

Guanting Chen

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OBJECTIVE

Research Interests: Data systems and distributed systems

I am interested in design space building up modern OLTP/OLAP database systems, particularly, efficient and adaptive access methods with its underlying data structures and storage managements that are optimized for heterogeneous workloads. I'm looking for research opportunities where I could learn more about designing ideas behind advanced data systems and dive deeper into practical research.

EDUCATION

Boston University, Boston, MA

Sept. 2018 – Present

M.S. in Computer Science

Advisor: Prof. Manos Athanassoulis

Beijing University of Technology, Beijing, China

Sept. 2013 – July. 2017

B.Eng. in Information Security

PROJECT AND RESEARCH EXPERIENCE

Benchmarking on LSM-Trees based Key/Value Store Systems and LSM-Trees' Compaction Analysis

Direct Study, advised Prof. Manos Athanassoulis

Sept. 2019 – Present

- Investigate the design space of compaction strategies in modern LSM-Tree based data systems.
- Build benchmarking infrastructure and standalone accuracy tests for Bloom filters in terms of disk I/O and point lookup performance on RocksDB, demonstrating the suboptimal allocation of its built-in Bloom filters.
- Conduct an experimental analysis of LSM-Tree compaction strategies to analyze tradeoff in compaction design, and to find out the best existing compaction strategies for heterogeneous workloads.

Distributed MapReduce and Sharded Key/Value Storage System with Fault Tolerance

Course Project and Labs on Distributed Systems

Sept. 2018 – Dec. 2018

- Developed a fault-tolerant MapReduce library applied in word count and inverted index generation.
- Implemented Raft and fault-tolerant key/value store service with log compaction on replicated state machines.
- Built a sharded key/value service on top of our distributed key/value store using Raft.

SimpleDB

Course Project and Labs on Graduate Database System

Sept. 2018 – Dec. 2018

- Developed a simple database system including implementations of storage organizations, query operators, joining algorithms and optimizer, insertion and deletion in B+Tree indexing, buffer and transaction management.

Client-Server Echo Application and Optimized Reliable Transport Protocol

Course Project on Graduate Network

Sept. 2019 – Nov. 2019

- Developed a multi-thread client-server echo application performing measurements of RTT and throughput.
- Implemented an reliable transport protocol of optimized Go-Back-N with selective repeats, which reduces 30% average communication time on a network of high packet loss rate comparing to a Selective-Repeat protocol.
- Designed a distributed and scalable password cracker based on GENI network.

Web Mining on User Profile Based on Social Network

Natural Science Foundation of China, advised by Prof. Zhen Yang

Dec.2016 – Jun. 2017

- Developed a web mining application that crawls data and predicts preference of users based on linear classification.
- Implemented the profiling model and benchmarks on model accuracy.

PUBLICATION

Chen Guanting, Zhao Hongbo, Sun Tianze, Hanjing, IPv6 Design and Deployment for Campus Network, (No. 1055357) Mobile Messages, ISSN 1009-6434

IPv6 Design and Deployment for Campus Network

Network Project of the Third Teaching Building at Beijing University of Technology

Sept. 2014 – May 2015

- Designed cabling infrastructure, IPV6 coverage and wireless system integration.
- Led the group to conduct field visits, demands and network topology analysis.

WORK AND INTERNSHIP EXPERIENCE

DataSystems Lab, MiDAS Group @ Boston University

Research Intern, advised by Manos Athanassoulis, Subhadeep Sarkar

Summer 2019

- Researched on cost models and compaction strategies in Log-Structured Merge-Tree.
- Built configurable visualizations of various LSM-Tree compaction strategies with cost models on website.
- Benchmarked and analyzed query performance on different LSM-Tree file-picking algorithms from RocksDB.

Tingyun (Beijing Networkbench Systems Corporation), China

Technical Support Engineer

Dec. 2016 – Jul. 2017

- Monitored and analyzed performance bottlenecks of applications and provided technical support with diagnosis.
- Assisted in analysis reports and optimization scheme for full-stack performance challenges.

Beijing Anbi Electronic Technology Ltd, China

Software Engineer Intern

Jun. 2016 – Sept. 2016

- Developed on web backend authorization and logging management with Django.

SKILLS AND INTERESTS

- Languages: C++/C, Java, Golang, Python, HTML/CSS/JavaScript, SQL
- Framework & Protocol: DBMS, MapReduce, Raft, TCP/IP Stack, Django, Bootstrap
- Tools: Git, Vim, RStudio, Shell, LaTeX

EXTRA-CURRICULAR-ACTIVITIES

- 2016 National University Cybersecurity Competition (X-NUCA 2016) *Jul. 2016 – Aug. 2016*
- China Internet Security Conference *Aug. 2016*
- The Finals of National College Student Skiing Competition *Mar. 2016 – Apr. 2016*
- Employment Practice Community in Beijing University of Technology *Sept. 2014 – Jun. 2015*

AWARDS

- Excellent Volunteer in Employment Conference at Beijing University of Technology, 11/2015
- Association Dedication Award for Spiritual Civilization