

Zirui Liu

(+86)188-1070-3566 | zirui.liu@pku.edu.cn

EDUCATION

Peking University

B.S. in Computer Science, Yuanpei College

Beijing, China

Aug 2016 - Jul 2021 (Expected)

- **Overall GPA: 3.802/4.0** (Top 5%)
- **Courses:** Computer Networks (Honor Track) & Practice (95 & 95), Data Structure and Algorithm & Practice (91.5 & 93), Practice of Programming in C&C++ (91), Computer Architectures (95), Advanced Mathematics (95), Advanced Algebra (94), Lab. on Operating Systems (94)
- **Skills:** C&C++, Python, Go, Matlab | Flask, OpenGL, TensorFlow | Linux, Git, L^AT_EX | English (GRE 154+167+3)
- **Awards:** Award for Academic Excellence (2018-2019, Top 10%), Kwang-Hua Scholarship (2016-2017, Top 6%), Award for Contribution in Student Organizations (2016-2017), Freshman Scholarship (2016)

RESEARCH INTEREST

My research interests lie in the general area of Networks and Database, particularly in Network Measurement, Data Streaming Algorithms and P2P Networks. I find it excited to design and polish new data structures & algorithms. I'm also interested in other areas of computer science, for example, graphics and rendering.

RESEARCH EXPERIENCE

Institute of Network Computing and Information Systems

Research Intern

Supervised by *Prof. Tong Yang*

- **Coded Blockchain with Less Broadcast Traffic** Dec 2019 - Present
 - We aim to improve the broadcast traffic of Blockchain networks by applying RS Codes.
 - Responsible for investigating and implementing the RS Codes and a self-adaptive broadcast mechanism.
- **Twin-Prime Hash Table** Oct 2019 - Present
 - We proposed a constant hash table based on twin prime, which significantly outperforms state-of-the-art in fields including multi-set conciliation, memorization of streaming data, packet loss detection, etc.
 - Responsible for comparing our algorithm with [FlowRadar](#), [LossRadar](#) and writing paper.

COURSE PROJECTS

- **SmartClinic - A Newer Way to Manage Patients and Clinical Records ([Github](#))** May 2020
 - We build a web system that supports patient information management and COVID-19 carrier prediction. This project is based on Flask, PyTorch, Nginx, Unicorn and Docker. We deployed this project [here](#).
- **A Monte Carlo Sampling Ray-Tracing Renderer** Jul 2019
 - It supports the mixture of direct light sampling and random sampling, and some features like noise texture, contoured volume and BVH are added.
- **An Exploration of Maximum Clique Problem using Local Search Algorithm** Dec 2018
 - Implemented and improved [NuMVC](#) algorithm and won the highest scores in the final assignment of Practice of Data Structure and Algorithm course.

TEACHING EXPERIENCE

Peking University

Course: Rapid Prototyping in Innovations

Instructor: Prof. Jiang Chen

Teaching Assistant

Sept 2018 - Dec 2018

EXTRACURRICULAR ACTIVITIES

[Linux Club of Peking University \(LCPU\)](#) , president

Sept 2019 - Present

[Lee Shiu Leadership Programme](#) at NUS and CUHK

Jul 2018