verbose content.
6. Expertise and Context	Limitations in specialized knowledge and historical context.
7. Spontaneity and Novelty	Challenges in generating novel, spontaneous content.
8. Interruption of Responses	Frequently interrupts responses, disrupting conversations.
9. Limited Interpretation	Oversimplifies original content, missing nuances and complexities.
10. Response Length and Depth	Produces content that can be too concise or overly lengthy.
11. Lack of Spontaneity	Struggles to shift perspectives spontaneously.
12. Content Deviation	Difficulty maintaining consistent theme or context.
13. Inaccurate Answers	May produce answers lacking semantic accuracy.
14. Reproduction of Biases	Has the potential to reproduce biases present in training data.

Source: This study.

1. Keyword-based Response: ChatGPT's responses are primarily based on keywords in provided prompts, and it may struggle to comprehend questions in a manner similar to humans. This can lead to responses that miss the underlying context or intent.

2. Context Awareness: One significant limitation observed is ChatGPT's occasional lack of context awareness in its generated suggestions. It may struggle to maintain a coherent thread of conversation, leading to disjointed interactions.

3. Seamless Integration: The integration of AI-generated content into narratives poses challenges. ChatGPT sometimes generates responses that do not seamlessly fit into the context of the ongoing conversation or narrative, creating disruptions in the flow.

4. Emotional Depth: ChatGPT's responses often lack emotional depth and nuance. It may struggle to convey complex human emotions effectively, leading to responses that may appear emotionally detached or inappropriate.

5. Repetition and Verbosity: ChatGPT's performance can be marked by repetitive responses, overused vocabulary, and lengthy content. This verbosity can hinder effective communication and readability.

6. Expertise and Historical Context: Limitations become evident when ChatGPT is confronted with questions requiring specialized knowledge or historical context. It may provide responses that lack depth and accuracy in such domains.

7. Spontaneity and Novelty: ChatGPT faces challenges in generating content spontaneously with novel perspectives. It tends to rely on familiar patterns and ideas, potentially stifling creative innovation.

8. Interruption of Longer Responses: ChatGPT often displays a tendency to interrupt its responses after reaching a certain length. This behavior can disrupt the flow of conversation and limit the completeness of its answers.

9. Limited Interpretation Ability: The model often oversimplifies the original content provided, failing to grasp nuances or complexities in the text. This limitation restricts its ability to provide in-depth, contextually relevant responses.

10. Length and Depth of Response: ChatGPT tends to produce content that ranges from being overly concise and superficial to excessively lengthy with redundant information. Achieving an optimal balance in response length and depth remains a challenge.

11. Lack of Spontaneity: ChatGPT often struggles to generate content with spontaneous shifts in perspective, hindering its ability to engage in dynamic and natural conversations.

12. Content Deviation: Consistency in adhering to the intended theme or context can be challenging for ChatGPT. It may consistently generate content that deviates from the desired focus.

13. Inaccurate Answers: In certain cases, ChatGPT may produce answers that lack semantic accuracy in relation to the original context. This inaccuracy can undermine the reliability of its responses.

14. Reproduce Biases: It is also observed that ChatGPT has the potential to reproduce biases present in training data.

Strategies to Address the Limitations of ChatGPT
To mitigate these challenges outlined in the previous section and enhance the model's performance, the participants have discussed some potential strategies. (see Table 2)

Table 2: Strategies to address the limitations of ChatGPT.

Strategy	Description
1. Providing Clear Guidance and Context	Offering clear instructions and context to guide ChatGPT, using examples as references.
2. Altering Real-Life Persona	Transforming ChatGPT's persona to that of a real-world individual for improved contextual accuracy.
3. Role Playing Different Characters	Simulating multiple roles within a single interaction to generate well-rounded responses.
4. Altering Prompts with Perspective Analysis	Structuring prompts to encourage multifaceted exploration and different angles of analysis.
5. Expanding and Refining Prompts	Adding detailed prompts to ensure ChatGPT generates relevant content aligned with specific requirements.
6. Reset and Reassign	Clearing previous prompts and providing fresh roles and prompts to realign ChatGPT's focus.
7. Training with Formulaic Prompts	Using standardized prompts to maintain consistency in the author's writing style and tone.
8. Critical Review	Engaging in critical review and providing explicit guidance and context to avoid biases in content.

Source: This study.

1. Providing Clear Guidance and Context as Example: One effective approach is to offer clear instructions and context to ChatGPT, using examples as reference. By illustrating the expected content, users can guide the AI towards producing more relevant and on-topic responses.

2. Altering Real-Life Persona: Transforming ChatGPT's persona to that of a real-world individual can enhance relevance. This adjustment aligns the AI's responses with the characteristics and perspectives of the chosen persona, improving contextual accuracy.

3. Role Playing Different Characters: To achieve a more well-rounded response, ChatGPT can simulate multiple roles simultaneously. By embodying diverse personas within a single interaction, the AI generates content that considers various angles and viewpoints.

4. Altering Prompts with Perspective Analysis: Changing prompts to guide ChatGPT with different angles of analysis can be effective. By structuring prompts to encourage multifaceted exploration, users can steer the AI towards generating content that aligns with the desired context.

5. Expanding and Refining Prompts: Adding more detailed prompts can ensure that ChatGPT generates relevant content. Providing comprehensive and explicit prompts helps the AI understand the specific requirements, resulting in content that adheres closely to the intended theme.

6. Reset and Reassign: Clearing previous prompts and providing ChatGPT with a fresh role and new prompts can help realign the AI's focus. This approach is useful when deviations have occurred due to prior interactions, allowing for a reset in the AI's content generation.

7. Training with Formulaic Prompts: Using standardized prompts is another strategy to maintain consistency in the author's writing style. By providing predefined prompts that align with the author's preferred style and tone, ChatGPT can produce content that closely mirrors the desired voice.

8. Critical Review: To mitigate biases, engagement in critical review and provision of explicit guidance and context to AI to avoid generating biased or misinterpreted content.

Based on the above findings, we have created a table of suggested strategies to overcome ChatGPT's respective limitations. (see Table 3 below)

Table 3: Strategies to overcome ChatGPT's limitations.

Challenges and Limitations	Strategies to Overcome
1. Keyword-based Response	1. Providing Clear Guidance and Context
2. Context Awareness	2. Altering Real-Life Persona
3. Seamless Integration	3. Role Playing Different Characters
4. Emotional Depth	4. Altering Prompts with Perspective Analysis
5. Repetition and Verbosity	5. Expanding and Refining Prompts
6. Expertise and Historical Context	6. Reset and Reassign
7. Spontaneity and Novelty	7. Training with Formulaic Prompts
8. Interruption of Longer Responses	6. Reset and Reassign
9. Limited Interpretation Ability	5. Expanding and Refining Prompts
10. Length and Depth of Response	5. Expanding and Refining Prompts
11. Lack of Spontaneity	7. Training with Formulaic Prompts
12. Content Deviation	5. Expanding and Refining Prompts
13. Inaccurate Answers	8. Critical Review
14. Reproduce Biases	8. Critical Review

Source: This study.

In essence, this discussion provides an illuminating exploration of the multifaceted landscape of human-AI creative collaboration. The insights from both the human author and ChatGPT provide a nuanced perspective on the potential, dynamics, and challenges inherent in leveraging AI to enhance creative processes, enhancing our understanding of this evolving paradigm.

Navigating Authorship and Identity in the Realm of Human-AI Collaboration
In this section, we delve into the intricate landscape of authorship and identity. This discourse probes the multifaceted dimensions of authorship, encompassing the redefinition of traditional concepts, concerns about originality, balancing AI dependency, and novel perspectives on ownership within the collaborative creative context.

The Symbolioic View
When collaborating with ChatGPT in creative work, handling issues of creative ownership and attribution is a complex matter. According to ChatGPT itself, while AI models are indispensable partners in shaping the work, some consider the human author as the primary author as it is the human who make the final decisions and plan the narrative flow. Hence this relationship is symbiotic - AI generates concepts, and the human author's creative guidance and vision imbue them with depth and coherence.

AI as a Collaborative Partner

Another view considers the ChatGPT's role as a collaborative partner rather than an autonomous author. While recognizing its ability to generate content, limitations such as the lack of emotional depth and the inability to adapt to human style and preference became evident. Wang emphasized a distinct boundary between AI and human creative input, whereas over-relying on AI suggestions could impact the authenticity of their creative work. Therefore, the balance between incorporating AI-generated content and maintaining personal creative input emerged as a central concern. The importance of viewing AI as a tool rather than the foundation of their work was also highlighted. Transparently conveying the collaborative nature of the work was also essential to maintaining trust and authenticity.

The Editor and Author dynamic

Drawing from Wang's extensive experience in producing "native e-books" with ChatGPT, he underscores that the content generated by ChatGPT currently exhibits a "fragmented" nature. To interlink these disparate fragments and establish meaningful connections, the content still relies on post-editing and revision carried out by "human authors." Additionally, Wang observes notable disparities between ChatGPT's generated content and the writing style of the human author. This incongruity raises pertinent questions concerning the extent of the author's creative input and, consequently, the legitimacy of complete copyright ownership.

Challenging the notion of a "symbiotic relationship" as proposed by ChatGPT, Wang leans towards viewing this collaboration through a more hierarchical lens, akin to an "editor and author" dynamic. This alternative perspective underscores the essential role played by the human author as an editor, emphasizing their editorial influence and creative contributions alongside ChatGPT. It highlights the significance of recognizing the multifaceted roles within collaborative authorship scenarios, acknowledging both ChatGPT's contributions and the pivotal role of the human "editor" in this dynamic.

Redefining Authorship

In response to the various considerations regarding the authorship definition in an AI/Human collaboration, Wang proposed that if ChatGPT contributes to more than thirty percent of a book's content, it should be acknowledged as a co-author upon publication. If ChatGPT's contribution exceeds seventy percent, it is advisable to attribute primary authorship to ChatGPT. This recommendation is based on the potential differences in logical understanding between content generated by ChatGPT and that created by humans. Consequently, authors considering the use of ChatGPT for content creation may find it unnecessary to include their name on AI-generated content.

This discussion encapsulates the evolving understanding of authorship and identity, as unveiled by the interplay of human creativity and AI innovation. By delving into these thought-provoking dimensions, this discourse enriches our comprehension of authorship within the contemporary landscape of creative collaboration.

Navigating Copyright and Intellectual Property in the Realm of AI-Generated Content

The emergent theme of Copyright and IP elucidates the multifaceted challenges and considerations associated with managing AI-generated content.

Who Owns the Creative Output? Appropriate Attribution?

Wang highlighted the multifaceted challenges associated with the seamless integration of AI-generated content into the final creative work, particularly in terms of delineating clear lines of creative ownership in collaborative endeavors. Ethical considerations pertaining to proper attribution emerged as a central theme, underscoring the necessity of diligently acknowledging AI-generated contributions. Moreover, Wang underscored the significance of mitigating potential conflicts and establishing mechanisms to ensure the equitable recognition of both human and AI contributions within the collaborative creative process.

Does AI-generated content entitled to copyright protection?

Before formalizing contractual agreements, Wang recommended that a crucial assessment must be made regarding whether AI-generated content enjoys equivalent legal safeguards as human-authored works, particularly concerning "moral rights." The absence of this determination means that original content created by AI doesn't benefit from the protective coverage of copyright law. As a result, it can't be used to pursue copyright infringement cases in the same way human-authored content can.

Additionally, it's challenging to establish clear ownership of the copyright for AI-generated content. Consequently, the inclusion of AI-generated content within the purview of copyright protection should be regarded as a forthcoming imperative. Legislative bodies worldwide must expeditiously adapt with the evolving landscape of generative AI, addressing pertinent issues of safeguarding and regulation.

Do AI Providers Claim Copyright Over AI Generated Content?

Both Wang and ChatGPT agreed that clearly defined contractual agreements with AI providers represent a pivotal measure for effectively navigating the intricate legal and ethical terrain of AI-generated content. The agreements should define the scope of authorship and ownership, and decisions regarding how to incorporate AI-generated content into the final work and whether AI providers have any claims on the end product.

The participants also raised concerns pertaining to the origins of the training data harnessed by AI developers. The legitimacy of AI developers employing data acquired from the public domain for training purposes raises substantive inquiries regarding copyright permissions.

In sum, this section encapsulates the paramount importance of addressing copyright and intellectual property issues within the context of AI-generated content creation. The insights underscore the necessity for adaptable legal and ethical frameworks that recognize the collaborative nature of creativity in the digital age.

Navigating ChatGPT Performance Dynamics
This section delves into the intricate landscape of ChatGPT's performance dynamics, as perceived by users, and elucidates the multifaceted factors contributing to perceived performance decline.

User Perspective on Performance Decline
Despite the high expectations initially set, it has been observed that ChatGPT's ability to consistently meet these expectations dwindled according to users' feedback. Wang and ChatGPT identified several factors that could contribute to the perceived performance decline. They agree that the evolution of training data was considered a key factor, potentially leading to changes in the responses and introducing bias. Technical issues, updates, and changes in the AI model were also acknowledged to affect the quality of outputs. Additionally, Wang noted the decreasing sense of novelty, and the fact that users tended to adopt a stagnant approach in interacting with ChatGPT, could also potentially contributed to their perceptions of performance decline.

Responsibility for Quality Maintenance
Developers and stakeholders were recognized as key players in ensuring the model's continued effectiveness. User feedback was highlighted as a critical component in driving improvements and enhancing the model's performance. Continuous monitoring and improvement practices were emphasized to address any decline in performance and to sustain optimal user experiences.

In conclusion, the discussion emphasizes the collaborative nature of maintaining and improving AI model performance, reflecting the symbiotic relationship between developers, users, and the AI system itself.

Exploring Readers' Perspectives on AI-Human Collaboration
This section illuminates the intricate interplay between readers and AI-generated content within the realm of AI-human collaboration.

Curiosity and Skepticism
With ChatGPT's formal introduction to the public in November 2022 and its surge in popularity in Taiwan starting in February 2023, the adoption of ChatGPT for book composition among Taiwanese writers has been relatively limited. Consequently, the pervasive trend of utilizing ChatGPT for book writing and the readership specifically focused on "ChatGPT-authored books" have not seen substantial growth at this juncture. However, within the immediate circle of Wang, four primary inquiries have emerged: Firstly, does ChatGPT possess genuine book-writing capabilities? Secondly, what methodologies facilitate book writing using ChatGPT? Thirdly, is there a potential risk of infringing upon the copyrights of "human authors" when integrating content generated by ChatGPT? Lastly, how does ChatGPT swiftly grasp the "prompts" provided by human authors to initiate book writing?

It is crucial to emphasize that these four inquiries predominantly reflect a curiosity regarding ChatGPT's ability to engage in book writing. Concerning reader feedback on content generated by ChatGPT, skepticism largely prevails, particularly concerning the reliability of the responses provided by ChatGPT.

Reader's Ability to Judge and Compare
The intricate task of differentiating AI-generated text from authentic human writing presents a captivating challenge. According to Wang and ChatGPT, there are discernible cues that readers can use to identify AI-generated content, such as unconventional plot twists, technical explanations, and a perceived deficiency in emotional depth. Conversely, characteristics indicative of human authorship encompass familiar narrative tones, narrative consistency, and the creation of well-rounded characters. Additionally, while AI introduces novel ideas, concerns about potential repetition and the use of formulaic structures have been noted. It is also a widely accepted notion that human authors excel in eliciting emotional connections with readers.

Engage Readers with the AI Author
In order to enhance the acceptance and appeal of ChatGPT-generated books among readers, Wang suggested innovative strategies for publishing houses. These strategies include assigning a human-like name to the AI, crafting a distinct visual persona for the AI author through animated representations, and establishing a presence on popular social media platforms such as Facebook, Instagram, TikTok, and others commonly utilized by human authors to engage with their fan base. Such an approach has the potential to shape the broader perception and future positioning of the publishing industry, bolstering the impact of ChatGPT-generated books.

In summary, this discourse has addressed the contemporary state and evolving dynamics of the reader-author relationship within the transforming publishing landscape shaped by AI. It has also shed light on potential avenues for fostering more profound reader engagement in this context.

Transformative Impact on the Publishing Landscape

This section illuminates the impact of AI-human collaboration on the dynamic landscape of the publishing industry. Through comprehensive exploration, it unearths the multifaceted consequences and adaptations that the industry, authors, and readers are experiencing in the wake of this transformative partnership.

Evolving the Publishing Ecosystem

The proliferation of books generated by or in collaboration with Generative AI is poised to prompt a re-examination of the conventional roles of authors, publishers, and readers within the publishing ecosystem. Wang proposed that in this envisioned scenario, the front-end of the publishing landscape, traditionally the domain of "authors," will expand to encompass three distinct categories: "human authors," "human-AI co-authors," and "AI authors." The extent to which potential ambiguities may emerge among the works produced by these distinct author categories will hinge upon the forthcoming advancements in Generative AI technology.

Lowering Entry Barriers

Whilst ChatGPT considered that the AI-augmented publications would re-energize the publishing industry, Wang took a more concerning view. He believed that the utilization of ChatGPT for book creation will significantly lower the threshold for entering the world of publishing. Consequently, the publishing industry may become saturated with a wide range of quality, from excellent to subpar, as more individuals gain access to this creative tool. As such, the importance of managing quality and authenticity of AI-generated content to maintain the reputation of publishers was emphasized.

Increased Writing Speed

Writing books with ChatGPT allows for a considerable increase in writing speed. This phenomenon may encroach upon the space traditionally occupied by "human authors" who prefer a slower, more meticulous approach to writing. According to Wang, one book typically takes about half a year to be finished. In contrast, authors using ChatGPT could potentially write two or more books per month, resulting in the creation of ten or more books within the same six-month timeframe.

Changing the Publishing Sequence

According to Wang, the emergence of native e-books generated through ChatGPT could potentially shift the conventional publishing sequence from "Print First, Electronic Later" to "Electronic First, Print Later." Presently, most "human authors" prefer their hard-earned works to be initially published as physical books, followed by e-book releases. However, the creation of native e-books through ChatGPT could fill the gap for publishers seeking sources willing to release e-books first. This shift allows publishers to save costs and reduce inventory, potentially making "Electronic First, Print Later" a more prominent publishing process within the industry.

Book Types Suitable for AI

The suitability of AI-generated content for different book types was explored. ChatGPT suggested that AI can excel in genres like science fiction, fantasy, and mystery novels that involve rich imagination and world-building. Technical and educational content were identified as areas where AI-generated explanations could be beneficial. However, Wang noted the importance of the "human author" guiding ChatGPT to possess a basic understanding of these genres. Without a foundational knowledge of science fiction, fantasy, or mystery literature, it becomes challenging to direct ChatGPT to produce logically coherent story outlines that incorporate essential genre-specific knowledge.

Impact on Small and Medium-Sized Publishers

Wang believes that one of the major impact of AI on the publishing industry is their potential to address the issue of insufficient manuscript sources. This is particularly relevant for traditional small and medium-sized publishing houses, which often struggle with limited resources, especially in terms of manuscript sources due to financial constraints. However, if these medium and small-scale publishing houses can access high-quality manuscript sources generated by ChatGPT, they can publish the best works even with limited funds.

Impact on Independent Authors

The impact of ChatGPT on independent authors was discussed. Aside from efficient draft generation and accelerated drafting processes facilitated by AI assistance, ChatGPT also mentioned that independent authors could benefit from the opportunity to explore new genres and styles, redefine their brand perception, and amplify minority voices through AI-generated content. The democratization of content creation can expand opportunities for authors outside traditional publishing channels. However, Wang cautioned about the conceivable risk of diluting the distinct writing styles and brand identities of independent authors. He pointed out that many "human authors" who employ ChatGPT may assume that the AI can adapt to their unique "writing style." Nevertheless, they might not be fully aware that their writing style could progressively merge with ChatGPT's narrative style, potentially assimilating into the AI's writing style over time.

Challenges and Risks in Branding and Marketing

Wang noted that one of the greatest challenges faced by publishers or authors in terms of branding and marketing ChatGPT-authored books is the readers' perception and trust in ChatGPT-generated content. Since the advent of ChatGPT in November 2022, it has consistently emphasized to its "users" that the answers it provides may not always be correct. Consequently, the majority of ChatGPT users perceive it as a "writing expert" but one that often produces unseen errors. Therefore, when content created by ChatGPT is published as a book, readers naturally question the accuracy and reliability of the content.

Additionally, building reader confidence in AI-generated content requires transparency and accurate portrayal of AI's role. Apart from emphasizing to readers that "human authors" use ChatGPT as a tool to assist their writing process, and that all creative content in the book originates from the "human authors," with ChatGPT generative AI merely extending and expanding upon these ideas. This can help build trust among readers regarding "AI-authored works" and eliminate concerns about their lack of originality.

Lastly, the most significant risk for publishers or authors in terms of branding and marketing ChatGPT-authored books is whether the content inadvertently infringes on the intellectual property rights of "human authors." While ChatGPT generates content naturally based on the prompts provided by humans and theoretically should not copy and paste entire passages from others, it might reference the "unique perspectives" published by human scholars in academic papers without citing the sources properly, potentially infringing on the intellectual property rights of human experts.

In summary, this section sheds light on the transformative influence of AI-human collaboration on the publishing industry, authors, and readers. It underscores the intricate dance between creativity, innovation, challenges, and adaptations, ultimately shaping a new narrative for the future of literature and the publishing ecosystem

DISCUSSION

Rethinking Authorship and IP Ownership

Defining the Boundaries of Authorship and the Role of Human Involvement
As highlighted by Jabotinsky and Sarel (2023), the boundaries of authorship become increasingly complex when dealing with AI-generated content. One critical distinction lies between instructing AI to generate content generically versus directing AI through specific inquiries to elicit responses. While the demarcation of these boundaries can be intricate, it is essential to acknowledge that discernible distinctions exist at the extremes of this spectrum.

Our research supports this notion by emphasizing the significance of human involvement in the creative process. Wang's experiences underscore that, although AI expedites creativity and facilitates drafting, human guidance remains pivotal in curating meaningful content. According to Wang, "If the human guiding ChatGPT to write a book doesn't know how to write a book, then the ChatGPT they guide won't be able to produce a book that can be published and sold. It's similar to the key role in getting a "drone" to take off, where it's not the AI controlling the drone, but the "human" operating the AI's autopilot for the drone.

Another analogy proposed by Wang, "If we liken ChatGPT to the 'AI pen' that humans use for writing books, then the 'human brain' of the individuals using this 'AI pen' becomes the 'GPU' that enables the 'AI pen' to write books. In other words, if the humans using ChatGPT don't know how to write books, they won't be able to produce book manuscript content that can be published using this 'AI pen.'."

While ChatGPT contributes innovative concepts and engages in collaborative ideation, it becomes apparent that the outcomes can exhibit repetitiveness or standardization when users lack the knowledge to adapt the prompts adequately. Even when altering prompts, ChatGPT may persist in suggesting ideas within the scope of its training data, revisiting previously provided concepts. Wang further pointed out the operational limitation of ChatGPT in terms of its lack of ability to retain or recall the knowledge and data acquired during prior interactions before the system was powered down. Wang uses an analogy to the theoretical concept of parallel dimensions, where the individual in one parallel dimension (referred to as A) lacks the capacity to ascertain the actions and experiences of their counterpart in another parallel dimension (designated as B). This drawback further emphasizes the human author's role as an editor, bridging gaps in fragmented AI-generated content and maintaining a unique creative style.

These findings suggest that the human role in shaping creative content remains indispensable. It is not merely the creation of content but the ability to direct, refine, and infuse unique perspectives that defines authorship. A word of caution from our interview Wang noted that, "If you don't want to be led by ChatGPT, humans should not treat it as just a "toy" without understanding its capabilities, nor should they consider ChatGPT as the "basis" for writing any article. Instead, ChatGPT must be regarded as a "tool" for handling repetitive and complex paperwork tasks and assisting in brainstorming.

Redefine authorship based on the proportion of AI-generated content.
Our dialogue with Wang and ChatGPT offer fresh insights into the evolving terrain of authorship and identity within human-AI collaboration in creative content generation. Wang challenges the notion of a symbiotic relationship, wherein ChatGPT serves as an indispensable partner. Rather, he characterizes AI as a "collaborative partner" to assit human productivity, rather than an autonomous author nor "equal collborators".

He cautions against AI dominance, highlights the delicate equilibrium required to integrate AI-generated content while preserving the authenticity of human creativity. He further points out that many "human authors" who use ChatGPT may believe that ChatGPT can learn their "writing style" without realizing that their own "writing style" is also gradually "blending" with ChatGPT's narrative style, and may even be assimilated into ChatGPT's AI writing style unconsciously over time.

H proposed a quantitative authorship framework, which suggests that if ChatGPT contributes more than thirty percent of a book's content, it should be acknowledged as a co-author upon publication; If ChatGPT's contribution exceeds seventy percent, primary authorship could be attributed to ChatGPT. This recommendation is rooted in the recognition of potential differences in logical understanding between AI-generated and human-created content. Authors may find it unnecessary to include their name on AI-

generated content. This proposal challenges traditional authorship norms and introduces a quantitative framework to navigate the evolving landscape of authorship in AI-infused creativity.

Navigating Intellectual Property and Copyright in AI-Human Collaboration

Our research findings contribute to the literature surrounding the evolving intellectual property (IP) economy and copyright law, shedding light on the multifaceted challenges and adaptations introduced by AI-driven content creation tools like ChatGPT.

1. **Reevaluation of Authorship and Creativity**: One of the key contributions of our research is the reevaluation of traditional notions of authorship and creativity in the context of AI-generated content. We have shown that the emergence of AI-authored and AI-assisted works challenges the conventional definition of an author, prompting a nuanced understanding of authorship categories, including "human authors," "human-AI co-authors," and "AI authors." This reevaluation is essential for modern copyright law, which hinges on the concept of authorship for protection.

2. **Acceleration of Content Creation**: The accelerated speed of content creation facilitated by AI tools poses a challenge to the traditional pace of human authors. Our research highlights how AI-generated content could surpass human-authored works in terms of sheer volume. This calls for a reassessment of copyright law's treatment of the creative process and the definition of originality, as content generation becomes increasingly automated.

3. **Shift in Publishing Sequence**: The emergence of AI-generated native e-books could lead to a shift in the traditional publishing sequence from "Print First, Electronic Later" to "Electronic First, Print Later." This transformation has implications for copyright law, as it impacts the timing of copyright registration and protection, potentially necessitating amendments to existing legal frameworks.

4. **Uniform Clarity in Copyright Stances Across AI Providers:** Our research highlights the growing importance of contractual agreements between content creators, publishers, and AI providers. This discrepancy in AI providers' policies and positions on copyright can lead to confusion and legal complexities for content creators and publishers. Therefore, it is imperative to initiate discussions aimed at establishing uniform clarity in copyright-related terms and conditions across AI providers. Achieving this clarity can streamline legal processes, ensure the protection of creators' rights, and facilitate the responsible and ethical use of AI-generated content.

In summary, our research findings provide valuable insights into the evolving IP economy and copyright law, emphasizing the need for legal adaptations to accommodate the changing dynamics introduced by AI tools like ChatGPT. These insights are pivotal for policymakers, legal scholars, and practitioners seeking to navigate the evolving landscape of creative content in the digital age.

Rethinking Creativity in the Age of AI: Opportunities and Challenges

Our research contributes to the ongoing discussion about rethinking creativity in the AI age by shedding light on several crucial aspects of this complex landscape. Here are the key points related to our research findings:

Extending Creativity with Human Guidance: One of the central themes that emerges from our research is the idea that AI, exemplified by ChatGPT, serves as a valuable tool to extend and enrich human creativity. Participants in our study widely agree that the most effective utilization of AI in the creative process is as a collaborative partner. This concept aligns with the notion that AI can amplify human creativity rather than replace it. This insight underscores the potential for AI to serve as a catalyst for innovation, providing creators with new perspectives and ideas.

Acknowledging AI's Limitations: Our research findings highlight the importance of recognizing AI's limitations in the creative process. As exemplified by Wang's experiences, AI-generated content can exhibit repetitiveness and standardization, particularly when users lack expertise in effectively guiding AI. Moreover, ChatGPT's limitations in coherence, depth, common sense, logical reasoning, and understanding of human emotions pose challenges. Authors are advised to strike a balance between AI-generated ideas and human artistic judgment, emphasizing the complementary nature of AI in assisting creativity rather than replacing it.

Questioning AI's Role in Creativity: The integration of AI into creative processes prompts a profound reevaluation of the very essence of creativity. As argued by Eisikovits and Stubbs (2023), AI's capacity to automate creative tasks challenges long-standing conventions surrounding artistic creation. Our research underscores the limitations inherent in AI's contribution to creativity, emphasizing its propensity for lacking accountability. Furthermore, we emphasize the indispensable role of human guidance in the creative process, a factor vital for maintaining the integrity of creative outputs. Consequently, we explore the evolving role of human authors within the context of AI-assisted creative endeavors. We place particular emphasis on the imperative of transparency in attributing creative ownership. In essence, we assert that creativity in the AI age is characterized by a dynamic relationship that necessitates the development of novel conceptual frameworks and robust standards for defining creative ownership.

Striking a Balance: Our research findings underscore the need for striking a balance between human creativity and AI enhancement in the creative process. This balance is crucial for navigating the evolving landscape of creativity in the AI age. It requires thoughtful consideration of when and how to leverage AI's capabilities to enhance creative endeavors while preserving the unique human touch in artistic expression. Achieving this equilibrium will be essential for realizing the full potential of AI as a creative collaborator without undermining the essence of human creativity.

In conclusion, our research provides valuable insights into the multifaceted relationship between AI and creativity. The evolving landscape of creativity in the AI age requires a delicate balance between human and AI contributions, encouraging ongoing discussions and reflections about the future of artistic and creative endeavors in this transformative era.

Implications for the Publishing Industry

The rise of AI-authored and AI-assisted content marks a significant shift in publishing, introducing three authorship categories: "human authors," "human-AI co-authors," and "AI authors." ChatGPT integration democratizes publishing, potentially lowering entry barriers, albeit with varying content quality. Wang's insights hint at AI-generated content potentially surpassing human-authored works in sheer output. Wang also proposed that publishing houses that publish books created by ChatGPT must understand how to market ChatGPT as an "AI author." By giving the AI a human-like name and create a character image of this AI author through AI animation, and even establish social media profiles to interact with fans, then in the future, books published through AI may establish their own unique presence in the literary world and become a part of "AI literature."

Additinoally, AI-generated native e-books may disrupt traditional publishing, favoring an "Electronic First, Print Later" model, reducing costs, and streamlining inventory. AI's proficiency spans genres, excelling in imaginative categories like science fiction and fantasy, as well as technical and educational content, but domain knowledge remains key. Generative AI aids small publishers with limited resources and empowers independent authors, yet the risk of blending author and AI styles must be considered.

Building reader confidence in AI-generated content is challenging due to concerns over accuracy and transparency. Legal and branding issues related to inadvertent intellectual property infringement also arise and warrant careful handling.

In summary, we underscore the transformative impact of AI-human collaboration on the publishing industry, and how the roles of authors, publishers, and readers are evolving in this dynamic landscape, emphasizing the intricate interplay between innovation, challenges, and adaptations that collectively shape the future of literature and the broader publishing ecosystem.

A New Paradigm of the Intellectual Property (IP) Economy

The integration of AI-generated content into creative works introduces a novel dimension to the traditional models of distributing royalties and economic valuation within the intellectual property (IP) economy. This development necessitates the exploration of innovative frameworks to ensure fair compensation for all particies involved. To device this framework, some pre-conditions need to be achieved:

1. *Ensuring Legitimacy and Licensing of Training Data:* One of the foundational prerequisites for establishing a new intellectual property framework that includes AI-generated content is the necessity to address the legitimacy and licensing of the data used to train AI systems. As previously highlighted, considerable concerns have arisen regarding the origins of the training data employed by AI developers. Therefore, resolving these concerns surrounding the sourcing of training data becomes a paramount preliminary step. At present, a multitude of active legal proceedings are underway, wherein AI developers are being sued for their utilization of copyrighted materials without proper authorization (Appel et al., 2023). The resolution of these pending legal cases holds profound implications for the trajectory of the Generative AI industry, signifying the pivotal role they play in shaping its future landscape. As of the time of writing, Shutterstock, one of the largest photo licensing service provides, has announced the measure to compensate artists and contributors if they have made their work available in the dataset for training Generative AI (Murphy 2023). Shuttersock has also promised to give contributors a choice to opt out of future dataset deals. This new compensation model has set the stage for future developments regarding value, royalties and compensations in the digital age.

2. *Establishing Industry-Wide Copyright Guidelines for AI Developers:* It is imperative that AI developers collectively agree not to assert copyright claims over content produced by their systems. Achieving a consensus within the AI developer community regarding copyright ownership of AI-generated content is crucial. Such a consensus can bring much-needed clarity to the dynamics between system users and AI developers, proactively preventing potential disputes over copyright ownership of the generated output in the future. OpenAI, the progenitor of ChatGPT, has explicitly stipulated in its publicly available terms and conditions that it "will not assert copyright over content generated by the API for you or your end users." Nevertheless, as of the time of this writing, there remains a conspicuous absence of explicit statements or clarifications regarding copyright matters pertaining to content generated by other prominent Generative AI providers, including but not limited to Google's Bard and Bing Chat. Once their stands are clarified, we can proceed with the following step.

3. *Transfer the copyright ownership to the human author:* Our research findings underscore the vital role of human authors in AI-human collaborations. To facilitate the transfer of copyright ownership to human authors, transparency regarding the respective roles and inputs of AI and humans in this collaboration is paramount. Once a fair distribution of contributions is determined, with the human author's predominant influence established, it becomes feasible to apply conventional IP models and practices, as suggested by Lu (2021) or Padmanabhan and Wadsworth (2023), to attribute or transfer ownership to human authors.

4. In the case where AI is the dominant contributor to the output, innovative frameworks will need to be developed which requires collaboration among stakeholders across the creative and AI industries, legal experts, and policymakers. Industry standards and best practices should be established to ensure consistency and fairness. These frameworks should strike a

balance that recognizes the value of both human and AI contributions while ensuring equitable compensation in the evolving landscape of creative collaborations.

The Imperative of a New Framework in the Generative AI Era
The need for a new IP framework in the Generative AI age is evident when we envision a future where AI-generated content becomes the standard, with human guidance emerging as the primary influence on creativity. However, to explore the concept of human guidance, it's imperative to consider the form it will take. Here, we propose Knowledge Graph as a promising avenue for shaping creativity in the age of Generative AI.

Knowledge Graphs are structured representations of knowledge that employ a graph-based data model to connect and organize information. They consist of nodes, representing entities or concepts, and edges, depicting the relationships between these entities or concepts. Knowledge Graphs offer a robust means of representing and utilizing data in a semantic and interconnected manner. (Narasimhan 2023)

Recent research, as indicated by Sun et al. (2023), underscores the attributes of Knowledge Graphs, elucidating their capacity to provide high-quality and explicit knowledge representations. Furthermore, they are easily modifiable, addressing several drawbacks and limitations inherent in large language models (LLMs). As such, Knowledge Graphs emerge as a promising solution to the challenges faced by LLMs. They offer domain-specific knowledge, guiding Generative AI systems to yield superior, dependable outputs and mitigating issues like hallucinations in LLMs.

Researchers such as Yang et al. (2023) posit that the integration of Knowledge Graphs represents a logical progression in unlocking the potential of Generative AI tools. We posit that the design and utilization of Knowledge Graphs can be likened to the management of intellectual property or closely guarded business secrets within specific domains. Consequently, the future of the IP economy appears poised for expansion into this new arena, one centered around the creation and application of Knowledge Graphs, which serve as the bedrock for maximizing the performance of LLMs.

CONCLUSIONS

ChatGPT as a Collaborative Tool: ChatGPT exhibits remarkable capabilities in conversation, data analysis, idea generation, and content creation. However, it is not without significant limitations, including credibility, accountability, transparency, and a limited knowledge base in specialized domains due to its training data scope. These limitations manifest prominently in the book publishing and content generation industry, leading to issues such as emotional depth, coherence, fragmented thoughts, and repetition. Consequently, the most effective role for ChatGPT is as a collaborative partner rather than a co-author. It should be regarded as a tool to aid human authors in the creative process, where human guidance remains pivotal for producing high-quality content suitable for professional contexts.

Evolving Notions of Authorship: Exploring authorship and identity within human-AI collaboration has unveiled a diverse range of perspectives and challenges. This exploration underscores the necessity of transcending traditional authorship concepts to adapt to the dynamic nature of creative collaboration. They emphasize the symbiotic, collaborative, and sometimes hierarchical relationships that define creative processes in the contemporary landscape. This evolving discourse reflects AI's transformative potential in reshaping how we conceive and define authorship in the digital age.

Copyright and Intellectual Property Challenges: The current legal framework stipulates that copyright can only be granted to natural persons. However, the attribution of authorship in AI-human collaboration presents ongoing challenges involving the human, AI developers, and the AI system itself. Resolving these challenges necessitates transparency and clarifications regarding AI providers' claims to content generated through their systems. Furthermore, ongoing court cases involving artists and writers suing generative AI companies for unauthorized use of copyrighted work in AI training have significant implications for the industry's future trajectory.

Impact on the Publishing Industry: Generative AI has already reshaped the publishing industry's workflow, shifting it from a "Print First, Digital Later" model to a "Digital First" approach. This change enables authors to produce manuscripts more rapidly. However, the quality of AI-human collaborative publications remains limited due to technical constraints. Reader perceptions also remain ambivalent, primarily due to concerns about AI's accountability and credibility. To realize AI's transformative potential in the publishing industry, building reader confidence in AI and ensuring transparency are critical.

Human Guidance in the Age of Generative AI: In a future where AI-generated content becomes commonplace, human guidance will play a pivotal role in guiding creativity and ensuring accountability in the generated output. As a promising concept for providing human guidance in the creative process in the Generative AI age, we propose Knowledge Graphs. These structured knowledge representations offer domain-specific guidance, enhancing the quality and reliability of AI-generated content.

In conclusion, the evolving landscape of Generative AI presents a host of opportunities and challenges across various domains, including content creation, authorship, copyright, publishing, and creativity. As we navigate this dynamic terrain, adapting to the changing nature of human-AI collaboration and exploring innovative solutions like Knowledge Graphs will be instrumental in harnessing the full potential of AI while addressing associated concerns.

LIMITATION AND FUTURE RESEARCH DIRECTIONS

While this research has provided valuable insights, it also presents several limitations that open avenues for future exploration.

Firstly, the interview process involved a single human author, potentially introducing bias into the perspectives gathered. Future research could mitigate this limitation by engaging with a more extensive group of human authors. This broader sample would yield diverse viewpoints and deeper insights into their collaborative experiences with AI.

Secondly, the study's scope did not delve into readers' perceptions and attitudes toward AI-generated books, leaving a significant gap. Subsequent research should aim to uncover readers' preferences and acceptance rates, shedding light on their evolving relationship with AI-generated content.

Thirdly, the generative AI landscape is rapidly evolving, as are the legal cases surrounding copyright ownership and intellectual property violations. This study's discussions are based on events and developments up to September 2023. Future research should continue to monitor these developments, with a particular focus on the outcomes of ongoing legal cases related to AI's copyright ownership and IP infringements.

Lastly, the development of Knowledge Graphs as a complementary asset to the future of generative AI and large language models (LLMs) presents an intriguing area for ongoing observation and research. Understanding how Knowledge Graphs can enhance AI-generated content and address current limitations is a promising avenue for future exploration.

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