Mr. Yanhan Sun

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OVERVIEW

As a highly motivated and collaborative student majoring in mechanical engineering, I have strong interest in the robotics, embedded system and mechanical design. During the two-year study as an undergraduate student, I have gained valuable experience in embedded development, PCB design, CAD and SLAM. This entails completing an industrial internship, publishing a conference paper, and securing several awards. Despite I am a sophomore without too many tech stacks, I always keep learning to improve my specialized competence.

EDUCATION

Shanghai University (SHU, China-France Cooperative Program) ***Sep. 2023 –***
Bachelor of Engineering in Mechanical Engineering

- GPA: 3.88/4.00, Average Score: 95.98, Ranking: 1/78

RESEARCH & INTERN

Embedded Development ***Oct. 2024 – Feb. 2025***

Outline:

- Built an automatic target-seeking robot car.

Key Responsibilities:

- Designed the PCB for the expanded board of the ESP32s3 minimum system board supporting bus servos, DC gear motors, various sensors and the communication with CanMV-K230.
- Programmed for the motion control of the robot car.

Achievement:

- Won the first prize of Shanghai National Engineering Practice and Innovation Ability Competition.

Research on YOLO for robotic mole removal surgery
Supervisors: Prof. Hongliang Ren ***Aug. 2024 – Nov. 2024***

Outline:

- Researched on the diagnosis and localization of moles for robotic mole removal surgery based on YOLOv8.

Key Responsibilities:

- Trained the YOLOv8 model on an open-source categorical mole dataset.
- Achieved the automatic diagnosis and localization of the moles during surgeries; Verified the critical role that the YOLO can play in the diagnosis and localization of robotic mole removal surgery.

Achievement:

- Authored a research paper which was accepted into the MLACH 2024.

Robotics Algorithm Internship
Nanjing TAISIDE Intelligent Technology Co., Ltd., China ***July 2024 – Aug. 2024***

Outline:

- Researched on a linear point cloud fitting method based on the LiDAR and verified the limitations.

Key Responsibilities:

- Received the point cloud data acquired by LiDAR with UDP on Qt.
- Processed the point clouds with Least Squares and Random Sample Consensus (RANSAC).
- Utilized the Point Cloud Library for filtering and Euclidean clustering of point clouds.

PUBLICATION

[1] Sun,Y. (2024). **Research on Diagnosis and Localization of Moles for Robotic Mole Removal Surgery Based on YOLO.** *Applied and Computational Engineering,111,105-113.*

AWARDS & HONOURS

First Prize of Shanghai National Engineering Practice and Innovation Ability Competition *Feb. 2025*
Special Scholarships for Academic Excellence in Shanghai University (￥4000) *Nov. 2024*
Innovation and Entrepreneurship Scholarships in Shanghai University (￥500) *Dec. 2024*
Outstanding Student of Shanghai University (Top 5%) *Dec. 2024*

PERSONAL PROJECTS

- Continued research on automatic labelling of sealing points in LDAR archived images based on YOLOv8
- Continued development for the robot car
- Design for a USB hub, the board and shell of which have been open-sourced
- Personal website powered by GitHub Pages and Jekyll

SKILLS

English: Fluent (IELTS 7.5; CET6: 600)
Techniques: C Language, Development of microcontroller like ESP32 (Arduino), Design for PCB, CAD