Jiawei Zhang

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EDUCATION

Huazhong University of Science & Technology, Wuhan, China   *2019 – 2021 (expected)*

MS in Computer Architecture, GPA: 3.86/4, Rank: 11/55

Advisor: Hua Wang, Areas of Interest: Caching, Content delivery, ML for system

Chang'an University, Xi'an, China   *2014 – 2018*

BE in Network Engineering, GPA: 3.84/4, Rank: 1/32

Advisor: Jun Hou, Areas of Interest: Windows kernel security

PUBLICATIONS

Cache What You Need to Cache: Reducing Write Traffic in Cloud Cache via "One-Time-Access-Exclusion" Policy. *ACM Transaction on Storage 2020*

Hua Wang, <u>Jiawei Zhang</u>, Ping Huang, Xinbo Yi, Bin Cheng, Ke Zhou

REARCH EXPERIENCE

SSD Based Photo Cache Optimization, Group Research Project   *2018 – 2019*

- Proposed an admission policy called "one-time-access-exclusion", filtered one-time access photos, to improve cache space utilization and reduce invalid writes to SSDs after analyzing the access of characteristics of QQ albums.
- Used **machine learning** methods with some social information in the photos to train a classifier which could predict whether the photo is one-time-access or not, and its **accuracy is over 85%**.
- Applied this classifier to cache with basic replacement algorithms could **improve the hit rate by about 2.7% to 20.9%** relatively, and **the amount of data written to the SSD was significantly reduced about 59.7% to 87.3%** relatively.

WORK EXPERIENCE

Tencent Inc.   *July 2019 – Present*

Backend development Intern, Shenzhen

- **[Static CDN Cache Model System]** Developed a distributed log replay-based cache model analysis system to generate MRC (Miss Ratio Curve). Python handles logical transactions, and C++ programs are responsible for computing tasks. The main novelty is to learn from the idea of MapReduce and decompose tasks for parallel computing to save hardware resources.
- **[Characterizing CDN Cache Workloads]** Conducted detailed analysis of the IO workload from multi-tiers of the CDN cache from the perspective of recency and frequency, and applied different cache strategies (FIFO, LRU, SLRU, BloomFilter, etc.) to evaluate cache performance to gain best caching configuration for different workload characteristics. When SLRU is applied, the miss ratio can be reduced by 10%.

TEACHING

Huazhong University of Science & Technology

Algorithm Analysis & Design Teaching Assistant   *Spring 2019 / 2020*

- Mainly responsible for the preparation and teaching of experimental lessons.
- Developed experimental framework code using **C++** to test and verify students' code.

HONORS & AWARDS

National Scholarship	*2015*
National Inspirational Scholarship	*2016/17*
Outstanding graduates of Chang'an University	*2018*
Outstanding thesis award of Chang'an University	*2018*

SKILLS

C/C++, Python, VIM, GDB, SHELL