AI Design Patterns for Knowledge Graphs and Generative AI

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Initiatives: Artificial Intelligence; Evolve Technology and Process Capabilities to Support D&A

> Data and analytics leaders must leverage the power of large language models (LLMs) with the robustness of knowledge graphs for fault-tolerant AI applications. These downloadable slides provide architecture guidance on a diverse set of design patterns for knowledge graph and LLM integration.

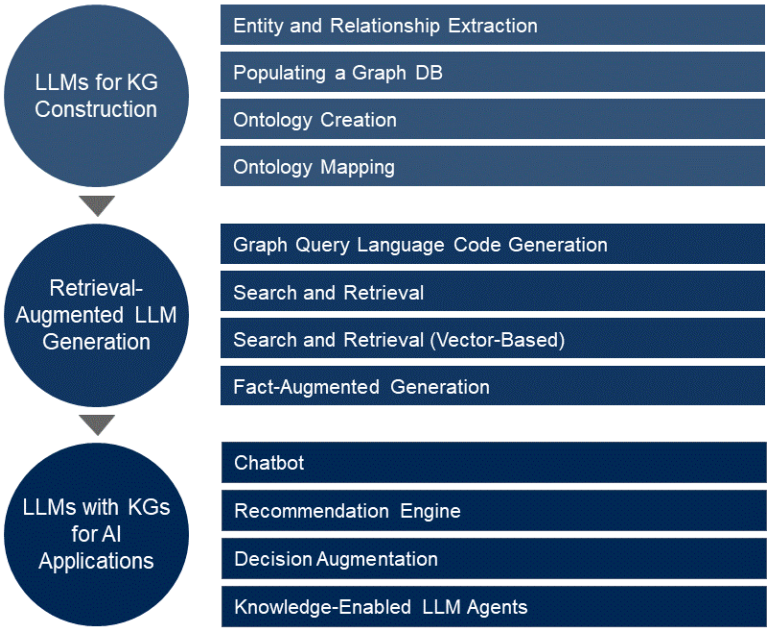
Organizations are racing ahead to implement large language models (LLMs), including applications like ChatGPT. However, data and analytics leaders struggle in understanding how to best include LLM capabilities in their systems and processes, which limits the business value they could obtain from this technology.

Knowledge graphs provide the perfect complement to LLM-based solutions where high thresholds of accuracy and correctness need to be attained. This presentation contains 12 key design patterns to implement knowledge-graph-integrated LLM capabilities. It should be used to facilitate ideation and to rightsize investment based on the design pattern's complexity and value.

Design patterns are reusable solutions to common AI and software design problems. They are not specific to a particular use case, but rather provide a set of repeatable approaches, principles and architectural blueprints that can be applied in diverse use cases. Design patterns help improve the quality, maintainability, consistency and extensibility of software systems.

Each pattern in the presentation includes high-level design illustrations, a description, benefits, drawbacks and use cases. Download the slide deck to view the patterns and explore how they could be used across enterprise solutions. Figure 1 contains the list of design patterns in this tool.

Figure 1: Knowledge Graph Augmented LLM Design Patterns



These LLM design patterns give immediate guidance for organizations to execute on short-term opportunities, and provide a target state to plan ahead for more complex implementations. Organizations must consider these design patterns as they plan and design their LLM implementations.

Recommended by the Authors

AI Design Patterns for Large Language Models

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