

### **How Capable Are Large Language Models in Negotiations?**

This thesis explores the potential of AI to support or even replace humans in negotiation scenarios, with a particular focus on risk assessment and decision-making under uncertainty. Imagine you work at a company managing the distribution of goods and need to negotiate with a supplier. To what extent can Large Language Models (LLMs) like GPT or Llama assist you in preparing negotiation strategies, simulating scenarios, or even taking on the role of a negotiation agent themselves?

Through the lens of game theory, this research investigates the strengths and limitations of LLMs in handling complex negotiation dynamics. By modeling real-world negotiation scenarios—such as procurement or sales—and comparing different LLM-driven strategies, the thesis aims to uncover insights into their performance, adaptability, and role-specific advantages. Additionally, this study examines how prompt design impacts the effectiveness of LLMs in both negotiation preparation and autonomous negotiation roles.

### **Automating Business Planning and Decision-Making with Semantic Knowledge**

This thesis explores the automation of business planning and decision-making using semantic representations of business concepts. You will transform narrative descriptions, such as Porter's Five Forces framework, into structured, actionable insights powered by AI. The goal is to bridge the gap between abstract business models and data-driven implementation, enabling businesses to streamline processes and make informed decisions.

The key question this thesis addresses is: How can LLMs be tailored to a specific knowledge graphs and underlying data?

As a practical application, this research might focus on tailoring Porter's Five Forces to specific industries. A knowledge graph would encode the framework and link it to relevant data, enabling an AI agent to generate actionable insights.

## **New Frontiers in Knowledge Management with Generative AI**

What happens to all the knowledge of an employee that leaves the company and that they have collected in their head for the past years? This thesis investigates how generative AI can aid knowledge management by automatically collecting, extracting, and structuring expert knowledge into a knowledge graph. The research explores how AI-powered access to structured expert insights impacts businesses in terms of costs, productivity, and the creation of innovative applications and products.

The approach involves utilizing diverse input sources, such as organizational documents and structured interviews, to build a comprehensive knowledge graph. One innovative aspect includes automating the extraction of tacit knowledge from experts through AI-facilitated interviews—capturing not only what experts know but also how they apply it in practice.

The thesis aims to highlight the transformative potential of generative AI in creating dynamic, accessible knowledge repositories that drive organizational growth and innovation.