WENLONG WANG

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EDUCATION

Ph.D. student in Computer Science and Engineering, University of Minnesota 2019 - 2024(Expected)
Supervised by Professor David Hung-Chang Du. Current GPA: 3.76/4.0
BS in Computer Science and Engineering, Hong Kong University of Science and Technology 2015 - 2019
GPA: 3.67/4.3; First Honor
Exchange Student, the University of Texas at Austin Aug 2017 - Dec 2017
Exchange Student, Shanghai Jiaotong University July 2017 - Aug 2017

WORKING EXPERIENCE

Research Intern, Futurewei Storage Lab June 2022 - Aug 2022
Location: Santa Clara, CA

- Conducted experiments and analysis on the performance of the existing Learned Index.
- Performed comparative analysis between traditional and learned index on string dataset, proposing a new scheme for string learned index.

Research Intern, Alibaba Group (U.S.) Inc June 2021 - Aug 2021
Location: Sunnyvale, CA

- Optimized Flash Translation Layer (FTL) in Open-channel SSD, reducing the garbage collection overhead in RocksDB.
- Administered baseline test for RocksDB in Open-channel SSD environment (FEMU).

RESEARCH INTEREST

- Learned index, KV Store, In-memory Index, Disaggregated cloud data infrastructure, Emerging data storage technologies such as NVM, ZNS, hybrid SSD, and DNA storage.

RESEARCH PROJECTS

Efficient and Bucketized Learned In-Memory Index: A low-height and updatable in-memory learned index with lock-free concurrency support. This improved state-of-the-art in-memory learned indexes by up to 2.2x in a single-thread environment and 1.4x in a multi-thread environment.

LearnedKV: Efficient On-Disk Learned Index with LSM: An efficient KV store to support variable value length workload. The optimized design delivered performance surpassing state-of-the-art works by up to 3x in write and 1.2x in read operations.

Efficient Storage Structure for DRAM+NVM: A lightweight, easy-to-recover index for DRAM with a hash index in NVM. This achieved performance similar to state-of-the-art designs but with lower storage consumption and better adaptivity to various workloads.

VL-DNA: Enhancing DNA Storage Capacity with Variable Payload (Strand) Lengths: This project proposed a variable payload length (strand length) scheme, VL-DNA, to recover primers from primer-payload collision, thereby enhancing DNA storage capacity.

SKILLS

- Programming Languages: C/C++, Python, Matlab, JavaScript, HTML
- Spoken Languages: Fluent English, Native Mandarin