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– Inaugural Lecture –

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“From Data to Knowledge: Extending Database Techniques for Knowledge Graphs”

Abstract

Modern applications like recommender systems and question answering systems can leverage models beyond traditional data representations. These novel applications build upon knowledge, which cannot be easily captured with relational data models used in databases. Instead, Knowledge Graphs (KGs) allow for modeling, in a semi-structured way, inter-connected facts or statements annotated with semantics. In KGs, concepts and entities correspond to nodes while their connections are modeled as directed and labeled edges, creating a graph.

While the models for representing relational data and KGs differ considerably, the architecture for querying databases have served as a foundation for querying KGs. However, not all the advancements in databases can be directly applied to KGs. This lecture will present some necessary extensions as well as successful applications of database techniques to efficiently execute queries over KGs. First, I will introduce the problem of query optimization and present extensions to traditional optimizers to cope with the semi-structured nature of KGs. Then, I will present the application of adaptive execution techniques to handle unexpected conditions when querying decentralized KGs. I will conclude with an outlook on future research directions, which include preliminary results on applying Deep Learning to the problem of query optimization for KGs.

When? 20th of January 2021, 04:00 PM

Where? Via [Zoom](#) (Meeting-ID: 949 6884 3467, Password: 540950)

Anyone interested is warmly welcome to the lecture. No registration is necessary.
We are looking forward to your participation!