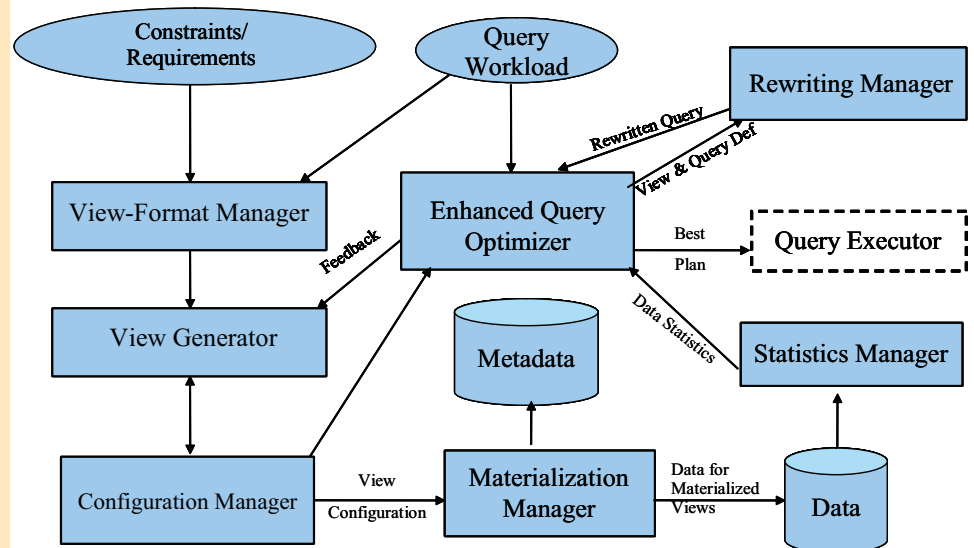


computer science

SELF-ORGANIZING DATABASES LAB

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Architecture of a self-organizing query-answering system.



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The Self-Organizing Databases Laboratory focuses on developing new effective methods to improve the performance of sets of frequent and important queries on large relational databases. Research conducted here directly impacts the technologies available for query optimization, data warehousing and information integration, influential research areas in their own right, with direct practical applications.

Research here deals with both a fundamental theoretical understanding of optimality in query-answering and database-performance, as well as with the practical aspects and methodologies of the evaluation of queries using views. This work is carried out in the broader context of designing self-organizing databases. A self-organizing database periodically determines, without human intervention, a representative set of frequent and important queries on the data and incrementally designs and precomputes the optimal views for that representative query workload. As the representative query workload and the stored data change over time, self-organizing databases adapt to the changes by changing the set of materialized views that are available to improve the query-answering performance in the database. This approach has a potential to lead to dramatic improvements in the efficiency of user interactions with many types of data-management systems.