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Theory and Practice of Generative Artificial Intelligence Usage

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Abstract

This editorial summarizes the special issue entitled "Theory and Practice of Generative Artificial Intelligence Usage" and briefly reflects on generative artificial intelligence-related phenomena. Generative artificial intelligence is a new technology that is not only known in professional circles but has also gained widespread recognition and popularity due to its easy accessibility and benefits for lay users. The high level of interest in this technology stems not only from current experience with it and its current usefulness, but also from the assumption that this new technology will significantly affect a wide range of industries, many types of jobs and the everyday lives of many people in the future. That is why, in this special issue, we have focused not only on the purely technical aspects of GenAI, but also on the social and commercial aspects related, for example, to institutional innovation, as well as ethical aspects and philosophical perspectives. This special issue consists of seven articles.

Index Terms

AI; Editorial; GenAI; GAI; Special issue; Reflection.

We are pleased to present a special issue of *Acta Informatica Pragensia* focused on the theory and practice of Generative Artificial Intelligence (GenAI). Generative artificial intelligence is a new technology that is not only known in professional circles but has also gained widespread recognition and popularity due to its easy accessibility and benefits for lay users. The high level of interest in this technology stems not only from current experience with it and its current usefulness, but also from the assumption that this new technology will significantly affect a wide range of industries, many types of jobs and the everyday lives of many people in the future. That is why, in this special issue, we have focused not only on the purely technical aspects of GenAI, but also on the social and commercial aspects related, for example, to institutional innovation, as well as ethical aspects and philosophical perspectives.

Is GenAI really as revolutionary or disruptive a technology as we read in the bombastic headlines of the daily press? For example, when Charles Francis Adams, Jr. wrote these words: "Here is an enormous incalculable force (...) let loose suddenly upon mankind; exercising all sorts of influences, social, moral and political," he was not referring to AI, but to the railroad (he wrote these words in 1868).

Graham (1999, p. 21), who quoted him, mentioned other inventions that had provoked similar reactions—radio, television and the internet—and asked what the distinction is between the radically new and the merely novel. After all, every manufacturer tries to convince customers that this year's model of a car, mobile phone, etc., is the revolutionary milestone that they must definitely buy.

Graham's answer is that we can only assess the revolutionary nature of a technological innovation in retrospect, based on the social impact it had, which cannot be reliably predicted. For example, Bacon (2000, p. 100) mentioned the marine compass in his overview of significant inventions—the magnet had long been known only as a curiosity, but its use in the compass revolutionized navigation and ultimately led to fundamental changes in the political map of the world, changes in agriculture, advances in science and a whole range of other changes.

At this point, we can only speculate on how significant the social changes brought about by the advent of GenAI will be, and these speculations usually involve two types of attitudes taken by authors, who are usually called Neo-Luddites and technophiles. The first term refers to the followers of Ned Ludd, who smashed machines in factories in Yorkshire and Nottinghamshire in the early nineteenth century, fearing that these new devices would take away their jobs. Today, the term Neo-Luddites is used for authors who are sceptical about the impact of modern technologies.

One of those influential critics of technology was the German philosopher Martin Heidegger, who refused to understand technology solely as a neutral instrument that gives us access to the world, or merely as a specific human activity. According to his conception, technology changes how we understand the world; it develops completely beyond our control and thus poses the greatest danger to humanity. At the same time, we are completely surrounded by technology today: "Everywhere we remain unfree and chained to technology, whether we passionately affirm or deny it" (Heidegger, 1977, p. 4). This may also apply to GenAI—some predictions claim that we will soon find these technologies all around us and that our control over them may be nothing more than an illusion. It may not be that AI will enslave us as it has in some science fiction films, but only that we will leave all creative work and decision-making powers to GenAI because it will prove to be far more effective than us in all areas.

According to Postman (2011, p. 5), the opposite position to Neo-Luddites is held by technophiles, who "gaze on technology as a lover does on his beloved," and are therefore dangerous and must be approached with caution. There are few true technophiles among scientists and thinkers in this sense, but there are a number of authors who are more optimistic about technology or seek a more balanced approach, which could inspire us in the search for an appropriate theoretical response to the advent of GenAI.

Among the optimistic authors, we can include, for example, one of the first philosophers to devote himself to technology, Ernst Kapp (1877), who at the end of the nineteenth century considered technology to be a empowering extension of human organs, and thus considered it to be very beneficial. Similarly, Karl Popper (2013) attributed a positive role to science, innovation and technology in the functioning of an open society, which is a prerequisite for the long-term functioning of democracy and freedom in society. Following on from this, Špecián (2024) also pointed to the possibility that GenAI could play a positive role in democracy, for example as advisors. His other text on a similar topic can also be found in this special issue.

Among more recent authors, we can mention Donna Haraway (2016, p. 3), who is probably closest to what we might call a technophile stance. Although she did not deal with GenAI, but primarily with cyborgs, we can generalize her attitude to technology in general—she also criticized it in some respects but emphasized its ability to transcend barriers and boundaries and contribute to general emancipation. Kate Crawford (2021) followed up on Haraway in the field of contemporary AI technologies, calling the claim of artificial intelligence neutrality a myth and dealing with the sociopolitical systems on which LLM are based.

American thinker Don Ihde (1979) followed Heidegger and also rejected an instrumental approach to technology, but did not share his pessimism, taking a balanced, realistic approach. His post-phenomenological approach has then been used by other authors, such as Hongladarom and van der Vaeren (2024), who understood ChatGTP as a hermeneutic agent, rejecting the classical anthropocentric approach, claiming that ChatGPT can be as a human with its own synthetically generated perception of reality.

Another example is the recently deceased French author Bernard Stiegler, who dealt with our current civilizational situation and the role of technology. For example, Ritter (2024, p. 136) said that "Stiegler's philosophy is essentially

a philosophy of technology". Stiegler believed that technology has a pharmacological character—it is both poison and medicine. He agreed with Heidegger that technology is not merely instrumental in nature, but he did not share his universal pessimism. According to Stiegler (1998, p. 152), technology can also have a positive influence on memory and culture, but it is essential for us to make sure that it does not lead to blind automation and that technology is not at the service of consumerism.

This complex framework of issues, which we have outlined above, led us to prepare this special issue, which attempts to present various approaches to GenAI, which often represent more than purely technical solutions to problems. We would like to briefly introduce the individual articles.

Full articles focused on empirical and constructive research:

Creativity, Artificial Intelligence and (Neo-)Romantic Implicit Religion

This article combines small-scale research among students with cultural theory to show how generative AI debates revive Romantic era critiques of technology and rationalism. Based on essays and interviews, the author finds that some students see AI as a threat to human creativity, while others relate to it almost religiously – with awe or fear. The article suggests that AI education should address emotions and values, not just factual knowledge.

Exploring Oral History Archives Using State-of-the-Art Artificial Intelligence Methods

The article presents the "Asking Questions" framework that auto-generated time-aligned Q&A for long interview transcripts. It uses a fine-tuned T5 model for question generation and a BERT-based semantic continuity filter to ensure semantic coherence. These models were applied to the Stanford Question Answering Dataset and the USC Shoah Foundation Interview corpus. The results show that the system improves navigation while preserving historical authenticity.

Generative Artificial Intelligence in Ubiquitous Learning: Evaluating a Chatbot-based Recommendation Engine for Personalized and Context-aware Education

This extensive study presents a chatbot delivered via the Gradio platform for personalized educational recommendations. It uses a ChatGPT-based model with tailored prompts, custom interaction design and a focused interface to function specifically as a personalized learning assistant rather than a general-purpose chatbot. An evaluation with 100 users reports an 85% task success rate and 80% of users rated their experience 4 or 5 out of 5, outperforming traditional recommendation systems.

Evaluating Reasoning in Large Language Models with a Modified Think-a-Number Game: Case Study

This study benchmarks OpenAI's models GPT-3.5, GPT-4, GPT-4o-mini and GPT-4o on multi-step "think a number" game involving 1–11 sequential yes/no queries. Tens of thousands of trials showed no distinct performance cliff. The results show that the performance strongly depends on the prompting style (counterfactual and chain-of-thought variants excels). The study suggests that modern LLMs sustain longer reasoning chains than previously assumed.

Student Perceptions and Preferences in Personalized AI-driven Learning

The study surveys 270 undergraduate students at the University of Ostrava using course chapters generated by ChatGPT (GPT-4 model) customized to three skill levels. 64% of the students found AI materials more effective than traditional text. They highlighted adaptivity, instant feedback and motivation. In contrast, 18% viewed AI-driven instruction as less beneficial, pointing out limited interactivity, a lack of detailed feedback and insufficient customization for advanced learners. The authors conclude that richer feedback and hybrid human-AI pedagogy are crucial for wider adoption.

Miscellanea articles focused on trends and conceptualisation:

Universal Basic AI Access: Countering the Digital Divide

This policy-oriented analysis argues that state-of-the-art models with their frontier capabilities risk widening already existing digital gaps. The authors propose two universal basic AI access (UBAI) variants – a light, voucher-based model (UBAI-Light) and a government-operated provision model (UBAI-Heavy). The article concludes that timely intervention could democratize productivity benefits before inequities harden.

Political Actors in the Age of Generative Artificial Intelligence: The Czech Perspective

This article provides a qualitative overview of the adoption of generative AI in the Czech government and political parties. It uses secondary sources to map national AI strategies, party-level experimentation and public uptake. The analysis finds a rapid spread of tools such as ChatGPT, uneven regulation and some early examples of both helpful uses and challenges such as deepfakes in the 2024 regional election campaign.

ADDITIONAL INFORMATION AND DECLARATIONS

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