

At the Chair of Logistics and Supply Chain Management of TUM School of Management, we are looking for an interested and qualified student to conduct his/her

Bachelor thesis

on the topic

Large Language Models in Operations Management: A Systematic Review of Applications, Challenges, and Future Directions

Large Language Models (LLMs), such as GPT-4 and other generative transformer architectures, have rapidly advanced the capabilities of Natural Language Processing (NLP). Beyond traditional NLP tasks, these models now enable innovative applications in management and business contexts, including decision support, forecasting, process optimization, and behavioral interventions. Operations Management and Operations Research stand to benefit significantly from LLMs through improved data insights, automation of text-heavy processes, and enhanced analytical capabilities. However, there is a lack of consolidated academic research mapping the technology behind language models and reasoning model to the current OR/OM applications, what challenges arise, and where future opportunities lie. This Bachelor thesis aims to systematically review existing literature and practical applications of LLMs in Operations Management and related fields, providing a comprehensive overview of the state-of-the-art and identifying gaps for future research and existing issues.

Key project tasks:

- Conduct a structured literature review on: Large Language Models and transformer architectures, Applications of LLMs in Operations Research, Operations Management, and related behavioral or business contexts
- Classify and summarize use cases of LLMs relevant for management and business processes
- Analyze benefits and limitations of LLM applications in OR/OM
- Identify research gaps and potential future directions
- Prepare a structured thesis document presenting findings

Requirements:

This Bachelor's thesis is for students at the TUM School of Management with a focus on Operations and Supply Chain Management. The ability to work independently and analytical skills are required.

Earliest begin: As soon as possible

Supervisor: Mahsa Nakhost

Application: Email with curriculum vitae and transcript of records to logtheses.log@mgt.tum.de