

RoSI workshop Großräschen 29. November 2019

Keynote Eyal Rozenberg, Technion, Israel Institute of Technology, Computer Science Department, Haifa

Title: A diamond in the rough: Theorizing column stores

Abstract: Column stores have been a 'neglected child' relative to traditional, row-oriented, relation-focused database management systems: The systems people came up with them, and the theoreticians did not really give them the time of day. This talk will discuss what happens when we pick up the slack and formalize a model for analytic computation with columns. In addition to sound conceptual grounding being its own aesthetic reward, we will touch on some of the examples of how such a formalization enables architectural and performance improvements in real-life systems:

Seamless integration of decompression and query execution; removal of special-case handling of different column features (such as nullability and variable-length elements); closure of query execution plans to partial execution; et cetera. Central to achieving such benefits will be the discussion of what constitutes a column, how columns are to be represented, and what they can represent.

Bio: Eyal Rozenberg is an independent researcher and free software developer. Eyal's doctoral research (at the Technion, Haifa) was complexity-theoretic, in combinatorial property testing; but in recent years his focus has shifted to two subjects: General-purpose GPU computing and analytic DBMS architecture. His exploration of these subjects has been on the 'seam' between Academia and Industry: After working on a proof-of-concept GPU-enabled version of MonetDB at Huawei Research, he spent a term at the CWI Amsterdam DB architectures group, pursuing directions of study inspired by the applicative work. Today his research continues independently, while working for GE Healthcare on GPU optimization of 3D medical image reconstruction. Further information on his publications and software may be found at <https://eyalroz.github.io/>