

Committee: Educational, Scientific and Cultural Organization

Issue: Preventing AI-assisted plagiarism

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Introduction

With the recent development of AI(Artificial Intelligence), controversy over plagiarism using technology - such as Chat GPT, an advanced stage of the service - is intensifying. As copying AI's answer without confirmation obviously is plagiarism, it is emphasised that measures are needed to prevent plagiarism.

Recently, plagiarism using AI has emerged in various places, including schools, workplaces, and research institutions. The World Health Organization (WHO) is also urging caution when using large language model tools (LLMs), alerting that to protect and promote human well-being, human safety, and autonomy and preserve public health, it is a must to carefully use LLMs. On the contrary, others argue that the creation aided by AI can be an appropriate source of information, although they currently poorly define what "appropriate use" is. As such, the definition of the appropriate use of AI and plagiarism has not yet been clarified, and it is urgent to redefine what plagiarism is according to the new era of AI and discuss what novel measures can be taken in order to prevent it.

Definition of Key Terms

Artificial intelligence (AI)

Artificial intelligence (AI) is a field of computer science that equips machines with the ability to think, learn and solve intricate problems. In order to train - teaching AI how to make appropriate decisions by providing data - AI, a foundation of specialised hardware and software for machine learning training, is a must. For instance, chatbots must be trained with a sufficient amount of language data in order to communicate seamlessly with human users, and image recognition tools must be trained to identify and describe objects in images by examining millions of images. New and rapidly improving generative AIs can produce realistic texts, images, music and other forms of media, which will be the main issue related to the agenda. Recent breakthroughs in the field, such as Chat GPT (Generative Pre-trained Transformer) and Midjourney, have significantly advanced the capabilities of AI.

Generative AI

Generative AI is a type of AI that can generate various types of content, including texts, images, audio, videos, etc. The recent improvements in generative AI have made it easier to generate high-quality

texts, graphics and video in seconds. Recently, almost all AIs that produce new texts, images, artworks, etc., can be defined as generative AIs.

Plagiarism

Plagiarism is the use of someone else's works, words, or ideas without attribution. The word plagiarism, which comes from the Latin word for a kidnapper, stands for “a type of theft” and “an act of undermining integrity.” Recent improvements in generative AI caused controversy over plagiarism.

Artificial neural network (ANN)

Neurons are nerve cells in the human body that send electrified messages all over the body. An artificial neuron, which is the digital imitation of a biological neuron, is a unit of mathematical functions that makes it possible for AI software to produce intended results. Artificial neural networks (ANN) connect a set of individual artificial neurons using a layered architecture.

The Turing Test

The Turing Test is a simple way to determine whether a language machine can function as well as humans. If a machine engages in a conversation with a human without being detected as a machine, it is thought to demonstrate human intelligence, according to the Turing Test. The test was proposed in a paper published in 1950 by British mathematician and computer scientist Alan Turing. It has become a principal motivator of AI theory and development.

History

The concept of AI - that of artificial neurons, to be specific - was first proposed by Warren McCulloch and Walter Pitts in 1943. This model laid the foundation for further studies to be divided into two representative approaches. One approach focused on imitating biological processes, known as brain-inspired computing, while the other focused on applying neural networks for automation and content creation, known as artificial intelligence.

In the 1950s, scientists, mathematicians, and philosophers proposed some of the basic concepts of artificial intelligence, such as Alan Turing, who invented the ‘Turing Test.’ The British polymath who developed the first modern computers further laid the foundation of AI.

Also developed by Alan Turing in the same year of, 1950, the Turing test was a test of the ability of machines to exhibit intelligent behavior equivalent to or indistinguishable from humans. Turing proposed that human raters judge natural language conversations between machines designed to produce human-like responses.

The word "Artificial Intelligence" was first adopted by American Computer scientist John McCarthy at the Dartmouth Summer Research Project on Artificial Intelligence (DSRPAI) in 1956. Later on, the first artificial intelligence program was held by John McCarthy and Marvin Minsky in the same year at DSRPAI.

In 1957, engineer Frank Rosenblatt at Cornell Aeronautical Laboratory proposed an algorithm called perceptron, which was an early form of artificial neural networks that exported a single result from multiple inputs. In 1969, approximately ten years after the development of perceptron, Marvin Minsky, who was a professor of media arts, electrical engineering, and computer science at MIT, and Seymour Papert published 'Perceptrons,' which explains their "analysis of the computational capabilities of perceptrons for specific tasks,' according to the MIT Press.

However, there was the first AI winter, which took place between 1974 to 1980. Because of the deficiency of computing power and databases, AIs back then could not solve intricate problems. Thus, the interest in AI waned.

In 1982, physicist John Hopfield proposed a totally new ANN with a totally different architecture from those of the previous ones, making it possible for experts in various fields to indirectly train computers, which is called 'expert systems.' Furthermore, as Geoffrey Hinton, a British-Canadian cognitive psychologist and computer scientist, proposed a new AI training method in 1986, and Yann LeCun at Bell Labs provided the first practical demonstration of the method, the research of AI became popular again.

Nevertheless, because of the outsized expectations towards AI and the lack of computing, there was a second AI winter. The United States government's Strategic Computing Initiative cut down the budget for AI research, making it harder for the researcher to continue their research on AI.

Yet, as Geoffrey Hinton proposed deep learning with multiple ANNs, Fei-Fei Li of Stanford developed the first neural network, called ImageNet, that processes images, and AI became the trending research topic again. Alex Krizhevsky and Geoffrey Hinton proposed an improved version of ImageNet. Further, A generative adversarial network (GAN) was developed in 2014, which is a machine learning model in which two neural networks compete against each other to make predictions more accurate using deep learning methods. It is significant that the GAN worked as the representative position in the research of the AI field.

In 2016, there was the famous battle of AlphaGo versus Lee Sedol in Go, in which Alphago defeated Lee Sedol unexpectedly. The public's awareness of AI improved greatly.

Google presented a transformer model that became the basis of a 'Generative Pre-trained Transformer (GPT)' through a paper titled 'All you need is attention' in 2017. Transformer is a neural network that learns context and understanding through sequential data analysis.

In 2018, the invention of OpenAI started when ChatGPT first introduced the GPT language model. The model inspired the creation of ChatGPT by generating human-like responses to questions and conversations. This is when the AI-assisted plagiarism problem arose.

Key Issues

Problems in the field of education

In May, according to a UNESCO report, “Generative AI and the Future of Education”, of over 450 schools and universities, less than 10% of them have developed institutional policies or guidelines regarding the use of generative AIs. UNESCO urged ministries of education to develop technologies to detect and validate the use of generative AIs in the field of education, highlighting that the indiscreet use of generative AIs has the potential to undermine the authority and status of educators.

Recently, the U.S. Department of Education Office of Educational Technology announced a new report, “Artificial Intelligence and the Future of Teaching and Learning: Insights and Recommendations.” The Department of Education provided some guidelines for schools and policymakers regarding the use of AIs in the field of education. The office emphasised that educational institutes must not view AI as replacing teachers but as a tool to assist education. The office also pointed out that all stakeholders must review the novel educational technologies and must be trained to adopt AI-based tools in education.

Furthermore, Japan’s Ministry of Education, Culture, Sports, Science and Technology announced guidelines to allow the limited use of generative AI in elementary, junior high, and high school in Japan. They planned to select a number of junior high and high schools that will trial the usage of AIs in their classrooms. As the ministry underscored, as the inappropriate use of AI may cause personal data leakage and copyright infringements, the appropriate education must be provided to students.

However, the extent of the education and the regulation of generative AIs in the field of education is still controversial. Some argue for the total prohibition of the use of AI via developing AI detection tools, while others still argue that the education program to teach students how to effectively and appropriately implement the newly developed technology is needed.

Informative errors detected with a generative AI program

Microsoft Bing is Microsoft’s web search engine. The company supports that it is deeply aware of the errors in the information that the developed generative AI technology provides to consumers.

Microsoft's public demo of an AI-powered revamp of Bing appears to include several factual errors, highlighting the risk the company and its rivals face when incorporating this new technology into search engines. At the demo, the company showed off how integrating artificial intelligence features from the company contributed to developing ChatGPT, which would empower the search engine to provide more conversational and complex search results. The demo included listing the pros and cons of a vacuum cleaner, an itinerary for a trip to Mexico City, and a quick comparison of corporate earnings results. As the example suggests, errors in AI-produced information can cause catastrophic damage to users. For instance, it might encourage the spread of fake news. If there is an error in AI's answer, AI is not responsible for plagiarism, which uses information elsewhere under the provision that it cannot be responsible for the information.

Major Parties Involved and Their Views

World Health Organisation (WHO)

The World Health Organisation is a specialised agency of the United Nations responsible for international public health. The WHO is urging caution when using language models, such as ChatGPT and Bard, generated by artificial intelligence (AI) to protect and promote human well-being, human safety and autonomy and preserve public health.

The language models' rapid public spread and increasing experimental use for health-related purposes are generating considerable excitement around their potential to support people's health needs. However, the WHO considers the risks carefully, even when using the language models to improve access to health information, as a decision support tool, or to improve diagnostic capacity in under-resourced settings to protect people's health and reduce inequality.

International Telecommunication Union (ITU)

The International Telecommunication Union (ITU) is the United Nations specialised agency for information and communication technologies. The ITU supports research in the fields of cybersecurity, AI, digital devices, broadband, the Internet, etc.

The ITU holds the AI for Good Global Summit, in which researchers and professionals present state-of-the-art AI solutions and knowledge that fit the UN Sustainable Development Goals. More than 3,000 AI for Good members participate in person, and more than 15,000 members participate online.

Distributed AI Research Institute (DAIR)

The Distributed AI Research Institute is a non-governmental organisation that conducts research on the widespread influence of rising technologies. The DAIR did not take a negative stance on the

development of AI technology overall but warned that ethical issues should not be excluded in the process of AI's development.

Open society foundations

Mark Malloch-Brown, the president of the Open Society Foundations, said that fundamental safety devices dealing with accountability and equity for AI development should find ways to lay the foundation for all future AI projects. Mark Malloch-Brown also said he is proud to be part of a growing global movement to consider using technology and develop the collective tools and knowledge needed to verify that AI advances, not harming the public interest.

University of Cambridge

The first-of-its-kind Master of Studies in AI Ethics and Society (MSt AI Ethics) at Cambridge University is designed specifically for professionals. It offers the expertise and skills necessary for critically understanding and responding to the complex socio-technical systems underpinning our greatest AI opportunities and challenges. ChatGPT represents a tipping point in the development of AI, and we teachers ignore it at our peril. The professor, Dr Vaughan Connolly, said that for educators, it's going to be as transformational as Google was in 1998 and requires a serious conversation about the benefits, challenges and implications for schools and learners. Professors also added that the future will change indelibly, so they emphasised that educators will have to start engaging with it in a meaningful way.

Timeline of Relevant Resolutions, Treaties and Events

Date	Description of event
1942	The first ethical code for AI systems was introduced by the famed science fiction writer Isaac Asimov, who presented his 'Three Laws of Robotics in Runaround'. The initial concept of AI's ethical problem arose.
1950	The Turing test, developed by Alan Turing, was a test of the machine's ability to demonstrate intelligent behaviour that is equivalent or indistinguishable from that of humans. Turing proposed that human evaluators judge natural language conversations between machines designed to generate human-like responses.
2014	A generative adversarial network (GAN) is a machine learning (ML) model in which two neural networks compete with each other to make predictions more accurate using deep learning methods.

UNESCO published the first-ever global standard on AI ethics – the 'Recommendation on the Ethics of Artificial Intelligence'. This framework was adopted by all 193 Member States.

November, 2021

Evaluation of Previous Attempts to Resolve the Issue

Regarding the AI-specific regulation proposed by the General Data Protection Regulation (GDPR), it can be well evaluated in that it proposed 'detailed' regulations on artificial intelligence ethics issues. Furthermore, GDPR restricts automated individual decision-making algorithms, which, accordingly, “significantly affect” users. Also, the law guarantees the “right to explanation,” which is the right of the user that can require an explanation of how the algorithm works. However, it seems necessary to make a correction and demand another kind of substantial proposal in the future, given that the proposal did not achieve results and that the situation was terminated only by the proposal because the plan was not actually implemented.

The most notable past effort to improve the user’s awareness of AI ethics so far is UNESCO's publication of "Recommendation on the Ethics of Artificial Intelligence." The purpose of the report was to avoid and address ‘Unwanted harms (safety risks) as well as vulnerabilities (security risks)’ by AI actors. The contents of the documents mainly claimed that as humanity is increasingly influenced by artificial intelligence, its users should make more efforts to protect privacy from AI. Considering the title of the document, it can be evaluated that the issue related to privacy is quite inconsistent with the intention of the title. The document can be improved by pointing out problems related to plagiarism that occur when personal information is not protected or when generative AI is used.

In 2021, the European Commission announced the EU regulatory framework for AI. As a development of the framework, in 2023, the EU announced the new EU AI Act, which is the world’s first comprehensive AI law. The rules provide obligations to developers and users in terms of using AI systems. They divided AI systems into three levels based on the risks of using the systems. The unacceptable risk of AIs, which are considered to threaten people, is prohibited. High-risk AI systems, which include aviation, cars, medical devices, biometric identification tools, education tools, worker management tools, legal interpretation tools, etc., must be assessed before and while they are on the market. Limited-risk AI systems are regulated with minimal transparency requirements. Furthermore, generative AIs must comply with specific transparency requirements that disclose the produced contents, design the model to prevent illegal content, and publish the outlines of data used for training.

In 2023, Elon Musk, the CEO of Tesla, SpaceX, and X (Twitter), and a number of renowned AI researchers, including Stuart Russell of UC Berkeley and Yoshua Bengio of Université de Montréal, called on AI research institutes around the world to pause the development of large-scale AIs. They claimed that there are no proper regulations to restrict the disastrous potential of AI, arguing that it can pose “profound risks to society and humanity.” They announced the letter through the Future of Life Institute (FLI), a nonprofit organisation whose goal is to “reduce global catastrophic and existential risks facing humanity, particularly existential risk from advanced artificial intelligence.”

Possible Solutions

Addressing this, the problem of preventing AI-assisted plagiarism requires a solution of reciprocal measures between the applicant and the individual. Creating works using Generative AI can be broadened or narrowed depending on individual acceptance criteria, but clear regulations within one community are also needed. For example, when a school examines whether a student's assignment has been helped by generative AI, there is a way to provide a clear percentage to determine whether it is outside the standards set by the community.

In such educational institutions, students who pass the growth period have a very improved ability to learn information, and if they are new to it, they are likely to apply it in the future, so it should be absolutely right about the accuracy, morality, and impact on society. Therefore, for companies developing generative AI, a clearer inspection of the accuracy of the information they provide must be made, as well as regulations that determine whether the use of the information they provide is plagiarism.

Another way to solve plagiarism is to provide proper education to potential AI users, including K-12 and university students. It helps to improve the awareness of plagiarism using AI. In order to implement this solution, the cooperative help of state agencies is needed. National institutions like the Information and Communication Department must work with the Ministry of Education of each country to provide online and offline educational resources and programs and to make it mandatory for every potential AI user to take classes.

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