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Is Artificial Intelligence Good or Bad for Academic Research?

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John McCarthy first coined the term "artificial intelligence" (AI) in 1956 at a conference in Dartmouth. AI means that machines can mirror the functions of the human brain in various applications such as problem-solving in Mathematics. Since then, interest in AI has grown exponentially over the years. Recently, Apple published an AI paper of its own, describing improvements in image recognition training through the use of computer-generated images in place of real-world images. Machine learning is a branch of AI that is concerned with taking large bodies of data and using it to train software for purposes of identification. Machine learning is thought to be a predecessor, or a pre-requisite, to AI. There are concerns about the rise of AI, but there are clear benefits to its use. The bottom line is, should we trust it?

Artificial Intelligence: Should We Trust It?

AI is utilized by industries other than academic publishing, such as in generating traffic to websites by using Big Data and Natural Language Processing. Neural networks form a sub-area of AI, concerned with replicating the way the human mind works. Scientists have reasoned that AI will lead to innovations, discoveries, and scientific advancements. There are several advantages to AI, such as taking on tasks that are too complex for the

human mind; completing tasks rapidly compared to humans; reduce errors and defects, and to discover trends and meanings in data. AI has the capacity to make life simpler, easier, and more advanced.

Impact of AI on Academic Publishing

Academic publishing is affected by the rise of AI, and here's why. About 2.5 million scientific articles were published in 2014 across 28 journals. It should also be noted that these statistics apply to articles published in English alone. With the wealth of journal articles being published, AI can be a valuable asset for publishers. Using AI, fraudulent data can be detected and plagiarism can be averted as well. AI can decide whether a paper is fit for publication or not.

AI is set to disrupt the scientific community—and that's a good thing, according to the World Economic Forum. Academic literature has become a significant bottleneck. For instance, more than 70,000 papers have been published on the p53 protein alone. Academics struggle to keep up, while the general public simply can't. AI can help change the way that published articles are perceived and received, by the general public. An AI-based tool, RAxter.io, aims to provide access to and contextualize published research. Yet another example of science mining is Semantic Scholar, which is a search engine created by the Institute for Artificial Intelligence.

Benefits for Researchers and Publishers

Like it or not, AI can and will benefit the scientific community. It can significantly improve the way that research is conducted and published. While the thought of a machine dictating human actions and deciding on scientific matters may be scary for some, AI has its benefits:

- Reveal trends that are essential for research: Papers can be distilled according to content rather than title, allowing researchers to identify trends.
- Identify new peer reviewers: AI can identify a roster of potential peer reviewers from online sources that journal editors may not have considered.
- Fight plagiarism: Using Natural Language Processing, AI can forego the traditional algorithms for detecting plagiarism in favor of software that can identify whole sentences or paragraphs that have been reworded.
- Identify funding sources: According to Elsevier, AI can make it easier for sponsors to find the output of research that they have sponsored.
- Identify flawed reporting and statistics: AI can identify whether an important component of research is missing and whether the statistics applied were flawed.
- Finally, it can detect whether data was modified in order to arrive at the desired outcome.

Concerns and Solutions

While there are numerous benefits to AI, notable personalities such as Stephen Hawking, Bill Gates, and Elon Musk have warned against the rise of AI. Hawking, in particular, stated that AI will be "either the best or the worst thing, ever to happen to humanity." These concerns are valid. After all, the World Economic Forum listed 9 ethical concerns about AI. One concern is the loss of jobs as machines take over the jobs that people do today. However, the Forum stated that transitioning to a lifestyle focused more on quality family time may, actually, be more humane. The Forum also stated that machine learning can "nudge society towards more beneficial behavior". Neural networks can also evolve to become a catalyst for positive change.

AI is the future, and embracing it is the only way to ensure that fears about it are minimized. In terms of academic publishing, AI can pave the way for a more cohesive, contextualized, and accessible repository of information. Through AI, publishers can optimize processes to ensure that all articles are up to par. What are your thoughts on AI in scientific publishing? Do let us know in the comments below.

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