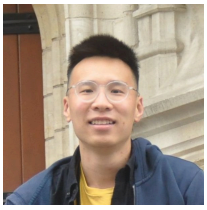

Ziyang Song

Master's Graduate 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 mechanisms with applications emerging multi-agents intelligence. I am an easygoing person who is nice to work with.

Education

KTH Royal Institute of Technology **Aug. 2022 - Jan. 2025**
Stockholm, Sweden M.Sc. Information and Network Engineering (2 years)
GPA 4.6/5.0
https://www.kth.se

Track: Networked Systems

Degree Project: Privacy-preserving Machine Learning with Homomorphic Encryption among Multi-parties (CKKS, Python & C++) *Awarded with Scholarship in 2025* **Full Version Thesis>>**

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

EPFL **Aug. 2023 - Feb. 2024**
Lausanne, Switzerland Exchange Student, Computer Science (1 semester)
https://www.epfl.ch

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

Semester Project: Simple Network Emulator **Github>>**

Harbin Institute of Technology, Shenzhen **Aug. 2019 - Jun. 2023**
B.Eng. Electtical and Information Engineering (3 years)
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

Guangdong Experimental High School **Aug. 2016 - Jun. 2019**
Guangzhou, China High School (3 years)
CEE 632/750, Science Track
http://gdsyzx.edu.cn

Publications

Privacy-Preserving Convolutional Neural Networks Using Homomorphic Encryption: An Implementation of ResNet-20 on CIFAR-10 **(Ongoing)**
INFOCOM 2025 Workshop

Profiles

ziyang.song
Linkedin

Certifications

Huawei Sweden Hackathon
Dec. 2022

Final List

Computer System Development Capability Competition
Jun. 2022

National Third Prize

MCM/ICM COMAP
Feb. 2022

Successful Participants

Software and Information Technology Competition
Apr. 2021

National Merit Prize, Provincial First Prize

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 >>

Software-Defined Networking & Network Function Virtualization **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 >>**

Earlier 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**
Integrated 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.

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

Languages

Chinese (Cantonese, Mandarin)

Native Speaker

English

Fluent, C1/C2

Japanese

Intermediate, N3

Swedish, French

Beginner (SFI 3C), A1/A2

References

Aws Jaber
Postdoctoral Researcher
https://www.kth.se/profile/awsj

Email: awsj@kth.se
Affiliation: KTH Royal Institute of Technology, Division of Network and Systems Engineering (NSE)

Panagiotis Papadimitratos
Professor
https://www.kth.se/profile/papadim

Email: papadim@kth.se
Affiliation: KTH Royal Institute of Technology, Division of Software and Computer Systems (SCS)

Gauthier Voron
Postdoctoral Researcher
https://people.epfl.ch/gauthier.voron

Email: gauthier.voron@epfl.ch
Affiliation: EPFL, IC IINFCOM Distributed Computing Laboratory (DCL)

Awards

ISSLS2000 for Degree Project
2025

Granted for writing an insightful degree project of high level, with results expected in contributing to the development in the field of networks and communications

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)