# 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, Sustainability, and FinTech.

## Education

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

- *Bachelor of Engineering in Computer Engineering(Hons)*
- Courses: Engineering Principal and practice 2(A-), Computer Organization(A-), Software Engineering, Stochastic Process, Multi-variable Calculus, Integrated Digital Design, Real-Time Operating System

## Skills

- **Stack:** Software development, Robotics, RTL Design, PCB Design, Computer Vision.
- **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.
- Deployed the system on Alibaba cloud hosting server of 2 cores, 8G, ensuring hundreds of daily local network access within an acceptable latency range.
- Features: Project Planner, Staff Management, Legal and normative documents repository.

## 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.

**NUS Calibur Robotics (Robomaster)|** *Python, STM32CubeIDE, Gazebo, OpenCV, Bash* **Aug 2024 - Present**

- Implement forward and inverse kinetics algorithm for a 6-DOF robotic arm based on STM32.
- Developed a traditional computer vision object tracking model on Realsense D435i camera for low-power resources, tracking targets at 30 FPS on Jetson Ngx Xavier, being over 1.5x faster than the Neutral Network solution, YOLO V8.
- Design slip-ring PCBs to facilitate CAN communication between gimbal MCU and chassis brush-less motors.

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

- Developed a self-stabilizing drone on the STM32 platform for under 140 SGD.
- Engineered firmware for closed-loop PID control, communication, and multi-source data fusion using extended 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* **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.