Yuanli Wang

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EDUCATION

Boston University — Boston, MA
PhD in Computer Science — *09/2021 – Present*
- Advisor: Vasiliki Kalavri

University of Minnesota, Twin Cities — Minneapolis, MN
Master of Science in Computer Science — *09/2018 – 05/2021*

Hefei University of Technology — Anhui, China
Bachelor of Science in Computer Science — *09/2013 – 06/2017*

RESEARCH EXPERIENCE

Self-Managed Stream Processing System
Advisor: Prof. Vasiliki Kalavri, Boston University — *09/2021 – Present*
- Conduct studies on stream processing services on the cloud.

Data Heterogeneity for Performance and Reliability in Federated Learning
Advisor: Prof. Abhishek Chandra, University of Minnesota — *03/2020 – 05/2021*
- Designed scheduling and fault tolerance policy for federated learning on heterogeneous edge environments
- Implemented a distributed federated learning system on top of PyTorch with the proposed policy. Initial evaluation showed 50% reduction of training time without the loss of accuracy.
- Concluded on decentralized distributed deep learning in resource heterogeneous environments.

A Programming Framework for Building Fail-Slow Tolerant Distributed Systems
Advisor: Prof. Shuai Mu, Stony Brook University and Prof. Tianyin Xu, UIUC — *06/2020 – 03/2021*
- Built benchmark tools and tested the performance of different Raft based open-source distributed databases under fail-slow failures.
- Investigated the root cause of the performance degradation of TiDB when dealing with fail-slow failures. Reported the bugs to developers.

PUBLICATIONS

- Esmail Asyabi, **Yuanli Wang**, John Liagouris, Vasiliki Kalavri, Azer Bestavros. A New Benchmark Harness for Systematic and Robust Evaluation of Streaming State Stores. Proceedings of the Seventeenth European Conference on Computer Systems (EuroSys 2022). 2022 (To appear)
- Joel Wolfrath, Nikhil Sreekumar, Dhruv Kumar, **Yuanli Wang**, Abhishek Chandra. HACCS: Heterogeneity-Aware Clustered Client Selection for Accelerated Federated Learning. 36th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2022). 2022 (To appear)
- **Yuanli Wang**, Joel Wolfrath, Nikhil Sreekumar, Dhruv Kumar, Abhishek Chandra. Accelerated Training via Device Similarity in Federated Learning. The 4th International Workshop on Edge Systems, Analytics and Networking (EdgeSys 2021). 2021
- Andrew Yoo, **Yuanli Wang**, Ritesh Sinha, Shuai Mu, Tianyin Xu. Fail-slow fault tolerance needs programming support. The 18th Workshop on Hot Topics in Operating Systems (HotOS XVIII). 2021

PROFESSIONAL SERVICES

- **Program Committee:** EuroSys 2022 (Shadow PC)
- **Artifact Evaluation Committee:** SOSP 2021, SIGCOMM 2021

WORK EXPERIENCES

PingCAP | *Database Engineer Intern* 05/2019 – 08/2019

- Worked on AutoTiKV project from scratch: used machine learning to tune a database system under user-specific workloads.
- Implemented a Gaussian Process Regression Model to predict the performance of RocksDB(the core storage engine in TiKV) under different knob configurations. Achieved 1.3x lower latency under several types of workloads without human guidance.

TEACHING

Teaching Assistant for CSCI 5105 Distributed Systems, University of Minnesota Spring 2021

Teaching Assistant for CSCI 5103 Operating Systems, University of Minnesota Fall 2020

SELECTED AWARDS

Conference Student Grant: NSDI'21, OSDI'21

Selected entrant for 2019 Google Machine Learning Winter Camp (100 participants nationwide) 01/2019

Rank 16/183 in 2018 ACM-ICPC North Central North America Regional Contest 11/2018

Bronze Medal, China Collegiate Programming Contest 10/2015

SKILLS

Programming: C++, Python, Java, Go, Rust, Shell, SQL, Docker, Git