

Siyuan Lu

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Education

Guangdong University of Technology

Guangzhou, China

M.Eng., majoring in Control Science and Engineering

Sep 2022-Jun 2025

- WAM: 85.3/100 (top 2%)
- Major Courses: Adaptive Processing and Navigation Applications (92), 5G+Intelligent Manufacturing (94), Optimization Theory and Methods (83), Automation Science and Technology (87).

Jiangsu University of Science and Technology

Jiangsu, China

B.Eng., majoring in Automation

Sep 2018-Jun 2022

- WAM: 84/100 (top 5%)
- Major Courses: Advanced Mathematics A1 (94), Linear Algebra (90), Computer Programming Language (91), Automatic Control Theory (95), Java Programming (96)

Publications

- **Siyuan Lu**, Weiliang Zeng, Xueshi Li, Jiajun Ou. *Adaptive lightweight network construction method for Self-Knowledge Distillation*. Neurocomputing, JCR Q1 TOP. [Link: [10.1016/j.neucom.2025.129477](https://doi.org/10.1016/j.neucom.2025.129477)]
- **Siyuan Lu**, Jiajun Ou, Weiliang Zeng. *SE-DARTS: Lightweight Neural Architecture Search Based on Spatial Compression*. Submitted to Machine Learning. [Link: [10.13140/RG.2.2.17829.97760](https://arxiv.org/abs/10.13140/RG.2.2.17829.97760)]
- Jiajun Ou, Weiliang Zeng, Siyu Chen, **Siyuan Lu**. *YOLO-DeepSORT Empowered UAV-based Traffic Behavior Analysis: A Novel Trajectory Extraction Tool for Traffic Moving Objects at Intersections*. IEEE CSIS-IAC 2025.
- Jiajun Ou, Weiliang Zeng, Siyu Chen, Feng Zhu, **Siyuan Lu**. *UAV-based Deep Learning Framework for Accurate Detection and Tracking of Traffic Participants in Urban Environments*. Submitted to Measurement.

Research Experience

Designing efficient deep learning model architectures

Sep 2024 – Jun 2025

Position: Research Assistant, Advisor: Prof. Weiliang Zeng

- Designing efficient and adaptive neural network models, including designing and optimizing the model from the perspective of network architecture parameters and weight parameters. This method can realize the automated design of neural networks.
- From the perspective of lightweight, a reinforcement learning-inspired method is developed to compress neural networks and alleviate the performance loss caused by compression through knowledge distillation. A training-free performance indicator is proposed to evaluate the distillability of neural networks.

Adaptive Lightweight Self-Knowledge Distillation Network Construction Method

Sep 2022 – Jun 2023

Position: Research Assistant, Advisor: Prof. Weiliang Zeng; Prof. Xueshi Li

- Engineering two-stage adaptive dynamic distillation network framework to adjust the architecture according to the distillability of the current architecture, including the hypernetwork topology construction stage and the sub-network training stage.
- Evaluating the network's distillation performance from multiple perspectives in a non-training manner. Based on the evaluation results, the architecture is streamlined and optimized to achieve efficient design of the network.

Research on SLAM method based on RGB-D camera in indoor environment

Sep 2021 – Dec 2022

Position: Research Assistant, Advisor: Prof. Xuedong Wu

- Improved the key frame processing method, using restriction conditions to select representative high-quality key frames, and limiting their number to reduce information redundancy and reducing the amount of calculation to improve the system running speed.
- Designed a loop detection method, establishing a keyframe-based loop detection mechanism, using selected feature points for keyframe loop detection, and verifying the effectiveness of the proposed improved SLAM through comparative experiments.

Addition Experience

Research Internship, Joint Laboratory of Brain-Computer Metaverse Digital Fusion

- AI software development: Responsible for AI platform function-assisted development, LLM fine-tuning and testing, and on-site application development and deployment.
- AI agents: Designed and developed artificial intelligence agents, including laboratory interior scenarios and tourism scenarios. Improved the performance of agents in analyzing user needs, intelligently responding, and executing tasks.
- Large model development: Design large-scale models suitable for financial risk assessment scenarios and tourism assistant scenarios, and construct relevant datasets for training.

Awards

Bachelor's Degree academic scholarship, Four Times 2019-2022

Master's Degree School academic scholarship 2023

Second Prize in the National Undergraduate Embedded Artificial Intelligence Design Competition (national level) 2021

Third prize in the "Xinjie Cup" Automation Competition (university level) 2018

Second prize in the Eastern Division of the 7th Delta Cup College Automation Design Competition (national level) 2019

Skills and Interests

Researching advanced artificial intelligence systems is the area that I am most interested in, hoping to create the next generation of artificial intelligence paradigm.

Language: Chinese, English (IELTS 7.0), Japanese (a little)

Programming: Python, C/C++, Java

Frameworks and Tools: Pytorch, CUDA, PyCharm, VScode, Matlab