Liu Yanxiao

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SUMMARY

- Senior undergraduate student at The Chinese University of Hong Kong, Shenzhen. Major in **Electronic Information Engineering** and also fulfilled all the required coursework of **Math** degree.
- Research interests on information theory, distributed computing, networking, network coding and related topics.
- Experienced in programming(C++/Python) with strong math background, familiar with LaTex/Linux/MatLab/Julia.

RESEACH EXPERIENCE

Network Coding Lab May 2018 - Present

Assistant Researcher

- **Discrete Network Scheduling**: I am working on general network scheduling model with Prof. Shenghao Yang. Traditionally when people model scheduling of wireless communication networks, propagation delays are ignored. However, in certain situations the relatively large propagation delays should be considered. We consider a discrete scheduling model, which can benefit from propagation delays and result in better performance of the network. Moreover, we are trying to connect the discrete model with continuous model which can give us a comprehensive scheduling scheme of networks. One my paper discusses part of this work has been submitted to Infocom 2020.
- **Computer Network Measurement Framework**: It is important to be able to answer queries in real-time and infer interesting patterns on-time. Hence we need to implement measurement tools on SRAM, which has limited memory. We design a sketch-based framework to passively store information of packets and have special per-flow measurement architecture achieves optimal memory use. We use mathematical schemes to reduce noises thus resulting in a good enough estimation of patterns of data flows. It will be submitted to WCNC 2021.
- **Erasure Code**: I am doing research with Postdoctoral researcher Ximing Fu on distributed storage regenerating code. In a distributed storage system based on erasure code, when a storage node fails, information is downloaded from other nodes to repair. We proposed an efficient algorithm which can repair the failed node based on MDS code. Moreover, we study the repair metric of locality and characterize an information theoretic tradeoff that binds together the locality, code distance, and storage capacity of each node. We use binary operations only instead of expensive computation on large finite field. Part of this work would be submitted to ICC 2021.

Shenzhen Key Laboratory of IoT Intelligent Systems and WirelessNetwork Technology May 2018 - Present

Researcher and Software Engineer CUHKSZ

- Participated in Batched Sprase Code network coding project for Hong Kong government's "Intelligent Lamp" project.
- Research experience on different communication protocols and distributed storage coding. Our team has implemented the Batched Sparse Protocol designed by Shenghao Yang and did tests to improve performance.
- Experienced in programming with Python and C++ with a team and developing on Linux.

EDUCATION & PRIZES

The Chinese University of Hong Kong, Shenzhen Sep 2017 - Jun 2021

Electronic Information Engineering, School of Science and Engineering Shenzhen

- Undergraduate Research Award(2018)
- The Mathematical Contest in Modeling, Honorable Winner.

Peking University Jul 2018 - Aug 2018

Computer Science Summer School

Summer courses in deep learning and computer vision. I led a team to implement and improve an outdoor scene text-detection algorithm, which is called "EAST(An Efficient and Accurate Scene Text Detector)" and was highly graded.

COURSES & TEACHING

High-Level Courses

- CIE6126: Performance Evaluation of Communication Networks(graduate school course, EIE4006).
- CSC4005: Distributed and Parallel Computing, used MPI and CUDA to solve problems like heat distribution.

Teaching Assistance

- CIE6010: Optimization Theory and Algorithm(graduate school course, teaching assistant)
- 7 courses about entry-level economics and English academic writing.

INDUSTRY INTERNSHIP

Pingan Technology, Aug 2020 - Oct 2020

Data scientist Intern, Team of Konwledge Graph Shenzhen

- Research and implementation experience on algorithms and models of natural language processing, eg. Bert.
- Software development with Java, develop an intelligent answering system, train and deploy the model to servers.
- Data management and analysis, familiar with pandas, SQL and databases.