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ChatGPT as an Inventor: Does It Make Sense?

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Dear Editor,

On March 12th, OpenAI, based in San Francisco, California, introduced ChatGPT-4, the most recent iteration of its Large Language Model (LLM). ChatGPT, built on an artificial intelligence (AI) neural network, is designed to support users through instant messaging (1). Chatbots, which are electronic systems employing deep learning models, generate natural language text in response to user queries. These systems can search for information, answer questions, and offer advice. The generative pre-trained transformer (GPT) employs an advanced approach to natural language generation (NLG) and, having been trained on an extensive text dataset, can produce language that sounds remarkably natural (2).

Upon receiving a request, ChatGPT processes a vast array of facts and data to assemble relevant text and strives to deliver a response (1). Initially popular in retail, chatbots have recently expanded into sectors such as healthcare, education, and research. ChatGPT is versatile and capable of tasks like translation, text summarization, and drawing conclusions from text (3). In radiology, AI has transformative potential, with ChatGPT playing a significant role. It opens up new avenues for enhancing accuracy, efficiency, and patient care outcomes. For instance, it can condense critical information from extensive documents, simplifying data access for radiologists. With ChatGPT's assistance, radiologists can make more informed decisions, thereby elevating the quality of patient care. The advent of AI, like ChatGPT in radiology, signifies a move towards greater precision and efficacy in the field (4).

As AI increasingly integrates with technology, it poses challenges to existing policies. Holding a patent grants the patent owner exclusive rights to prevent others from using, making, selling, or importing the patented invention (5). Therefore, it is crucial to clearly define ownership rights for inventors, including those of AI inventions like ChatGPT. However, current guidelines lack specific criteria for recognizing ChatGPT or other chatbots as inventors in patent applications.

When the Controversy Arose

The authors tasked ChatGPT with generating a patent topic in the field of Gastrointestinal disorders, requesting, "Give me a novel patent topic about inflammatory bowel diseases." ChatGPT proposed "A Novel Method for Diagnosing and Treating Inflammatory Bowel Diseases Using a Combination of Ultrasound Imaging and Microbiome Analysis." This suggestion implied the development of an innovative ultrasound device capable of detecting and analyzing an individual's microbiota composition. Despite the originality of the idea, a significant question emerged: Can ChatGPT or any other chatbots be recognized as inventors of healthcare patents simply because they generated new ideas?

A Stepwise Systematic Search for a Solution

The criteria for determining ownership and inventor eligibility vary by country. This letter focuses on the United States Patent and Trademark Office (USPTO) criteria to assess inventor eligibility (5).

ChatGPT as a Joint Inventor: Opportunities and Limitations

The USPTO distinguishes between original and joint inventors. To be considered an original inventor, one must have made a significant contribution, a criterion

that does not align with ChatGPT's capabilities since it only provides a conceptual framework for ideas. However, the situation differs when considering the role of a joint inventor. Inventors can apply for a patent together even if (5):

(1) They did not work together or at the same time.

(2) They contributed differently in terms of the amount or type of participation.

(3) They did not each contribute to the subject matter of every patent claim.

The terms "joint inventor" and "co-inventor" refer to individuals who have discovered or invented the subject matter of a collective invention (5). Given the criteria for being a joint inventor, where unequal and non-simultaneous contributions are deemed acceptable, ChatGPT could potentially qualify as an original joint inventor. Each document submitted in a patent application or file must include the principal handwritten signature, individually signed in permanent dark ink (5). However, other joint inventors could sign all necessary documents on behalf of the AI.

Despite the possibility of ChatGPT being considered a joint inventor, delving deeper into the concept reveals several limitations.

Executing an Oath

For patent applications, each inventor or co-inventor of a claimed invention is required to execute a declaration or oath related to the application (5). The execution of an oath includes criteria that contradict the capabilities of ChatGPT, such as the requirement for the signer to be competent, meaning they understand the document they are signing. Such understanding is beyond ChatGPT's capabilities, as these chatbots function strictly based on user commands.

Moreover, the ChatGPT was asked to declare its idea about oathing ability:

Q1: Can ChatGPT oath?

A2: No, ChatGPT cannot take an oath.

Q2: Can ChatGPT fill out an application to declare an oath?

A2: No, ChatGPT cannot fill out an application to declare an oath. This is something that must be done by the individual who is taking the oath.

The Omitted Inventor as a Solution

The inability of ChatGPT to execute a declaration or an oath poses a significant barrier to its consideration as a joint inventor. However, the USPTO acknowledges scenarios involving unreachable joint inventors or those who refuse to join a joint patent application. An "omitted inventor" is defined as a joint inventor who declines to participate in a patent application or cannot be located or reached after diligent effort. In such cases, another inventor may apply on behalf of both themselves and the omitted inventor, who may later join the application (5).

Although ChatGPT and similar chatbots may be seen as potential joint inventors for their role in generating new ideas, their inability to execute a declaration or oath prevents them from being officially recognized as inventors or co-inventors. Nevertheless, they could be considered as omitted inventors, utilizing the provision for an omitted inventor to opt out of a joint patent application.

Revision of Previous Patent Policies

The USPTO and similar organizations must establish clear guidelines to delineate the use of AI, arguing that the lack of accountability should not overshadow their role in inventorship. The emergence of AI-driven inventions necessitates a deep reevaluation of existing patent policies, calls for updates to intellectual property laws, and the establishment of an international convention to address this matter. In conclusion, incorporating chatbots in the process of inventing healthcare solutions carries substantial legal implications. Understanding the intricacies of ownership and inventorship policies and adhering to established procedures is vital to prevent future disputes or challenges. By doing so, inventors can secure valid patent rights, which is essential for their success in the marketplace. Given their potential to transform information access, it's imperative to grasp the legal ramifications of employing chatbots in the invention process and to ensure proper adherence to procedures for rightful ownership and inventorship.

Footnotes

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