

Yanxiao Liu

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SUMMARY

- Senior undergraduate student at The Chinese University of Hong Kong, Shenzhen. Major in **Electronic Information Engineering** and also completed nearly all the required coursework to graduate with a **Mathematics** degree.
- Experienced in programming(C++/Python) with strong math background, familiar with LaTeX/Linux/MatLab/Julia.
- Research Areas:** information theory, wireless communication, distributed computing, networking, network coding.
- Fluent in both English and Chinese. TOEFL: 105; GRE: 328.

PUBLICATION

IEEE INFOCOM 2021

Rate Region of Scheduling a Wireless Network with Discrete Propagation Delays(accepted and to be published)

RESEACH EXPERIENCE

Network Coding Lab

May 2018 - Present

Assistant Researcher

- Discrete Network Scheduling:** I am working on network scheduling model with Prof. Shenghao Yang. Traditionally when people model scheduling of communication networks, propagation delays are ignored. However, in certain situations they should be considered. We consider a discrete scheduling model exploiting the propagation delays. The results can also benefit our study on Network Utility Maximization. One paper discusses part of this work has been strongly accepted to **Infocom 2020**(with one reviewer: possible Best Paper Award candidate (5)). We will submit a full version to IEEE Transactions on Information Theory this year. We are working on connecting this model with continuous model. It gives us a comprehensive scheduling scheme of networks. This work will be submitted to ISIT 2021.
- Erasure Code:** I am doing research with Postdoctoral fellow Ximing Fu on distributed storage and regenerating code. In a distributed storage system based on erasure codes, when a storage node fails, information flows from other nodes to repair it. We proposed an efficient algorithm with a low complexity based on shift-XOR construction. 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. This work will be submitted to a top conference this year.
- Computer Network Measurement Framework:** I worked with Prof. Muhammad Shahzad in NCSU on networking. It is important to be able to answer queries in real-time and infer interesting patterns on-time, but SRAM has only a limited memory. From an information theoretic perspective, we design a compact sketch-based framework to passively store information of packets. We use mathematical schemes to reduce noises thus resulting in a good enough estimation of patterns of data flows, while only use limited memory. It has been finished and will be submitted to IFIP 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 Prof. 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, double code with EIE4006).
- EE field: Distributed computing, network economics, microprocessor and computer system, wireless communications...
- Math field: Differential geometry, real analysis, functional analysis, game theory, partial differential equations, stochastic differential equations, graph theory, non-convex optimization, abstract algebra, stochastic process, advanced statistics...

Teaching Assistance

- CIE6010: Optimization Theory and Algorithm(graduate school course, teaching assistant, supervised by Prof. Stark Draper)
- 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

- 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.

Extra-curricular Activities

- Founder and manager of college's badminton team. Marathon runner.
- Founder and president of Philosophy Student Society in School of Humanities and Social Science.
- Leader of teaching assistants for English Reading courses, have held 10+ lectures sharing different books.
- Organized large-scale charity sales for three times, did volunteer works for many activities.