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Introduction

Research published in academic journals plays a crucial role in improving drug discovery by revealing new biological targets, mechanisms, and treatment strategies. To effectively tap into this wealth of information, various AI technologies can sift through large amounts of literature to uncover key insights. This helps researchers identify potential drug targets and innovative solutions more easily, fostering collaboration and speeding up the drug development process.

However, many biomedical researchers lack the expertise to use these advanced data processing techniques. Instead, they often depend on skilled data scientists and engineers who can create automated systems to interpret complex scientific data. This is where PubMiner AI comes to help such interdisciplinary teams of biomedical researchers and data scientists in their journey to knowledge extraction.

What is PubMiner AI?

PubMiner AI is a scalable, AI-enabled workflow designed to facilitate the extraction of valuable information from extensive scientific publications. It uses the Retrieval Augmented Generation (RAG) approach, with a structured knowledge graph in the retrieval step and is hosted on the Databricks platform which provides smooth integration of processing resources on the cloud. By pulling data from interlinked sources like PubMed, SemMedDB, and Ontotext's LinkedLifeData (LLD) Inventory datasets, PubMiner AI can focus only on the most relevant biomedical information.

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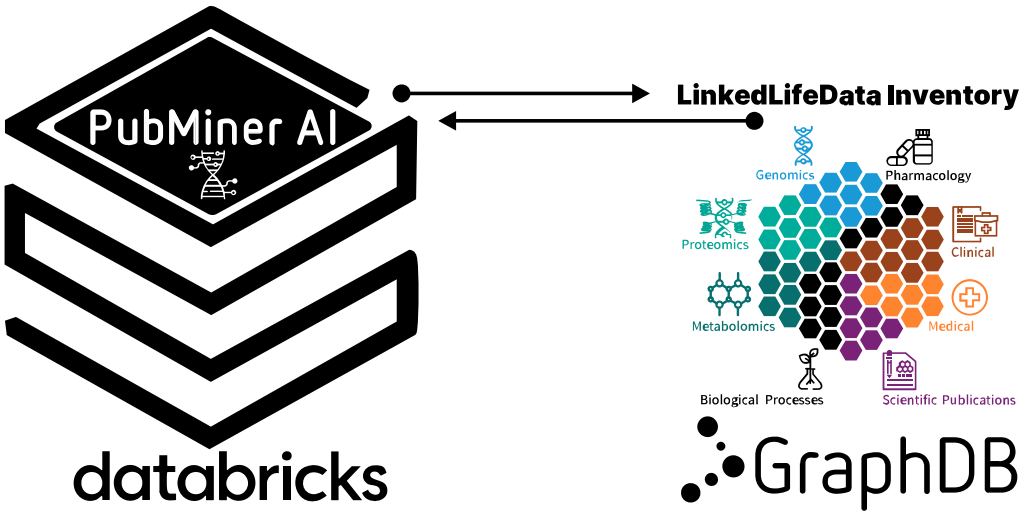

This data is then processed by a large language model (LLM) and the results are interlinked with the LLD Inventory datasets to create a knowledge graph that represents the potentially new findings of scientific interest. This method follows principles that ensure data is Findable, Accessible, Interoperable, and Reusable (FAIR), thus allowing researchers to easily integrate this knowledge into other information systems. Through AI-powered insights, graphical representations, and customizable queries, they can leverage this approach to transform vast amounts of medical data into actionable knowledge.

Using PubMiner AI as a blueprint enables any skilled data scientist with basic knowledge of semantic technologies (knowledge graphs, RDF, SPARQL, ontologies, and semantic models) to build a targeted workflow that can extract intricate relations between biomedical entities from scientific literature. The workflow allows the identification of biomedical concepts and the relations between them. It also facilitates retrieval from a highly targeted subset of documents containing relevant information for the particular use case. Finally, it enables building a subgraph representing the extracted knowledge, normalized to reference data sets.

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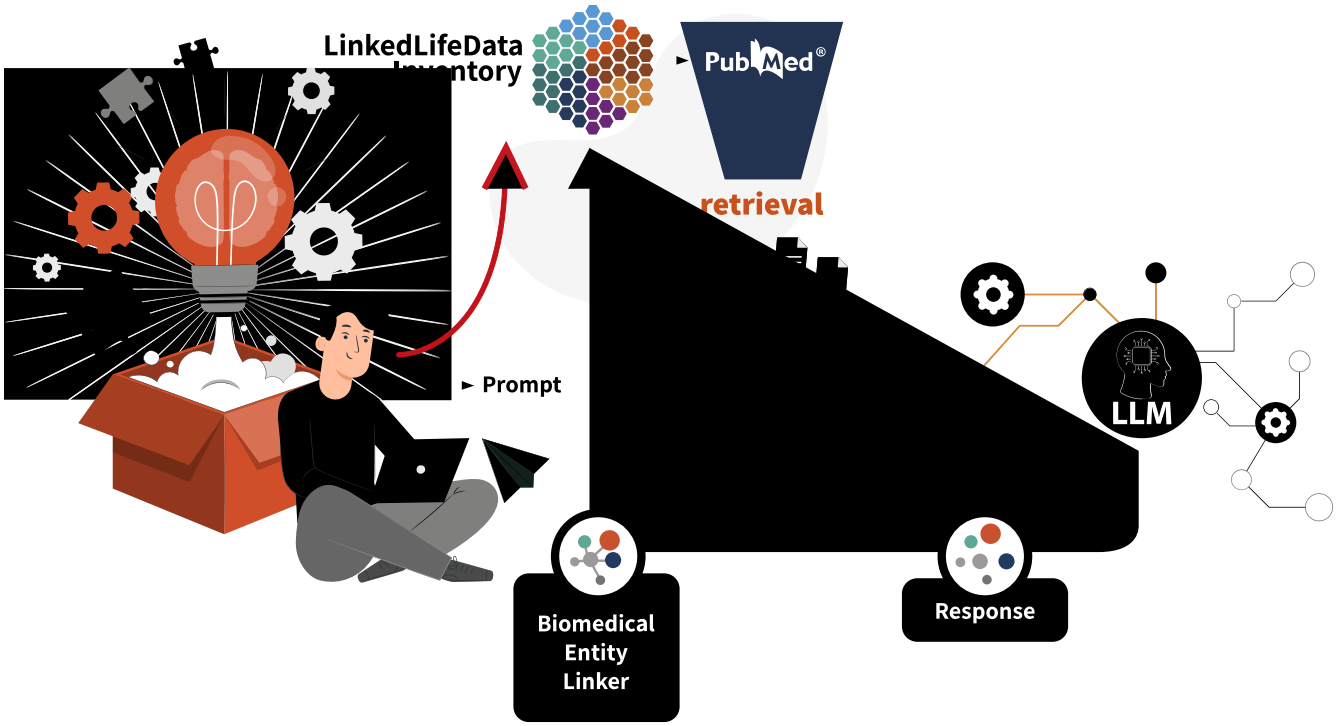

PubMiner AI key features

PubMiner AI is aimed at biomedical researchers, pharmaceutical companies, Healthcare professionals, and data scientists looking to integrate AI with knowledge graphs for enhanced biomedical literature analysis and

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