



Southern Illinois University System

### Applications

- Relational databases
- Distributed database access
- Data retrieval for time-critical operations

### Inventor(s)

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*Dr. Hou is a professor of computer science at SIU Carbondale. His research focuses on data structures, databases, and query optimization.*

## Method for Instant Join Query Answering

Large databases are ubiquitous in a range of industries, with most consisting of large relational tables that must be cross-referenced to access desired information. Such cross-referencing operations, referred to as “joins,” can be extremely costly in terms of computational time, often taking hours for a powerful computer to compute each query. Competing technologies such as materialized views allow for near-instant query answering, but require massive data storage resources for even limited query flexibility. Alternatively, join index technologies somewhat accelerate conventional query processing, but have limited flexibility and can still take hours to compute.

### Invention

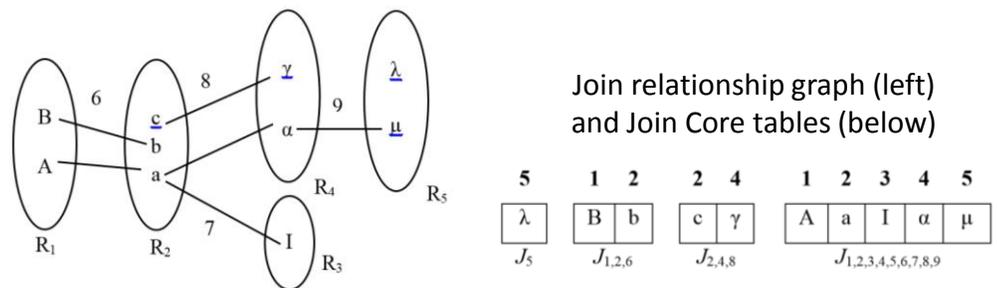
An SIU researcher has developed a data structure and accompanying method of use that deliver near-instant query results with no loss of query flexibility and manageable data storage requirements. This data structure, called the Join Core, is generated from an existing relational database. The Join Core can be used as an auxiliary data structure or can fully replace the relational database with no loss of information.

### Key Advantages

- Near-instantaneous query results, even for complex joins
- Straightforward generation of Join Core database from existing relational dataset
- Database can be dynamically updated to add, remove, or otherwise manipulate entries
- Minimal computational power required to access/generate query results, allowing for efficient distributed access to central database

### Status

A provisional patent (application No. 62/445,492) was filed for this technology in January 2017. The technology is available for license.



*Other opportunities related to this technology, included but not limited to sponsored and/or collaborative research, may be available. Please reach out to the designated contact identified at left for more information.*

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