Intelligent Decision Technologies (IDT)

Call for Papers: Special Issue on "Issues and Trends in Generative AI Technologies"

SUBMISSION DUE DATE: March 1, 2024

CONTEXT AND RELEVANCE

ChatGPT, a generative pre-trained transformer, was released publicly on November 30, 2022, by OpenAI (https://openai.com/blog/chatgpt). However, ChatGPT is only one type of generative AI. While it is based on language, other types of methods are used to produce images, code, music, simulations and videos. The suite of technologies has been hailed as transformative, an inflection point, spark for a new wave of creativity, a productivity enhancer, and revolutionary. Venture capital had been quietly flowing into this sector, but the public release of ChatGPT has spurred a technology arms race between major companies that had been investing in this area for some time but were concerned about the potential for harmful effects (Swartz, 2023). The "text-generating AI chatbot … is able to write essays, code and more given short text prompts, hyper-charging productivity. But it also has a more … nefarious side" (Stringer & Wiggers, 2023).

These technologies are from a class of Artificial Intelligence (AI) methods referred to as 'generative AI' that have been investigated over the last ten or so years (Karpathy et al., 2016). They have the potential to transform content creation while at the same time raising issues in accuracy, misinformation, ethics, morality, copyright, legality, explainability, among others. For example, ChatGPT has been said to 'hallucinate', and recently a lawyer used ChatGPT to file a lawsuit – it did not go well (NYTimes, 2023). ChatGPT can provide useful information as a starting point, it does not understand the meaning of the text that it generates, so it can be offensive, incorrect, nonsensical, biased, outdated, plagiarized, and possibly even dangerous. Images produced by generative AI can be biased or manipulated, and computer code could enable bad actors. Thus, users will need to learn how to use the technology, and organizations will need to discover the most effective applications of the technology in their sectors. This special issue is concerned with identifying both the potential for improvement of the technology as well as exploring the issues and possible ameliorations.

As a starting point, older neural networks (NN), also called artificial neural networks (ANN), are trained to recognize patterns and make decisions based on input data. NN gave been used routinely in DSS for applications such as fraud detection. One feature of NN is that they can modify or 'learn' as new data become available. They are designed in theory to mimic the way that a human brain processes data, and their applications expanded as computers achieved significant jumps in data storage and processing. A lingering criticism is the lack of transparency and explainability in the algorithms used to deliver the results, particularly when the system delivers a decision that affects people's lives such as being denied access to a loan or recommending a medical intervention. Generative AI suffers from the same black-box opacity, but new algorithms are delivering seemingly expansive capabilities that have yet to be explored and understood.

This SI hopes to explore some of the nuances, use cases, problems, and issues (Google, 2023; Scott, 2023) for the current state of these technologies. For a recent panel discussion of ChatGPT and decision making, see https://www.youtube.com/watch?v=lvQR9H1sNvM.

OBJECTIVE OF THE SPECIAL ISSUE

The objective of this special issue is to investigate the potentialities, problems and trends in generative AI technologies such as ChatGPT and DALL-E with the potential for both positive and negative consequences. High quality conceptual and empirical research papers are invited from the international interdisciplinary scientific community interested in intelligent decision technologies. We also are interested in practitioner viewpoints and actual use cases to spur debate and thought in this area. The special issue also emphasizes the importance of explainability in generative AI models, encouraging submissions that explore explainability methods, frameworks, and case studies that demonstrate successful implementations of explainable generative AI in decision support systems. The goal of the special issue is to provide a platform for researchers to share their innovative work and contribute to the advancement of responsible, human-controlled and explainable generative AI in decision-making domains.

RECOMMENDED TOPICS

Consistent with the overall aim of the *Intelligent Decision Technologies*, the following topics are welcome in this special issue (but are not limited to):

1. **Bias and fairness in generative AI**: Challenges and methods to address biases and ensure fairness in generative AI models, particularly in decision-making contexts.
2. **Explainability of generative AI**: Challenges and solutions to the transparency of decision support based on generative AI.
3. **Evaluation methods of generative AI:** Investigating techniques to evaluate generative AI models, in terms of effectiveness, accuracy, reliability, consistency, trustworthiness and human-centered decision-making.
4. **Human-AI Interaction in decision-making**: Exploring the ways in which generative AI models can interact and collaborate with human decision-makers, examining the benefits, challenges, and strategies for effective collaboration.
5. **Human Control in Generative AI**: Exploring the challenges and solutions to achieving a balance between automated decision-making by generative AI models and the involvement of human decision-makers in the final outcomes.
6. **Critical decision making and Generative AI**: Investigating the applications of generative AI in critical decision-making that may affect human lives and sustainability of resources. Risks, ethical problems, advantages, policies, solutions.
7. **Generative AI in creative decision making**: Investigating the applications of generative AI in creative fields such as art, music, and storytelling, and analyzing their impact on the creative decision-making process.
8. **Generative AI in financial decision-making**: Examining the use of generative AI models in financial forecasting, risk analysis, investment decision support, and fraud detection, among other financial decision-making applications.
9. **Generative AI for environmental sustainability**: Exploring how generative AI techniques can contribute to environmental decision-making, such as optimizing energy consumption, analyzing climate data, and supporting sustainable practices.
10. **Legal and regulatory implications of generative AI:** Examining the legal and regulatory challenges surrounding the use of generative AI models in decision systems and proposing frameworks to ensure compliance, accountability, and responsibility.

IMPORTANT DATES

- First submission – March 1, 2024
- First editorial decision – May 1, 2024
- Second version submission (conditioned papers) – June 15, 2024
- Definitive editorial decision – July 15, 2024
- Final paper submission – August 15, 2024

IMPORTANT NOTES

1. Papers should be submitted using the journal's peer review management systems (see Author Instructions on the *IDT* website https://www.iospress.com/catalog/journals/intelligent-decision-technologies. We do not accept submissions by email.
2. IMPORTANT: Submissions for a special issue must include the designation 'Special Issue' and be submitted under this designation. Papers should explain the topic as relevant to decision making and intelligent methods.
3. ChatGPT or other generative AI technologies cannot be used to develop a paper without explicit documentation of any content derived from generative AI. The use of generative AI raises ethical, plagiarism, and copyright issues.
4. IOS Press will complete the final formatting and correspond with the authors about copyright. (However, they will not format references - please see the website for the correct format).
5. Information about the *International Journal of Intelligent Decision Technologies* can be found at: https://www.iospress.com/catalog/journals/intelligent-decision-technologies

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