

**Virtual Special Issue on
Generative AI, Foundation Models, and Deep Learning with Applications to Business Analytics**
INFORMS Journal on Data Science

The rapid advancement of generative AI (GenAI), foundation models (large language models in particular), and deep learning more broadly has ushered in a new era of data science, fundamentally transforming how organizations and individuals approach problem-solving and analytics. These tools can significantly enhance the capabilities of organizations and individuals in decision-making, problem-solving, and analytics. These technologies are not only pushing the boundaries of what is possible in data science but also presenting remarkable opportunities and significant research challenges for the INFORMS community. This special issue seeks to explore the transformative potential of GenAI, foundation models, large language models (LLMs) and deep learning across three key areas.

1. Innovative applications in data science. GenAI can be a powerful tool in the field of data science. It has the potential to revolutionize various stages in the pipeline, from dataset acquisition to data analysis to data-driven decision-making processes. Potential topics include:

- Develop novel methodologies for using LLMs to extract actionable insights from large textual datasets in areas such as supply chain risk management or customer sentiment analysis
- Fine-tune existing GenAI models to improve the efficiency and accuracy of forecasting models for demand planning, resource allocation, or financial market prediction
- Adapt deep learning techniques to solve complex real-world problems that cannot be cast as standard regression or classification problems

2. Understanding GenAI, LLMs, and Deep Learning in a practical context. As an emerging research subject, the understanding of the effectiveness of these technologies in specific applications relevant to the INFORMS community is rather limited. We encourage novel methodologies and well-designed experiments to provide deeper insights into their performance, limitations, and potential for transformative impact across various domains. Potential topics include:

- Develop rigorous benchmarks for evaluating the performance of GenAI models on specific tasks relevant to the INFORMS community
- Investigate the behavior of LLM agents and their interactions with human decision-makers in a controlled experimental setting
- Design neural networks with special architectures for a practical decision-making problem such as inventory management or content generation (e.g., product design, advertisement generation), whose benefit or limitation can be demonstrated through theoretical analysis, comprehensive simulations or real datasets

3. Societal impact and policy implications. We seek contributions that rigorously evaluate and forecast the industry and societal impacts of these technologies, including potential risks and benefits. Empirical investigations and experimental studies can help draw policy recommendations in areas that involve human-AI collaboration, algorithmic decision-making and automation. Potential topics include:

- Conduct lab or field experiments to evaluate the effect of human-AI collaboration in specific settings
- Use a comprehensive dataset to calibrate or forecast the impact of using AI in a company, an organization, or an industry

We encourage submissions with a focus on business analytics applications that are interdisciplinary and draw on a wide range of methodologies, including empirical, theoretical, computational, and experimental approaches. Studies from scholars in business, engineering and social sciences are all welcome.

Submission

To be considered for the special issue on Generative AI, Foundation Models, and Deep Learning with Applications to Business Analytics, submit your manuscript online via <https://mc.manuscriptcentral.com/ijds>. Select “Virtual Special Issue on GenAI etc. for Business Analytics” as the manuscript type in Step 1. Manuscripts will be assigned to one of the guest editors for this issue.

The virtual special issue aims to provide timely outlets for innovative, cutting-edge research on the aforementioned topics and beyond. A paper submitted to the virtual special issue will be processed right away, and accepted papers will be published in regular issues without delay. As such, authors are encouraged to submit as soon as they are ready. This virtual special issue will be an online collection of all these articles tied together under a unifying editorial article for greater impact and outreach.

Important Timelines

- Submission deadline September 1, 2025. Manuscripts will be reviewed as they are received.
- First round of decision by December 1, 2025.
- Guest editors are committed to completing revision review within 60 days.
- Maximum two rounds of revisions.
- All final decisions are expected to be made by August 1, 2026.

Guest Editors

- Ahmed Abbasi, University of Notre Dame
- Ningyuan Chen, University of Toronto
- Xiaocheng Li, Imperial College London
- Xiao Liu, New York University