



In celebration of Professor Jeffrey Ullman receiving an Honorary Doctorate Degree
from Ben-Gurion University, you are invited:

Seminar in Honor of Professor Jeffrey Ullman June 7, 2016

Event details:

15:00 Gathering

15:05 Opening Remarks and Greeting:
Prof. Shlomi Dolev, **Ben-Gurion University**

15:10 **The More Things Change, The More They Stay The Same**
Prof. Yehoshua Sagiv, **Hebrew University of Jerusalem**

Abstract: The universal-relation approach to querying relational databases was quite controversial at the time when Ullman was its leading champion. Yet, it is actually a form of keyword search (over structured data) which is so ubiquitous nowadays. This talk surveys recent advances in keyword search over data graphs. In particular, it discusses efficient algorithms for generating answers, ranking techniques, and the concept of exploratory search.

15:35 **Enabling Cognitive Intelligence Queries in Relational Databases using Low-dimensional Word Embeddings**
Prof. Oded Shmueli, **Technion**

Abstract: We apply distributed language embedding methods from Natural Language Processing to assign a vector to each database entity associated token (for example, a token may be a word occurring in a table row, or the name of a column). These vectors capture the meaning of tokens based on the contexts in which the tokens appear together. To form vectors, we apply a learning method to a token sequence derived from the database. We describe various techniques for extracting token sequences from a database. The vectors can be used to algebraically quantify semantic relationships between the tokens such as similarities and analogies. Vectors enable a dual view of the data: relational and (meaningful rather than purely syntactical) text. We introduce and explore a new class of queries called cognitive intelligence (CI) queries that extract information from the database based, in part, on the relationships encoded by vectors. We have implemented a prototype system on top of Spark to exhibit the power of CI queries. Here, CI queries are realized via SQL UDFs. This power goes far beyond text extensions to relational systems due to the information encoded in vectors.

Joint work with Rajesh Bordawekar at the IBM T.J. Watson Research Center.

16:00 **Sharing-habits Based Privacy Control in Social Networks**
Prof. Ehud Gudes, **Ben-Gurion University**

Abstract: We study users' behavior in online social networks (OSN) as a means to preserve privacy. People widely use OSN for a variety of objectives and fields. Each OSN has different characteristics, requirements, and vulnerabilities of the private data shared. Sharing-habits refer to users' patterns of sharing information. These sharing-habits implied by the communication between users and their peers hide a lot of additional private information. Most users are not aware that the sensitive private information they share might leak to unauthorized users. We use several different well-known strategies from graph flows, and the sharing-habits of information flow among OSN users, to define efficient and easy to implement algorithms for ensuring privacy preservation with a predefined privacy level.

16:25 Coffee break

16:35 **Martha & Solomon Scharf Prize Event**
Prof. Jeffrey Ullman, **Stanford University**

16:45 **Big Data is More than Machine Learning**
Prof. Jeffrey Ullman, **Stanford University**

Abstract: We'll discuss two ideas that are important for exploiting "big-data": Locality-sensitive hashing (LSH) and MapReduce. LSH is a pattern for designing algorithms that allow us to find similar items without the expense of examining each pair of items. We shall illustrate the technique with an example: finding personal records that represent the same person ("entity resolution"). MapReduce is an approach to designing parallel algorithms without having to "think parallel". But it does impose some limitations on the kinds of algorithms you can implement. We'll discuss these limitations and give an interesting example: finding drug interactions.

17:45 End of Seminar in Honor of Professor Jeffrey Ullman