

Editorial

Artificial intelligence and scholarly scientific publications

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In 1758, Carolus Linnaeus, the father of taxonomy, used the term *Homo sapiens* meaning 'wise man' in Latin, to designate the species to which all humans belong¹. The incredible higher functioning of the brain, the extraordinary intellectual abilities, and the marvels of the mind of the members of this species set them apart from all other affiliates of the animal kingdom. Indeed, those capabilities designate them to be quite a unique assembly.

Humans have now gone on to intellectually surpass even themselves by using their exquisite minds and cognitive abilities to develop a modern-day wonder: Artificial Intelligence. That unbelievable enterprise, or AI, as it is generally known, was formulated to develop and then power computers and even other machines to imitate and function with the problem-solving and decision-making aptitudes, perceptive capabilities, and superlative intellectual competencies of the human mind. It is a scenario where machines are empowered to imitate and even take over some of the much-valued processing and responding capabilities of human intelligence, human thinking, and human reasoning. The ambitious goal of this enterprise is to at least match some of the mental attributes of the most intelligent of humans. In somewhat simpler terms, it is an initiative to try and simulate the aptitudes of the human brain.

Although countless people talk about the many and variegated aspects of AI, it is a relatively young speciality, at most, around sixty to seventy years of age. It is a conglomerate of disciplines, theories, and techniques, which include mathematical logic, statistics, probabilities, computational neurobiology, and computer science, which aim to emulate the intellectual abilities of human beings². Work on AI was initiated around the period of the Second World War. Later on, and in tandem with progress, the development of AI became closely linked to progress in computing and has induced computers to perform increasingly complex tasks, even those which could previously only be handled by humans.

Many stages of the development of computers and their alleged successes have been given marked prominence in the literature and the media. However, in a classical archetype, AI now stands as the veritable talk of the town. The numerous ways it could be used for society's betterment have been well elucidated and documented. In such a scenario,

it should not be surprising to see that AI has increasingly got involved with scholarly publishing, so that the latter may not be left out of a paradigm shift towards beneficial change.

The standard details of publishing scholarly literature are a multifaceted network of undertaking research, scientific writing, submission of manuscripts, peer review and making decisions regarding acceptance, revisions or rejection by a given scientific publication. It is a macrocosm of the indomitable essence of the dedication of human effort to the very many tasks at hand. Many hours are spent by humans laboriously and physically scrutinising articles, checking for language proficiency, looking for content errors, assessing compliance with the requirements of journals, and a host of other common issues³. It is inevitable and perhaps natural that wherever and whenever a profoundly demanding effort is undertaken by man, human resourcefulness finds a way to simplify, streamline, and even automate the processes involved. In that context, as far as scholarly publishing procedures go, advanced AI techniques have emerged in recent years to assist both researchers and publishers in optimizing their systems and workflows. In general, there are several goals that AI developers mean to reach by using the techniques of AI in scholarly publishing. These include, but are not exclusively limited to, a reduction in time for submission for authors, automation of the screening processes by journals, reduction in manual checks and streamlining peer review.

With the tremendous increase in the number of research articles being published across all possible disciplines known to man, AI has perhaps been identified almost as a game-changer in the publishing industry. For a start, AI-based enterprises are extremely useful to researchers in many ways, from designing the project, right up to the stage of writing the research paper. Some AI programs have made tremendous strides in statistical and grammatical analysis, taxonomy, and reality assessments, leading to researchers being able to have the kind of assistance not hitherto available. Some very clever programs could even write a research paper on their own once the basic details and data are fed into them. In that sense, perhaps somewhat similar to the human brain, quite a few of these initiatives have become even self-sufficient.

Another curious but amazing initiative is the development of chatbots. These consist of software that simulates human-like conversations with users *via* chat. Their key task is to answer user questions with instant messages. Chatbots use AI and natural language processing (NLP) to understand user questions and automate responses to them, thereby simulating human conversation. There are several types of chatbots; some are so sophisticated that they could produce even high-quality scholarly articles. AI has certainly been placed in a position that could play a key role in a range of publishing activities, extending from content creation to assessments, augmentations, and even wider distribution of research. It can also be used to play a part in editorial work to enhance making better assessments and accelerate certain timelines related to editing, decision-making, peer review processes, proofreading and the usage of publication conveyor belts. All these facilities would of course be most useful for very busy roadmap situations of journals that publish very frequently.

Another way in which AI has so far had an important effect on research publishing is by using AI-based plagiarism detection software, which has made it easier to identify and detect plagiarism in research papers⁴. This could help many journals as they have zero tolerance for such misconduct. In addition, AI-based image-checking tools can now identify image manipulation and aid editors in confirming that research papers submitted are trustworthy.

There is no doubt that AI has helped to revolutionize the scholarly publishing industry at present. New advancements and incredible initiatives based on AI will continue to emerge, helping to change how scholarly articles would evolve too. However, it is important to keep in mind that AI-based creations are perhaps not a magic wand nor a panacea for all ills in the publishing industry. In the current scenario, there is still a need for a physical human effort to check the work of automation in scholarly publishing.


Still, from a rather negative perspective, we do not know whether AI-based processes could also get involved in rather objectionable pursuits in research and publication endeavours. Lurking behind all the positive aspects of AI, there is the daunting prospect of the possibility of potential research swindles and publication misconduct. The latest presentation of an Open AI chatbot with the inexplicable capability to write beautiful poetry and even academic essays that are almost impossible to differentiate from human-centric productions, has recently generated quite an uproar in the world of academic research. That chatbot is even able to write a 'scholarly article' at the behest of a command that is given in a one-line sentence. It has raised the

potential spectre of AI getting involved in the repugnant services of research fraud, uncontrolled research output and unjustified publications⁵. Just in June 2021, this journal brought into the glaring limelight, the detestable blot that is "Paper Mills"⁶. Given the enormous capabilities of some of the AI-based initiatives, one could just about envisage the chaos that could be brought on by such unscrupulous initiatives which could be supremely enhanced by those AI-based enterprises when they are used in a most deplorable way.

Once the unruly horse is out of the barn, there may not be all that many ways in which it could be reined in. It could then be a little bit too late anyway.

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