

EDUCATION

Carnegie Mellon University - School of Computer Science

Pittsburgh, PA

Master of Science in Computer Science, 4.05/4.00

Aug 2019 - Dec 2020

- **Selected Courses:** Advanced Deep Learning (A+), Graduate Algorithms (A+), Intro to Computer Systems, Distributed System, Database System, Machine Learning for PhD, Theorists' Toolkit.
- Teaching Assistant for Distributed Systems F20.

New York University Abu Dhabi

Abu Dhabi, UAE

Bachelor of Science in Mathematics and Computer Science, 3.897/4.00

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 Feature Store

May 2020 - Aug 2020

- Worked on Feature Store, a managed cloud service for Machine Learning teams to build, share and serve features at scale.
- Designed and implemented Feature Store's Batch Serving functionality, enabling serving large amounts of historical feature values for many entities at high throughput, typically used for generating training data for Machine Learning models.
- Completed comprehensive unit and e2e tests for Feature Store Batch Serving that covers multiple feature and entity types.
- Wrote a Python demo notebook and presented the end-to-end workflow of Feature Store to external and internal customers.

Tencent

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.

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 Go.

Distributed Bitcoin Miner

CMU | Sep 2019 - Oct 2019

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

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

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*, 1-13, 1(2019).

Sofiane Bouarroudj, Dimitry Leites, Alexander Lozhechnyk, **Jin Shang**. "The roots of exceptional modular Lie superalgebras with Cartan matrix", *Arnold Mathematical Journal*, 63-118, 6(2020).

Jin Shang, Muhammad Junaid Farooq, Quanyan Zhu. "Real-Time Transmission Mechanism Design for Wireless IoT Sensors with Energy Harvesting under Power Saving Mode", arxiv: 1812.02615

SKILLS

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

Libraries and Tools: C++ STL, Git, Numpy, Matplotlib, Apache Flink, Google Internal Tools (Blaze, CitC, Guitar, ...)