

# Liang Wang

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## Education

<b>Huazhong University of Science and Technology</b> Ph.D. in Computer Technology, Advisor: Jiguang Wan	September 2024 – June 2028 (Expected) Wuhan, China
<b>Huazhong University of Science and Technology</b> M.S. in Computer Architecture, Advisor: Jiguang Wan	September 2021 – June 2024 Wuhan, China
<b>Wuhan University</b> B.S. in Software Engineering, GPA: 3.83/4.0, Rank: 16/258	September 2017 – June 2021 Wuhan, China

## Interests

Storage Systems, Data Management, Edge Computing

## Selected Papers

### Gecko: Resource-Efficient and Accurate Queries in Real-Time Video Streams at the Edge

- **Liang Wang**, Xiaoyang Qu, Jianzong Wang, Guokuan Li, Jiguang Wan, Nan Zhang, Song Guo, Jing Xiao
- Proceedings of the 43rd Annual IEEE International Conference on Computer Communications (INFOCOM), 2024.

### Shoggoth: Towards Efficient Edge-Cloud Collaborative Real-Time Video Inference via Adaptive Online Learning

- **Liang Wang**, Kai Lu, Nan Zhang, Xiaoyang Qu, Jianzong Wang, Jiguang Wan, Guokuan Li, Jing Xiao
- Proceedings of the 60th ACM/IEEE Design Automation Conference (DAC), 2023.

## Internship Experience

**Ping An Technology (Shenzhen) Co., Ltd.** February 2022 – August 2023  
Algorithm Engineer Intern Shenzhen, China

- Worked on the **MetaEdge** project. MetaEdge is an edge AI platform with a suite of tools to build edge-based AI applications.
- Constructed the KubeEdge cluster. Developed the custom Mapper to parse and format messages to facilitate communication between IoT devices and the edge. Interfaced the MQTT Broker to TDengine via Kuiper to enable data persistence.
- Deployed Sedna on the KubeEdge cluster. Created containerized vision AI applications with the Sedna edge-cloud collaborative incremental learning framework to adapt models running on edge devices over time. Implemented the Unsupervised Hard Example Mining algorithm to automatically obtain challenging images for incremental learning.
- Developed video analytics applications using the DeepStream SDK and incorporated model merging, enabling the processing of multiple video streams in real-time when deployed on NVIDIA Jetson boards.

**Huawei Cloud Computing Technologies Co., Ltd.** November 2020 – April 2021  
Cloud Infrastructure Software Engineer Intern Shenzhen, China

- Developed **SFS Turbo 2.0**. SFS Turbo 2.0 is a distributed file system that provides high-performance, scalable file storage.
- Implemented POSIX I/O interfaces of lookup and read, ensuring seamless workflow for these operations across multiple nodes.
- Achieved non-blocking Inode ID generation during concurrent file creation, with reference to the distributed ID generator Leaf.
- Improved the system throughput by 2-3x by utilizing memory pool and coroutine libraries and upgrading SPDK/DPDK.
- Generated unit test cases (gtest) and analyzed performance issues (vdbench, mdtest, FlameGraph) for the system.

**PingCAP, Inc.** July 2019 – August 2019  
PingCAP Talent Plan Program Beijing, China

- Implemented **Index Advisor** for **TiDB**, an open-source distributed SQL database.
- Designed the index recommendation algorithm, inspired by DB2 Advisor, and enabled TiDB client-side interaction.
- Proved the effectiveness of Index Advisor by conducting TPC-DS tests, and demonstrated a 20x performance boost for some SQL queries after creating the recommended index.

## Miscellaneous

Individual Projects: **LanguorDB** (LSM-tree store engine), **MayflyCache** (Distributed cache), **HBtree** (Hybrid DRAM-NVM index)  
Finished **MIT 6.824**, **Stanford CS144** and **CMU CSAPP** computer course labs  
Submitted 20+ PRs to well-known open-source software (TiDB, Sedna, etc.)