

# Guanting Chen

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## OBJECTIVE

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Research Interests: Data systems and distributed systems

I am interested in building data structures and design ideas in data 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 space behind advanced data systems and dive deeper into practical research.

## EDUCATION

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**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

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### **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 and tuning parameters of compaction policies in LSM-Tree based data systems.
- Build benchmarking API and standalone accuracy tests for Bloom filters on RocksDB and discover its influence on disk I/O and point lookup performance.
- Benchmarking LSM-tree compaction policies with heterogeneous workloads to analyze tradeoffs among performance metrics.

### **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.
- Emulated network conditions and analyzed performance metrics between protocols of GBN-SACK and SR.

### **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

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*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

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### **DataSystems Lab, MiDAS Group @ Boston University**

*Research Intern, advised by Manos Athanassoulis, Subhadeep Sarkar*

*Summer 2019*

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

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- 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

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- 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

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