Shuze Liu

Mobile: +1 669-325-9963 | **Email**: sliu11@scu.edu
Address: 500 EL CAMINO REAL SANTA CLARA, CA 95053-1143

EDUCATION

Sun Yat-Sen University (Guangzhou, China) **09/2020-06/2024**
Major: Software Engineering
Degree: Bachelor of Engineering
Relevant Coursework: Mathematical Analysis, Computer Programming, Principles of Computer Organization, Data Structures and Algorithms, Principles of Operating Systems, Artificial Intelligence, Signals and Systems, Java and Object-oriented Design, Computer Graphics, Computer Networks, Principles of Database Systems, Cloud Computing Technology

Santa Clara University (Santa Clara, CA) **09/2024-Present**
Major: Computer Science and Engineering
Degree: Master of Science (expected in July 2026)
Relevant Coursework: Artificial Intelligence, Network Technology

SKILLS & LANGUAGES

Computer Skills: Proficient in C++, C, JAVA, Python; Basic application of MySQL, Objective-c
Languages: Chinese (native); English (fluent)

PUBLICATION

Analysis of Path Planning of UAV in Short-distance Logistics Application, Shijia Guo†, Xuan Li† and Shuze Liu†, CONF-MSS 2023 06/2023

RESEARCH

Asynchronous Federated Learning Research *(Ongoing, Supervisor: Xiao Li)* Santa Clara, CA
Independent Research 09/2025-present

- Reproduced the FedLC (asynchronous federated learning with local collaboration) algorithm from existing literature, designed for edge computing environments.
- Extending the original two-tier design into a three-tier hierarchical architecture (client–server–meta server) to enhance scalability and mitigate communication delays. Additionally, improving the experimental framework with visualization tools and EMNIST evaluation.
- Ongoing work focuses on implementing the extended architecture in code and conducting experiments on non-IID benchmarks.

Automated Garbage Classification with CNN and ResNet34 Santa Clara, CA
Team Member 05/2025-06/2025

- Designed and implemented deep learning models (custom 7-layer CNN, ResNet34) for six-category garbage classification on the TrashNet dataset (2,500+ images).
- CNN reached 64.7% test accuracy with fast convergence but clear overfitting, while ResNet34 achieved 75.8% test accuracy with stable loss curves and stronger generalization.
- Confusion matrix analysis showed ResNet34 reduced misclassification in most classes (e.g., paper and cardboard).

Network measurement reconstruction method based on deep neural network *(Bachelor Thesis, Supervisor: Prof. Yi XIE)* Guangzhou, China
Independent Research 05/2023-06/2024

- Conducted research on reconstructing missing network traffic measurements using deep neural networks (DNN).
- Built simulation environment with OMNeT++, generated random and real-world traffic datasets, and preprocessed pcap files for model input.
- Implemented and trained models in PyTorch, using ReLU activation and SmoothL1Loss, achieving high reconstruction accuracy at optimal learning rate (0.001).
- Compared against tensor-completion methods, showing DNN's advantage in modeling nonlinear traffic relationships.

Study UAV Path Planning Using MATLAB *(Supervisor: Peng Lu, HKU)* Online
Team Member 01/2023-02/2023

- Explored some algorithms for UAV path planning, including the A* algorithm, genetic algorithm, and bionic

algorithm
- Simulated the drone controller through MATLAB and Simulink
- Conducted the simulation of a variety of UAV path planning algorithms in MATLAB and completed the publication of the paper

PROJECTS

Using MySQL and Java to Implement the Library Management System Guangzhou, China
Independent Project 12/2022-01/2023
- Used Powerdesigner to design the conceptual, logical, and physical structures for your database
- Employed MySQL to implement the database according to the designed structure and used Java to write programs to operate the database

Configuring the Network Topology on the Cisco Packet Tracer Guangzhou, China
Independent Project 12/2022-01/2023
- Configured the dynamic routing protocol for the routers in the topology
- Responsible for configuring the virtual LAN for the devices in the topology

Developing Chat Applications Using Java Guangzhou, China
Independent Project 09/2022-01/2023
- Realized multithreading, TCP/UDP communication through Java
- Designed UI to process the database at the same time

ACTIVITIES

Serving as the Organizer of the General Affairs Department, School of Computer Science, responsible for the communication between departments, arranging internal activities, and financial work 10/2020-07/2022
Serving as a member of East Campus Radio Station, Sun Yat-sen University, participated in the activities of the radio station and shot promotional videos 10/2020-07/2021