

Dixin Tang

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Research Areas

Query Processing, Adaptable Database, Transaction Processing

Education

2015-present	PH.D. Candidate in Computer Science - The University of Chicago Advisor: Aaron Elmore
2011-2014	M.S. in Computer Science - Institute of Computing Technology, Chinese Academy of Sciences Advisor: Wei Li
2007-2011	B.S. in Software Engineering - Huazhong University of Science & Technology

Honors & Awards

2016	University Unrestricted (UU) Fellowship - The University of Chicago
2016	CERES 1st year Graduate Research Award - The University of Chicago

Research Projects

- **Adaptive Concurrency Control for Main-memory Database** Sep. 2015-Nov. 2017
We build a main-memory database that supports adaptively mixing multiple forms of concurrency control with minimal overhead. Our system can decompose the workload into partitions and selects a concurrency control protocol for each partition of workload that the protocol is optimized for, and during workload changes adaptively reconfigure the protocols online.
- **Structured Data Shuffling for Big Data Analytical Stacks** Nov. 2013-Jan. 2015
We build a structured data shuffling procedure that can leverage the semantics of SQL queries to apply efficient compression algorithms and discard unnecessary data during data shuffling.
- **A Fast and Space-efficient Join Method for Log Processing in MapReduce** Sep. 2012-Nov. 2013
We design a join method that achieves high query performance with a small extra storage cost for log processing. It shuffles the log table to avoid huge storage consumption and optimizes the shuffle procedure to achieve high query performance.

Publications

- **Dixin Tang**, Hao Jiang, Aaron J. Elmore:
Adaptive Concurrency Control: Despite the Looking Glass, One Concurrency Control Does Not Fit All.
CIDR 2017
- **Dixin Tang**, Taoying Liu, Rubao Lee, Hong Liu, Wei Li:
A Case Study of Optimizing Big Data Analytical Stacks Using Structured Data Shuffling.
BigData Congress 2016: 91-100
- Wenjuan Wang, Taoying Liu, **Dixin Tang**, Hong Liu, Wei Li, Rubao Lee:
SparkArray: An Array-Based Scientific Data Management System Built on Apache Spark.
NAS 2016: 1-10

- **Dixin Tang**, Taoying Liu, Rubao Lee, Hong Liu, Wei Li
A Case Study of Optimizing Big Data Analytical Stacks Using Structured Data Shuffling.
CLUSTER 2015: 70-73
- **Dixin Tang**, Taoying Liu, Hong Liu, Wei Li:
RHJoin: A Fast and Space-efficient Join Method for Log Processing in MapReduce.
ICPADS 2014: 975-980
- Liang Li, **Dixin Tang**, Taoying Liu, Hong Liu, Wei Li, Chenzhou Cui:
Optimizing the Join Operation on Hive to Accelerate Cross-Matching in Astronomy.
IPDPS Workshops 2014: 1735-1745

Teaching Assistant

Fall 2015 MPCS 51040 - C programming
Spring 2016 MPCS 52040 - Distributed Systems
Winter 2017 CMSC 23500 - Introduction to Database

Referees

Name Aaron Elmore
Affiliate The University of Chicago
Position Assistant Professor
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Name Wei Li
Affiliate Institute of Computing Technology
Position Associate Professor
Contact liwei@ict.ac.cn