Zheguang Zhao

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Education

Ph.D. Candidate in Computer Science, Brown University, Rhode Island, expected 2020.
Advisor: Prof. Stan Zdonik and Seny Kamara.
Thesis: *End-to-End Relational Database Encryption*

M.S. in Computer Science, Brown University, Rhode Island, 2016.
Advisor: Prof. Stan Zdonik.
Thesis: *Approximate Data Structures for Visualization*

B.S. in Computer Science, University of Wisconsin at Madison, Wisconsin, 2012.
Advisor: Prof. Jignesh Patel

Certification

Deep Learning Specialization, *Coursera / deeplearning.ai* [link]

- Neural Networks and Deep Learning
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
- Structuring Machine Learning Projects
- Convolutional Neural Networks
- Sequence Models

Technology

ML: Tensorflow, Keras; JuMP

Systems: Apache Spark, Hadoop; PostgreSQL

PL: Haskell;Scala, Java, C++; Python, Julia

Infra: Amazon EC2; Jenkins; Git; Jira; Docker

Honors

Eta Kappa Nu

Upsilon Pi Epsilon

Golden Key International Honour Society

Experiences

Los Alamos National Laboratory, 2019.

Machine learning model reconstruction of mixed dynamics in cyber-physical systems, with application to network verification and security.

Microsoft AI & Research, 2017.

Constraint learning.

Intel Labs, 2015.

Efficiency of machine learning algorithms in Apache Spark.

In-memory transactional processing using non-volatile memory.

Hadapt (Acquired by Teradata), 2013.

Enterprise SQL-on-Hadoop system including query execution, storage engine, high availability and analytics.

Kosmix (Acquired by @WalmartLabs), 2012.

In-memory distributed queue system for the in-house stream processing.

Great Lakes Bioenergy Research Center, 2010.

Scientific database for biological enzyme research.

Preprints

An Optimal Relational Database Encryption Scheme [link]
Cryptology ePrint Archive: Report 2020/274.

Learning of Cyber-Physical Systems
Advanced Network Science Initiative, Los Alamos National Laboratory, 2019.

Behavior of Large Random Graph. [link]
Randomized Algorithms for Counting, Integration and Optimization, Brown University, April 2017.

Signal Search.[link]
Brown University, April 2017.

Publications

Dynamic Query Refinement for Interactive Data Exploration
EDBT/ICDT Joint Conference, March 2020.

Investigating the Effect of the Multiple Comparisons Problem in Visual Analysis.
CHI Conference, April 2018.

Controlling False Discoveries During Interactive Data Exploration.
SIGMOD Conference, May 2017.

Safe Visual Data Exploration.
SIGMOD Conference, Demo, May 2017.

Bridging the Gap between HPC and Big Data frameworks.
VLDB Journal, 2017.

Towards Sustainable Insights.
CIDR Conference, January 2017.

Towards a Benchmark for Interactive Data Exploration.
IEEE Data Engineering Bulletin, 2016.

Larger-than-memory Data Management on Modern Storage Hardware for In-memory OLTP Database Systems.
SIGMOD DaMoN Workshop, June 2016.

VisTrees: Fast Indexes for Interactive Data Exploration.
SIGMOD HILDA Workshop, June 2016.

Data Tiering in Heterogeneous Memory Systems.
EuroSys Conference, April 2016.

Software

ML framework for Cypber-physical Systems [link]

Encrypted Spark [link]

Encrypted Searchable Signal [link]

Macau: statistical hypothesis testing based on resampling [link]

Machine learning algorithms in Spark [link]

Consistency control for machine learning algorithms [link]

R-tree in Rust[link]

Spark performance analysis tool [link]

VoltDB on non-volatile memory [link]

Reference

Prof. Stanley Zdonik, Professor at Brown University

Prof. Seny Kamara, Professor at Brown University

Dr. Emanuel Zgraggen, Postdoctoral associate at MIT

Dr. Andrey Lokhov, Los Alamos National Laboratory