Terrence, Li

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Driven computer engineer passionate about integrating software and hardware to build solutions to tackle tomorrow's problems. Interested in Automation and Sustainability.

Education

National University of Singapore **Aug 2023 – Present**

- *Bachelor of Engineering in Computer Engineering(Hons) second Major in Math*
- GPA: 4.94/5.0
- Relevant Courses: Machine Learning(A+), Data structure and Algo(A+), Stochastic Process(A+), Software Engineering(A+), Multi variable calculus(A+), Ordinary differential equations(A+)

Skills

- **Stack:** Software Engineering(Java), Machine Learning(Numpy) CMake, ROS(rviz), Git, PCB Design(EasyEDA)
- **Languages:** English(Full Professional), Chinese(Native)
- **Portfolio Website:** *https://lishunyang12.github.io/my/home*

Experience

Software Intern *HuaZhong Risk Assessment, China* **Jan 2023 - May 2023**

- Designed the **UI/UX** interface of a project portfolio management system under Bootstrap 3 framework to help more than 20 engineering teams streamline project administration and document storage.
- Implemented the website using back-end technologies including Node.js, MySQL, achieving smooth and dynamic user experience.
- Features: Project Planner, Staff Management, Legal and normative documents repository.

NUS Calibur Robotics (Robomaster)| *Python, C++, STM32CubeIDE, Cmake, OpenCV* **Aug 2024 - Present**

- Implement a forward and inverse **kinetics** algorithm for a 6-DOF robotic arm with a suction cup as the end effector.
- Developed a **traditional computer vision** object tracking model based on C++ on **Realsense** D435i camera with **CMake** toolchain.
- Designed **slide-ring PCBs** to facilitate **CAN communication** between the gimbal MCU and the chassis brushless motors.

Projects

AI-based trading model | *Scikit-learn, Numpy, pandas, GoogleColab* **Oct 2024 – Dec 2024**

- Developed 5 AI models to forecast NASDAQ stock price, employing ridge regression, linear regression, K-nearest neighbors, Decision Tree regression, and Long Short-Term Memory(LSTM).
- Designed trend prediction strategy based on sell-and-buy signals from trained models, ensuring consistent positive returns across all models.

STM32 Quadcoper Drone | *C/C++, PID, IIC, SPI* **May 2024 – Aug 2024**

- Developed a **STM32 platform** with an **IMU module** for a self-stabilizing quad-coper.
- Calibrated firmware for closed-loop **PID control**, communication, and multi-source data fusion using **Kalman filter**.

FPGA Game Development | *FPGA, Verilog, Vivado* **Mar 2024 – Apr 2024**

- Developed a two-player ping Pong game on the Basys3 FPGA Boards using **Verilog** HDL.
- Establish **USART communication** between two boards, ensuring transfer of control signals of buttons on the seconds players' paddle movement.
- Created the games physics and collision engine accompanied with a responsive user interface.

Project Alex | *ROS, RViz, Rpi, Ubuntu* **Mar 2024 - Apr 2024**

- Developed a mobile robot vehicle to aid in rescue efforts during natural disasters.
- Refactored the entire **C/C++** code base to facilitate in developing new features, and create bug fixes.