UNIVERSITY OF PASSAU

Bachelor Thesis: LLM-based Assistants in Data Analysis

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Start date: as soon as possible

Motivation and Goals

Recognizing the immense potential of large language models (LLMs) such as ChatGPT for data analysis, many companies have started integrating LLM-based assistants called "copilots" into their analytics platforms (e.g., Microsoft Copilot, SAP Joule). The goal of such assistants in data analytics is to empower users to explore their data, extract meaningful insights, and make more data-driven decisions through intuitive natural language interactions. However, it is not clear how to design AI copilots to effectively meet user needs and improve human-AI interaction.

The goal of this bachelor thesis is to gain a comprehensive understanding of the existing body of knowledge on the design of and interaction with LLM-based assistants in the context of data analysis. The investigation should be based on a systematic literature review spanning the fields of information systems, human-computer interaction, psychology, and related disciplines. The investigation should also include an analysis of current assistant or copilot solutions used in practice (e.g., Microsoft Copilot, PandasAI).

Required Skills

- Strong interest in human-AI interaction
- Good English language skills
- Preferably, experience in conducting literature reviews

Starting Literature (Topic)

Ma, P., Ding, R., Wang, S., Han, S., & Zhang, D. (2023). *Demonstration of InsightPilot: An LLM-Empowered Automated Data Exploration System* (Version 2). arXiv. https://doi.org/10.48550/ARXIV.2304.00477

Sacolick, I. (2024). Generative AI copilots: What's hype and where to drive results. *CIO Magazine*. https://www.cio.com/article/1309604/generative-ai-copilots-whats-hype-and-where-to-drive-results.html

Starting Literature (Method)

Webster, J., & Watson, R. T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly*, 26(2), xiii–xxiii. https://www.jstor.org/stable/4132319

Templier, M., & Paré, G. (2015). A framework for guiding and evaluating literature reviews. *Communications of the Association for Information Systems*, 37(1), 6. https://doi.org/10.17705/1CAIS.03706