

EDUCATION

Duke University Aug 2022 – May 2024

M. Eng. in Electrical and Computer Engineering – Software Development GPA 4.0/4.0 (ranked top 1%)

Coursework: Software Engineering, System Programming, Computer Security, Computer Architecture

The Chinese University of Hong Kong, Shenzhen Aug 2018 – May 2022

B.Sc. in Statistics - Data Science, Graduate with First Class Honors, GPA 3.76/4.0 (ranked top 3%)

Coursework: Deep Learning, Database Systems, Optimization, Linear Algebra, Machine Learning

PUBLICATION

Mai, Xuan, **Quanzhi Fu**, and Yi Chen. "Packet routing with graph attention multi-agent reinforcement learning." *2021 IEEE Global Communications Conference (GLOBECOM)*. IEEE, 2021.

INTERNSHIP EXPERIENCE

Alibaba Cloud- Software Engineer Intern (System and Infrastructure) May 2023 – Aug 2023

Key Technology: Kubernetes, Docker, Containerd, OpenKruise, Linux Network Stack, Golang

- Collaborated on **Network Service Mesh (NSM)** which provides network integration
- Implemented **hot-upgrade** functionality for NSM's sidecar, achieved seamless migration of services
- Reviewed **Linux Network Stack** source code and prepared design documents for **CoreDNS**, listeners and connections transfer components respectively
- Summarized potential states and designed a synchronization protocol using **Unix Domain Sockets** for state transfer and reconstruction.
- Built and distributed the component with **Chorus** and automated end-to-end testing using **Python**
- Deployed the components to production clusters for Serverless Engine and Micro-Service Engine supporting daily peak traffic **80Gbps**

RESEARCH EXPERIENCE

Probabilistic Safe Reinforcement Learning for Autonomous Vehicle Ramp Merging Jun 2021 – Aug 2021

Research Assistant; Advisor: Prof. John M. Dolan Carnegie Mellon University

- Eliminated the avoid constraint violation issue by introducing the **Control Barrier Function** and successfully developing a safety-assured Reinforcement Learning algorithm
- Verified optimal performance of the RL algorithm through timely performance testing within the simulated environments using **PyTorch**
- **Research report collected on RISS journal (2021) [Link]**

Adaptive Network Routing based on Reinforcement Learning Jul 2020 – Jul 2021

Research Assistant; Advisor: Prof. Yi Chen The Chinese University of Hong Kong, Shenzhen

- Proposed a **multi-agent deep reinforcement learning** solution for the routing problem using graph layers
- Implemented reinforcement learning algorithms like **A3C**, **PPO** on the testing framework using **PyTorch**, automated experiments process through **Jupyter Lab**
- **Paper published on IEEE Globecom (2021) [Link]**

TEACHING EXPERIENCE

INFOSCI102 Computation & Problem Solving: Teaching Assistant Mar 2023 – May 2023

- Intensively revised the assignment and developed auto-grader for the assignment.
- Developed the final project for the course demonstrate concepts of software engineering practices
- Nominated by multiple undergraduate students as **Best TA ever**

STATS101 Introduction to Applied Statistical Methods: Teaching Assistant Oct 2022 – Dec 2022

- Developed an *R-tutorial for Absolute Beginner* illustrate the basic programming in R
- Held weekly office hour and graded assignments

Reinforcement Learning Seminar: Leader & Instructor of Several Chapters Jun 2021 – Aug 2021

- Acquired comprehensive Reinforcement Learning knowledge by organizing 8 weekly learning sessions, extensive theoretical research, and communication with attendees, including 2 professors and 5 PhD students

SKILLS

Programming Language: Golang, C/C++, Java, Python (Pytorch, Skitlearn, Pandas, Matplotlib), MySQL

Development Tool: Unix, Git, Vim, Valgrind, Make, Kubernetes, Docker, Linux