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Enabling Relational Databases for Effective CSP Solving

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Doctor of Philosophy

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Abstract of
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Abstract

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By Sebastien Siva

Constraint satisfaction problems (CSP) are frequently solved over data residing in relational database systems. In such scenarios, the database is typically just used as a data storage back end. However, there exist important advantages, such as the wide availability of database practices and tools, to having database systems that are capable of natively modeling and solving CSPs. This research introduces general concepts and techniques to extend a database system with constraint processing capabilities. The work focuses on relational constraint satisfaction problems (RCSP) and their specification in SQL, compiling RCSP into boolean satisfiability problems, supporting multiple solving algorithms, and automated problem decomposition.

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