

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE  
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# COMPUTER SCIENCE COLLOQUIUM

## Searching and Gaming on Relational Data

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**Abstract:** The first part of this talk focuses on relational keyword search (R-KWS). Under this paradigm, users access a database through simple Google-style queries. Compared to SQL, it has several benefits. First, R-KWS hides the schema from users and allows searching for combinations of terms without knowing in which data sources they appear. Second, its queries are easy to express. Third, many search tasks only become feasible through R-KWS. There are two general methodologies for query processing. Graph based (GB) systems model the database as a graph, and retrieve results by means of traversal. In contrast, (ii) operator based (OB) systems solve a query by executing a (large) set of relational operator trees. Both methods consume considerable resources, due to the vast search space, composed of all possible combinations of keyword occurrences in any attribute of every table. This talk presents homogenized R-KWS semantics, and basic query processing methods (GB as well as OB). Next, it introduces a comprehensive framework for indexing reachability along join-sequences that quickly reduces the search space, and greatly accelerates query processing. Subsequently, it extends R-KWS to continuous queries over relational data streams. Finally, we learn about searching for "relational outliers" and other oddities.

The second part of the talk explores virtual worlds (such as Second Life) and online games (for example World of Warcraft). Due to the tremendous progress in computer graphics and the immense computing power on the client side, the major bottleneck for both applications lies in efficient server organization. How many clients can a single server support simultaneously? How dynamic is the user experience? Simultaneously, users will want to search virtual worlds. But, what will they be looking for? Who will be the Google of Second Life? As it turns out, many techniques from database systems and information retrieval directly apply to these challenges.

This talk is intended for a general audience and does not require any prerequisites other than a basic understanding of the relational data model.