Canran Wang

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EDUCATION

PhD in Computer Science, Washington University in St. Louis — St. Louis, MO
Advisor: Netanel Raviv — 2019.8 - 2024.6 (Expected)

B.S in Electrical Engineering, Virginia Polytechnic Institute and State University — Blacksburg, VA
Graduated cum laude (GPA 3.46/4.00) — 2015.8 - 2017.12

RESEARCH INTERESTS

- **Distributed System**: Fault Tolerance, Blockchain.
- **Coding Technique**: Coded Computation, Coded Storage, Network Coding.

PUBLICATIONS

1. **Canran Wang**, Netanel Raviv
   Breaking Blockchain's Communication Barrier with Coded Computation
   IEEE Journal on Selected Areas in Information Theory (JSAIT), 2022
   By employing techniques from Coded Computation and State Machine Replication, we reduce the communication complexity of a blockchain system such that it grows logarithmically with network size.

2. **Canran Wang**, Netanel Raviv
   All-to-All Encode in Synchronous Systems
   IEEE Information Theory Workshop (ITW), 2022
   We developed a collective communication operation for a scenario where every processor in a distributed system initially has a data packet and requires a processor-specific linear combination of all packets. This communication operation serves as a primitive in decentralized computation and storage systems.

3. **Canran Wang**, Netanel Raviv
   Low Latency Cross-Shard Transactions in Coded Blockchain
   IEEE International Symposium on Information Theory (ISIT), 2021
   We proposed a blockchain sharding scheme with inherent supports for cross-shard transactions, and employed distributed storage techniques in the propagation of blocks, improving latency under restricted bandwidth.

4. Xiaoyu Chen, Lening Wang, **Canran Wang**, Ran Jin
   Predictive Offloading in Mobile-Fog-Cloud enabled Cyber-manufacturing Systems
   IEEE Industrial Cyber-Physical Systems (ICPS), 2018
   We proposed a predictive computation offloading method which optimizes the offloading decisions by solving a linear programming problem constrained by latency requirements and predicted availability of devices.

ACADEMIC SERVICES

- **Reviewer**, IEEE/ACM Transactions on Networking
- **Reviewer**, IEEE Information Theory Workshop

SKILLS

Programming Languages: C, Go, Python

PROFESSIONAL EXPERIENCE

Blockchain Engineer, Xiamen Nawang Technology Co., Ltd — Beijing, China
Developed a consortium blockchain system using Hyperledger Fabric — 2018.3-2018.10

TEACHING

- **TA**, CSE 533T: Coding and Information Theory for Data Science — WashU, Spring 2022