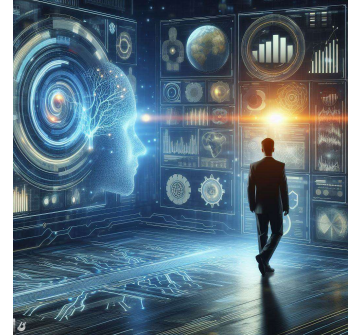## 6. Exploring the Possibilities of Using Artificial Intelligence in Business Intelligence Environments

Supervisor: **Péter Ekler, BME Department of Automation and Applied Informatics**

We invite motivated and forward-thinking individuals to participate in our research project, which focuses on the convergence of artificial intelligence and business intelligence (BI) systems. The overarching goal of this research is to revolutionize data analysis, report generation, and decision making processes within the business context.

This topic encompasses a comprehensive exploration of popular query languages, particularly SQL, and aims to investigate the feasibility of converting simple textual descriptions into declarative queries suitable for use by reporting engines. The research will delve into the design and development of AI algorithms capable of discovering the structure of legacy and undocumented data warehouses and data lakes, paving the way for enhanced data accessibility and understanding.

A key aspect of our research involves the creation of AI-based algorithms that recommend Extract, Transform, Load (ETL) jobs and transformations. These recommendations aim to streamline the structure of data schemas, making them cleaner and more efficient for subsequent report generation. The project will not only focus on traditional BI trends but will also explore the integration of AI-based predictions and Key Performance Indicator (KPI) predictions within the report generation and dashboard creation processes.

In addition, our research will extend into the domain of AI-based test generation for ETL jobs and other BI workflows, ensuring the robustness and reliability of these critical processes. One goal is defining next-generation quality metrics for BI systems and algorithms, establishing benchmarks that measure BI systems against these metrics, thus advancing the evaluation standards within the field. Furthermore, the goal is also to investigate how AI can contribute to additional tasks within BI systems, opening new avenues for innovation and efficiency.

If you are a motivated and visionary individual with a passion for artificial intelligence, data analytics, and business intelligence, we invite you to join this research endeavor. Be part of a research project that aims to redefine the landscape of BI systems, introducing novel approaches and technologies that will propel business decision-making to new heights.