

239. GENERATIVE AI AND INTELLECTUAL PROPERTY: PREVENTION OF COPYRIGHT INFRINGEMENT

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The aim of this paper is to highlight the scope of the existing problem of copyright infringement in generative AI and to present available, albeit limited, solutions.

Generative AI has made a revolutionary breakthrough in modern technologies. Its rapid growth has brought high demand to the newly founded market. Nevertheless, its ethicality remains an open question. The way it handles intellectual property can be highlighted as one of the biggest concerns.

The core of the problem can be found in the way generative AI models are made. The most important, expensive, and time-consuming part of its creation is training. For the machine to understand the correlation between the input and the output, it must process colossal amounts of sample data [1]. If this data were to be manually produced for the specific model, it would have taken a lot of time and resources just to make a primitive version of it. For this purpose, the data is sampled from public sources, for example, from the Internet. Even though those sources are public, they might be protected under copyright law. That means that the use of the World Wide Web as a training set makes the AI more likely to produce copyrighted material.

The rapid rise of generative AI made the problem even worse. Governments did not have enough time to change legislation to better suit this field. At first, the market was regulated by outdated laws. Hence, a team of enthusiasts took the initiative and developed a program called Nightshade. Its purpose is simple: “poison” images in a way that remains unnoticeable to the human eye but highly confuses generative models when those images are used as training data. As an example that was given by the team, poisoning an image with a cow in a field leads to the cow becoming slightly shaded for the human eye while becoming a large purse for the machine [2]. While this is an amazing way to prevent copyright infringement, the resulting image colors might be noticeably altered in the process. And the team mentions that the method will unlikely remain future-proof because of how fast the technology is evolving. Yet it does not mean that they will not be able to update their product to prevent developed countermeasures [2].

Eventually, governments started changing their legislation to accommodate the existing problem. Yet it was not so straightforward. Firstly, there is a question about whether AI is directly reproducing training data, or whether it could be considered fair use. Secondly, if the implemented laws were too harsh for the AI companies, the technology would simply cease to exist due to the costs of data set creation. That is where the governments took different approaches.

The European Union recognizes the model’s output as the reproduction of copyrighted data. Its law reserves the right for the copyright holder to refuse the use of copyrighted material in model training. It also requires companies to publish lists of sources used in their training sets [3]. On the other hand, the United States generally considers it fair use. The only exception is when the produced result highly resembles the copyrighted material. In that case, it has to be proven in court, which might be difficult due to the lack of a concrete definition [4].

The future of generative AI remains unclear. While looking promising, its use of copyrighted material remains a debated topic. People’s awareness caused “ethical” models, which excluded protected material from the data sets, to make their way into the market. Furthermore, the concept of machine unlearning, which seeks a way for a model to exclude specific data from it as if it were retrained without the data, started being researched [5].

References:

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