ZHAONING KONG

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RESEARCH INTEREST

My research interests span over systems and networking, including distributed systems, OS, memory and storage systems, architecture, etc.

EDUCATION

University of California, Los Angeles — Los Angeles, U.S.
M.S. in Computer Science — *September 2018 - Present*
Advisor: Prof. Lixia Zhang, GPA: 3.96/4.00

University of Toronto — Toronto, Canada
Exchange Student in Electrical and Computer Engineering — *September 2017 - December 2017*
GPA: 3.94/4.00

Beihang University — Beijing, China
B.S. in Automation — *September 2014 - June 2018*
GPA: 91.48/100, Ranking: 2/173

PUBLICATIONS

Tianxiang Li, **Zhaoning Kong**, Spyridon Mastorakis, Lixia Zhang, "Distributed Dataset Synchronization in Disruptive Networks", The 16th International Conference on Mobile Ad-hoc and Smart Systems (IEEE MASS 19')

Zhiyi Zhang, Edward Lu, Yu Guan, Tianxiang Li, Xinyu Ma, **Zhaoning Kong**, Lixia Zhang, "Evolving Intelligent Devices for the Future via Named Data Networking", ACM XRDS Magazine, Fall 2019, Volume 26, No.1

RESEARCH

Automated Physical Design Tuning for Data Visualization *June 2019 - Current*

- Supervised by Prof. Ravi Netravali
- Investigated how current visualization applications achieve interactive latency over large datasets
- Studied how current DBMS perform automated physical design tuning
- Designed a syntax for developers to specify visualization layouts and constraint, and perform automated physical design tuning to achieve interactive latency

GitSync: Distributed Git over Named Data Networking (NDN) *June 2019 - September 2019*

- Supervised by Prof. Lixia Zhang
- Migrated Git push and fetch to run over NDN
- Removed the need for centralized Git deployment, and designed access control policies and consistency mechanisms

Named Data Networking (NDN) State Vector Sync *January 2019 - June 2019*

- Supervised by Prof. Lixia Zhang
- Designed and implemented a transport layer protocol for NDN networks, which synchronizes datasets among multiple parties
- Optimized and evaluated the protocol for mobile ad-hoc networks

RECENT PROJECTS

Repo Storage for Named Data Networking (NDN) *July 2019 - November 2019*

- Implemented a NDN Repo in python, a generic network component for NDN for preserving content

NDN Control Center *July 2019 - August 2019*

- Designed a web application for controlling and configuring local NDN Forwarding Daemon (NFD) in Flask
- Ported the web application to a desktop application using Electron

RISC-V Vector Extension in Gem5 *November 2018 - December 2018*

- Designed a subset of RISC-V vector instructions (256 bits wide) based on the existing draft
- Modified gem5 simulator to support these vector extensions in system-call emulation mode
- Compiled C and x86 assembly jointly for evaluation, showing 150% performance gain in CPU cycles

INDUSTRY

Software Engineering Intern, NetEase Beijing, China
NetEase News Search & Recommendation Team *March 2018 - June 2018*

- Worked on the back-end of a vertical search engine (80M news entities) in C++
- Replaced HTTP with Apache Kafka to support async insert/delete requests, which reduced inconsistency between search engine and data source if server goes down
- Cooperated with NLP team over Apache Thrift and Tornado to improve search results

SELECTED AWARDS

National Scholarship of China (Top 0.2% Nationwide) *Oct 2017*
Annual Outstanding Student, Beihang Univ. (Top 5%) *Oct 2017*
Scholarship for Academic Excellence, Beihang Univ. *Oct 2015, Oct 2017*

TALKS

"GitSync: Distributed Git over Named Data Networking" *Sep 2019*
NDN Community Meeting, National Institute of Standards and Technology (NIST), Gaithersburg MD

TEACHING

CS151B: Computer Systems Architecture – Teaching Assistant *Winter 2020*
CS217A: Internet Architecture & Protocols – Teaching Assistant *Fall 2019*
CS130: Software Engineering – Reader *Spring 2019*