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Global Conference on
Data Science and Machine Learning (Dec 06-07, 2022)

Linked Data for factual Artificial intelligence: the necessity of Ontology and Graph based technologies

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Abstract

So, what is the evolution of data and how prepared are we for this? Big Data and AI technologies have already established their presence in almost every industry; the circumstances have now matured to bring forward AI and data integrity. But how can this be achieved? In this presentation a solution will be suggested based on defining semantic data modeling (Ontology) and applied Graph technology's for more realistic AI results, knowledge retrieval, flexible search, uncover hidden data and risk management purposes. An attempt will also be made to identify the necessity of graph technologies and their great potential in business application. Innovation and digitalization is the successor of the data Era. AI are the means to an end, not the end goal. But what is the end goal? Going beyond Big Data, we need to integrate data quality and data driven insights that will allow substantial improvement on service provision and to uncover the data-hidden knowledge. How can this be achieved though? By creating standard and universally acceptable Semantic models with the aim to produce Knowledge Graphs, a set of interlinked descriptions of entities. Why Graph technologies (Figure 1)? Some of the benefits are:

• Provide background knowledge: A benefit already in use by many successful tech companies such as Google, Amazon, and Netflix

• Flexible search: Relations are pre-existing between entities; therefore, it is computationally "cheaper" and quicker for the analyst to retrieve any requested information

• Uncover hidden data: Since relationships between data entities are pre-existed and bearing in mind the query built by the analyst is not designed to connect specific data to retrieve information, unexpected correlations between data entities may be retrieved.

• Risk Management Purposes: Drawing connections between unexpected events or information that would not be connected otherwise, allows for the quantification of risk exposure within a complex network. To summarize, in this presentation, will be suggested an Ontology and Graphs-based plan, to establish data standards and propose why this is much more important than we think, and how Knowledge Graphs promote Data Quality, Data Integrity and information exchange.

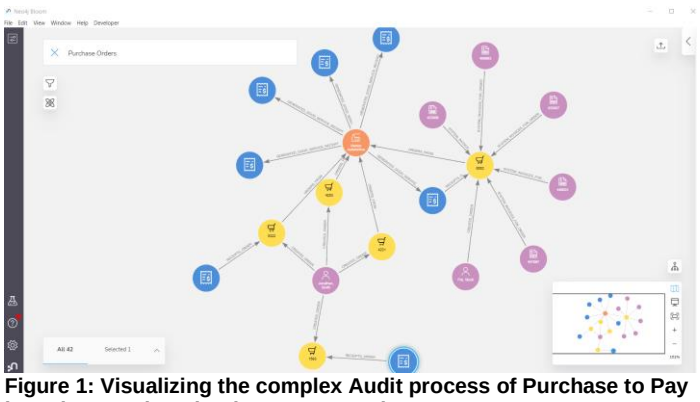


Figure 1: Visualizing the complex Audit process of Purchase to Pay by using graph technology, Neo4J, Bloom

Publications

1. Vasileiadis S., 2021. What is the difference between Ontology and Knowledge Graphs?
2. Vasileiadis S., 2016, Towards User Identification across Multiple Social Networks
3. Vasileiadis S., 2015, Mining social media: Influence of political events to social media community



Biography

Symeon is an experienced Knowledge Engineer, expert at professional services sector, with MSc in Applied data analytics. Specialized on designing ontologies, driving forward initiatives that improve operational performance and using AI technologies to convert raw data to knowledge, answer business questions and measure performance frameworks. With significant experience working with large organizations, industry experience in analyzing, developing and implementing self-serve solutions and dynamic dashboards. Strong organizational skills, insightful with attention to detail, ensure requirements are appropriately implemented within a solution.

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Notes/Comments: