LIM WEIZHE

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PROFILE SUMMARY

I am an aspiring mechanical design engineer interested in robotics and aeronautical engineering. Experienced in Mechanical Design, Fabrication and Programming, I am also equipped with skills in leadership, problem solving and decomposition, and effective communication. With a hands-on approach to my work, I thrive in fast paced environments where I can showcase my Innovation, Multidisciplinary knowledge and Attention to detail.

EDUCATION

National University of Singapore **Jul 2020 – Jul 2024**

Bachelor of Engineering (Mechanical Engineering), Honours (Distinction)

- Aeronautical Specialisation
- 2nd Major in Innovation and Design(iDP)
- Relevant Courses: Introduction to Machine Learning, Engineering Innovation and Modelling, Manufacturing Processes, Small Aircraft and Unmanned Vehicles, Finite Element Analysis

CERTIFICATES & SKILLS

Design & Prototyping: SolidWork | Fusion360 | SolidEdge | 3D Printing | Geometric Dimensioning & Tolerancing

Programming & Simulation packages: Python | C++ | Java | Matlab | OpenFOAM | Ansys Fluent | Linux

Other: Computer Vision| Soldering | Machining | Welding

EXPERIENCE

Flexiv, *Robotics Intern* **Aug 2023 – Dec 2023**

- Integrated polishing functionality into Rizon 4S using ROS 2, automating the paint removal process on aircraft surfaces
- Development of custom gripper end effectors
- Incorporation of computer vision in cobot operation

Innowave Tech, *Automation Engineer Intern* **May 2023 – Aug 2023**

- Designed automated door system for use on semiconductor inspection machines, improving operational efficiency and equipment uptime
- Responsible for full motor, component selection and drawings for manufacture
- In charge of full deployment of system for production floor, including procurement and scheduling

Hit Refresh Pte Ltd, *Intern* **May 2022 – July 2022**

- Assisted in development the Robot Chef, including fabrication, PLC installation and 3D printing
- Built a web service for users of company's product in C#, integrating it with a mobile application to improve customer accessibility and engagement

Singapore Armed Forces Military Police, *3rd Seargent* **Apr 2018 – July 2020**

- Led and supervised a team of military police personnel in security and law enforcement operations
- Trained and mentored section members in defensive tactics, conflict resolution, and adherence to standard operating procedures.

PROJECTS & COMPETITIONS

Open Source Agritech for Sustainable Growth **Aug 2023 – Jul 2024**

Final Year Project

- Developed framework for scalable and modular IoT based agritech system integrated with AWS
- Integrated I2C, MODBUS RS485 communication for sensor modularity in C++
- Designed and built hydroponic system with automated nutrient dosing, improving soil salinity and increasing plant yield by 8%

Drone-Based Detection with Computer Vision **Jan 2024 – Jun 2024**

Coursework Design Project

- Utilised YOLOv8 for drone based detection of small unmanned vehicles
- Integrated visual based object location determination, as well as path prediction of object

IOT-based Monitoring of Plant Health **Aug 2023**

SUTD What The Hack Hackathon

- Developed an IoT system to monitor plant health with real-time data, over the course of the 24 hour hackathon
- Utilized image processing and machine learning techniques to detect signs of plant stress via the ESP32-CAM's camera
- Secured a finalist position for the AI-enabled Internet-of-Things category

Satellite Collision Avoidance Project

MATLAB Simulink Challenge **Nov 2022**

- Used MATLAB Simulink to model and simulate a constellation of communication satellites
- Used SGP4 to model propagation of satellites and debris and predict collisions

Arduino Controlled Quadcopter **Nov 2022**

- Designed and built a fully working drone controlled wirelessly using Arduino Uno R3
- Created a script for the control and self-stabilization of the drone

Generating Power Through Heat **Jan 2022 – Nov 2022**

Coursework Design Project

- Built a full physical prototype of a system to harvest waste heat from stoves, attaining 15% electrical energy regeneration
- Performed research, design, procurement, fabrication and testing with microcontrollers

CLUBS & SOCIETIES

NUS Formula SAE – Suspension

- Designed vehicle suspension and performed analysis and testing of structures
- Manufactured of Carbon Fibre Tubes for vehicle suspension, achieving 8% weight reduction
- Designed jigs for manufacturing and efficient part production

Japanese Book and Film Club

- Engage in discussions about Japanese media and literature, inviting authors and speakers to give talks on the subject topic
- Participated in cultural exchanges, volunteering to host foreign students

ADDITIONAL INFORMATION

- Proficient in English and Chinese (spoken and written), basic spoken German and Japanese
- Additional Skills: Figma UI/UX, Angular Frontend Development, Da Vinci Resolve Video Editing