Jintong Liu

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Education

Ph.D., Computer Science, The Ohio State University	08/2024 – now
M.E., Computer System Architecture, Huazhong Univ. of Sci. and Tech.	09/2019 – 06/2022
B.E., Electronic Science and Technology, Huazhong Univ. of Sci. and Tech.	09/2015 – 06/2019

Research Interest

Distributed systems, storage systems, performance analysis

Publications

- **Jintong Liu**, Shenggang Wan, Xubin He. Alias-Chain: Improving Blockchain Scalability via Exploring Content Locality among Transactions, in: 36th IEEE International Parallel and Distributed Processing Symposium (**IPDPS '22**), Lyon, France, 30 May – 3 June 2022, IEEE. (Published)
- Chenglong Yi*, **Jintong Liu***, Shenggang Wan, Juntao Fang, Bin Sun, Liqiang Zhang and Changsheng Xie. Data Deduplication Based on Content Locality of Transactions to Enhance Blockchain Scalability. Transactions on Architecture and Code Optimization (**TACO**), ACM. (Accepted)

Experience

Memo Lab

Research Engineer   06/2022 – now

- Developed the production version of *Alias-Chain* by Golang, as an optimization module integrated in Ethereum. Achieved 60%-80% on-chain data shrinkage, while ensuring the compatibility and security.
- Designed frameworks and implemented modular services: (a) "Indexer" for monitoring blockchains' states and specified smart contracts. (b) "Decentralized Profile" to store users' profiles on-chain and off-chain using smart contracts and decentralized storage network. (c) Providing image search in decentralized storage network using a vector database and ResNet models. (d) "Decentralized Computing Services" for computing resource integration.

Blockchain Storage Research Center

Graduate Research Assistant   09/2019 – 06/2022

- Investigated blockchains' architecture, consensus, data structure, smart contract, etc.
- Proposed *Alias-Chain* to scale out blockchains, designed and conducted experiments on a 100-machine cluster to verify the effectiveness of the solution.
- Made an oral presentation of *Alias-Chain* at the conference IPDPS '22.

Memo Lab

Research Intern   06/2021 – 03/2022

- Implemented consensus "hotstuff", fixed some practical problems out of the paper version, achieved higher performance and non-rollback consensus by introducing lightweight optimizations.
- Designed and implemented interfaces of "Sparse Merkle Tree" for state transition and validation in state machines, optimized SMT's key-value structure to support safe multi-version management.

Intelligent Electronics Institute

Undergraduate Research Assistant   05/2017 – 09/2017

- Assisted in developing a computing and simulation platform.
- Designed and implemented a method for grid computing in genetic algorithm.

Academic Service

International Journal Reviewer: Computer Communications