



Ziyang Song

Master's student in Electrical Engineering / Computer Science

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Summary

I have a solid foundation in networked systems, algorithms and communication engineering with both hardware and software experiences. I am interested in privacy preservation, heuristic algorithms and networked security topics, especially post-quantum cryptography applications emerging multi-agents intelligence. I am an easygoing person who is nice to work with.

Education

KTH Royal Institute of Technology

Stockholm, Sweden

GPA 4.58/5.0

🔗 <https://www.kth.se>

Track: Networked Systems

Thesis Project: Privacy-preserving Machine Learning with Homomorphic Encryption among Multi-parties (CKKS, Python & C++)

[Full Version>>](#)

Technical Courses: Internetworking, Signal Theory, Networked System Security, Digital Communication, Queuing Theory & Teletraffic Systems, Wireless Networks, SDN & NFV, etc.

Aug. 2022 - Present

M.Sc. Information and Network Engineering

EPFL

Lausanne, Switzerland

🔗 <https://www.epfl.ch>

Technical Courses: Machine Learning, Distributed Computing, Concurrent Algorithms, Intelligent Agents

Semester Project: Simple Network Emulator [Github>>](#)

Aug. 2023 - Feb. 2024

Exchange Student

Harbin Institute of Technology, Shenzhen

Shenzhen, China

GPA 88.5/100

🔗 <https://www.hitsz.edu.cn>

Technical Courses: Image Processing, Information Theory, Mobile Communication, Digital Signal Processing, Image Processing, Biomedical Electronics, Electromagnetic Theory, Complex Variable Functions, Differential Equations, Convex Optimizations, etc.

Base Courses: Calculus, Linear Algebra & Geometry, Probabilities & Statistics, Signals & Systems, Computer Theory, Electronic Circuits, Physics, Simulations

Aug. 2019 - Jun. 2023

B.Eng. Electronic and Information Engineering

Certifications

Huawei Sweden Hackathon

Final List

Dec. 2022

Computer System Development Capability Competition

National Third Prize

Jun. 2022

MCM/ICM COMAP

Successful Participants

Feb. 2022

Software and Information Technology Competition

National Merit Prize, Provincial First Prize

Apr. 2021

Projects

Simple Network Emulator

Jun. 2023 - Jan. 2024

Semester Project

- Emulator in Linux.

Programmed in C++, it provides a plug-and-play testing network and allows users to configure multiple distributed processes with different pseudo IP and port and arbitrary delay matrix and connectivity. It inherited from the UDP structure and is added TCP support. [More >>](#)

SDN & NFV

Apr. 2024 - Jun. 2024

Course Project

- Use POX and Click to implement basic functions

Project in Python implementing a network topology with public, demilitarized, and private zones. SDN part with controller, firewalls; NFV part with IDS, load balancer, and NAPT. [More >>](#)

Projects

Building Networked System Security

Jan. 2023 - Mar. 2023

Course Project

- Demo networked system setup for a company.

It is a team-of-3 project implementing security methods (certificates, encryptions, VPNs, etc.) to a functional server (web services and file transfers). I use OpenSSL programming to generate root and intermediate CA, maintain and manage database, and issue certificates with authentication and revocation test. [More >>](#)

Electronics Process Summer Internship

Jun. 2021 - Jul. 2021

Training

- Audio player with multiple functions.

It is by MSP430 series mini-controller programming in C, using infrared & ultrasound sensors for simple gesture detections of pause / play / next, with an 8*8 LED array to display figures matching the rhythm of music, assembling with laser-cutting outer package made in CAD. [More >>](#)

Quad-rotor Drone Simulation

Oct. 2021 - Mar. 2022

Club Project

- Basic simulation of drone with sensors, inspired by Brian Douglas.

Raspberry PI micro-controller-based programming in Micro Python, using PID control in velocity loop for rotor control, using Simulink to calibrate the transfer function, using wireless communication port to connect & expanding the control system into the algorithm of auto cruising, obstacles avoiding & route planning, and ensuring stability. [More >>](#)

WeChat Mini-program for Maker-space

Nov. 2020 - May 2021

Club Project

- Online mobile-adapted WeChat Mini-program, published in App store.

This project is for club information's release & promotion. Main functions are real-time news & message synchronization with HITsz official website, club's media articles updating, and club member info-integration. Elegant UI front-end design based on HTML / CSS, reference to open resource, friendly interaction & smooth vision. [More >>](#)

Student Activities

Class Assistant

Sep. 2019 – Jun. 2022

Publicity Committee

Organizing in-class activities, making posters, editing news, taking photos and running class social media.

Microsoft Students' Club

Oct. 2019 – Aug. 2021

Member, Club Director

Managing lecturing activities, creativity contests and students science festivals, running annual projects.

ACM Contest Team

Oct. 2020 – Feb. 2022

Member

Training coding skills in C++ in a team of 3 to get nominated participating algorithm contests, ACM/ICPC, CCPC etc.

Awards

General Student Scholarship

2024

Granted for good academic performance in 1st year master studies

SEMP Student Grant

2023

Granted for subsidy in exchange study in Switzerland (2nd year master autumn semester)

Scholarship for Abroad Students

2022

Granted for subsidy student studying abroad with excellent academic performance (1st year master)

Scholarship for Undergraduates

2021

Granted for great academic performance and extra-curricular competition awards (2nd year bachelor)

Scholarship for New-admitted Undergraduates

2019

Granted for admitted student with excellent CEE scores (1st year bachelor)

Languages

Chinese (Cantonese, Mandarin)

Native Speaker

English

Fluent, C1/C2

Japanese

Intermediate, N3

Swedish, French

Beginner (SFI 3C), A1/A2

Skills

Programming Languages



C/C++, Python, Matlab

Formatting Languages



HTML, Markdown, LaTeX

OS, Workflow & Softwares



Linux, Git, Adobe PS, VScode

Micro-controller & Hardwares



Raspberry Pi, TI MSP430, Multisim, AutoCAD

Interests

Swimming

Former Athlete with National II Certificate

Photography

Seize the moments of travel, Capture the beauties of life

Blog

To read, to learn, To write, to think