Jin Shang

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EDUCATION

Carnegie Mellon University - School of Computer Science Pittsburgh, PA
Master of Science in Computer Science, 3.91/4.00 Aug 2019 - Dec 2020

- **Selected Courses**: Intro to Computer Systems, Distributed System, Database System, Machine Learning for PhD

New York University Abu Dhabi Abu Dhabi, UAE
Bachelor of Science in Mathematics and Computer Science, 3.90/4.00 Aug 2015 - May 2019

- **Selected Courses**: Algorithm, Computer Networks, Computer Security, Data Structure, Math Modeling, Numerical Methods, Operating Systems, Software Engineering, Statistics, Theory of Computation

INTERNSHIP EXPERIENCE

Google Sunnyvale, CA (remote)
Software Engineering Intern, Cloud AI Platform May 2020 - Aug 2020

- Implementing batch serving functionality for feature store team.

Tencent Technology, WeChat Group Shenzhen, China
Software Engineering Intern, WeChat Data Center June 2019 - Aug 2019

- Developed a real-time recommendation algorithm for WeChat Moments based on FTRL-Proximal online learning algorithm with C++; tested with WeChat's SvrKit RPC framework with 5ms training time per post and 97.4% accuracy.
- Designed and implemented a feature engineering toolkit package with Scala for Apache Flink that facilitates feature selection, concatenation, labeling and formatting, compatible with all major data formats supported by Apache Flink.
- Replaced WeChat's batch-learning algorithm with the new feature toolkit and online recommendation algorithm; reduced total processing time by over 90% for each post, resulting in 30% more user clicks within the first month of deployment.

PROJECTS

GoRaft: Raft Consensus Algorithm in Go CMU | Oct 2019 - Nov 2019

- Implemented Raft, a distributed consensus algorithm with leader election and log replication with RPC calls in GoLang.

Distributed BitCoin Miner CMU | Sep 2019 - Oct 2019

- Developing Live Sequence Protocol (LSP), a transport protocol that provides a reliable client-server communication model.
- Implementing a scalable distributed BitCoin miner system with LSP, enabling collaboration between unlimited coin miners.

Dynamic Memory Allocator (Malloc) CMU | July 2019

- Designed and developed memory allocator in C using segregated list and header compression averaging 75% utilization.

RESEARCH EXPERIENCE

Computer Aided Study of Abstract Algebraic Structures NYUAD | Sep 2017 - May 2019

- Designed an $O(n^2)$ algorithm for computing roots and homology of nilpotent Lie algebra with Mathematica and SuperLie.
- Computed for the first time Duflo-Serganova functors and double extensions of several Lie algebras with the new algorithm.

Cognitive Transmission Mechanism for Wireless IoT Sensors NYU | June 2018 - Aug 2018

- Designed an optimal mechanism of transmission for micro IoT devices with limited battery using dynamic programming.
- Tested proposed optimal algorithm which reduces power consumption by over 50% while gaining 3 times more utility.

SELECTED PAPERS

Jin Shang, Muhammad Junaid Farooq, Quanyan Zhu. "Real-Time Transmission Mechanism Design for Wireless IoT Sensors with Energy Harvesting under Power Saving Mode", under review by *IEEE Internet of Things Journal.*

Sofiane Bouarroudj, Dimitry Leites, **Jin Shang**. "Computer-aided study of double extensions of restricted Lie superalgebras preserving the non-degenerate closed 2-forms in characteristic 2", *Experimental Mathematics.*

Sofiane Bouarroudj, Dimitry Leites, Alexander Lozhechnyk, **Jin Shang**. "The roots of exceptional modular Lie superalgebras with Cartan matrix", *Arnold Mathematical Journal.*

SKILLS

Programming Languages: *C/C++, Python, GoLang, Mathematica, Scala, SQL*

Libraries and Tools: *C++ STL, Numpy, Scipy, Matplotlib, Apache Flink, Maven, PyTorch*