Rong-Syuan Lin (Clea)

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EDUCATION

The University of New South Wales   **Sydney, Australia**

Incoming Student, Master of Engineering Science in Robotics   Sep. 2022 – Aug. 2024

National Tsing Hua University   **Hsinchu, Taiwan**

Bachelor of Science in Power Mechanical Engineering   Sep. 2015 – Jun. 2019

- Coursework: Control System, Electric Circuits, Electronics, Digital Control System, Electromagnetism

Nanyang Technological University   **Singapore**

Full-time Exchange in Mechanical and Aerospace Engineering   Jan. 2019 – May 2019

RESEARCH EXPERIENCES

Institute of Information Science, Academia Sinica   **Taipei, Taiwan**

Natural Language Processing and Sentiment Analysis Lab   Feb. 2022 – Jun. 2022

- Topic: AI-Automated Training System for Figure Skating
- Constructed an AI-automated training system that performs pose tracking function for the learner's practice video and provides real-time instructions.
- Trained a frame embedding space model where two similar video sequences can be aligned temporally.
- Generated a pose comparison video between the learner and the trainer automatically.

Center for Artificial Intelligence and Advanced Robotics, National Taiwan University   **Taipei, Taiwan**

Intelligent Robot Laboratory   May 2021 – Feb. 2022

- Topic: AI Companion Healthcare Aid Robot
- Develop a behaviour recognition warning system for the elderly by training a random forest classifier based on human skeleton data and object detection.
- Upgrade a reminiscence chatting function using natural language processing techniques and AI-based image understanding to proactively drive the reminiscence process in social interactions with elderly users.

IC Design Technology Center, National Tsing Hua University   **Hsinchu, Taiwan**

Neuromorphic and Biomedical Engineering Laboratory   Aug. 2020 – Apr 2021

- Topic: Neuromorphic Intelligent Vision System-on-Chip
- Programmed in Python for preprocessing frame data by OpenCV and implementing CNN model.
- Built a bioinspired object recognition system with an event-based camera and neuromorphic chips on Field Programmable Gate Array (FPGA).

- Demonstrated real-time object detection and recognition and reduced 26% of transition delay.

Dynamic Systems and Control Laboratory, National Tsing Hua University   **Hsinchu, Taiwan**

Undergraduate Research   Feb. 2018 – Dec. 2018

- Topic: Customized Assistive Device Power System for Lower Extremities
- Demonstrated real-time human body posture recognition by STM32F446 board and IMU sensors.
- Developed a low pass filter algorithm in C++ based on bilinear transformation.
- Accelerated data transmission speed between IMU sensors and master device by converting SPI to I2C protocol.

AWARD

2021 National Innovation Award — Academic Research Innovation Award   **Taiwan**

- Topic: CHARM: Companion Healthcare Aid Robot Manager
- Given in recognition of outstanding contribution to AI and robotics in healthcare services for the elderly and mild cognitive impairment (MCI) patients.

WORK EXPERIENCES

PEGATRON Corporation   **Taipei, Taiwan**

Software Research and Development Department, Firmware Engineer   Aug. 2019 – Jul. 2020

- Analyzed issues related to Microsoft products UEFI and improved runtime performance.
- Developed testing system to improve issue reproducing efficiency, reducing 70% of testing time.
- Certification of WinDBG Kernel Debugging, Power Analysis, and ETW from Microsoft.

Porite Taiwan Co., Ltd.   **Miaoli, Taiwan**

Manufacturing Process Engineer Intern   Jul. 2018 – Aug. 2018

- Generated ideas of importing robotic arms before the sintering process for manufacturing automation.
- Redesigned the collecting procedure of sintered powder metallurgy parts to enhance yield rate.

PROJECT EXPERIENCES

Hand-eye Coordination Training System   Jul. 2021 – Aug. 2021

- Implemented the ML Kit Pose Detection API and received real-time skeletal and facial landmarks.
- Built the system for seniors and improved their hand-eye coordination in an engaging way.

DC Motor Design for Rotational Speed Control System   Feb. 2018 – Jun. 2018

- Built a DC motor from scratch and designed a proportional controller with an electric circuit.
- Analyzed the rotational speed and adjusted proportional gain to get the optimum performance.

Vacuum Robot Navigation and Battery Level Tracking   Feb. 2018 – Jun. 2018

- Developed path planning algorithm for vacuum robot which performed 100% floor coverage.
- Created low-battery alarm and function of auto-return to charging base by battery level tracking.

Damping System Design on Building Structure   Feb. 2018 – Jun. 2018

- Constructed a pendulum tuned mass damper and a pounding tuned mass damper.

- Applied the dampers on a mock building and analyzed damping ratios for each structure.

Electric Scooter Two-Speed Gearbox Structure Design and Stress Analysis   Sep. 2017 – Jan. 2018

- Reduced 45% of required input by evaluating the radius and rotational speed of planetary gears.

- Adjusted speed reduction ratio to reach a 17° hill climb performance with a speed of 30km/h.

SKILLS

Programming Language

C, C++, C#, Python, Java, Pytorch, OpenCV, PowerShell, Batch script, MATLAB, Verilog, Git

Software and Operating System

Jupyter Notebook, Vivado, Visual Studio, Android Studio, AutoCAD, Inventor, MS Office

Operating System

Linux, Ubuntu, Windows

Language

Fluent in English (TOEFL iBT 104)

EXTRACURRICULAR ACTIVITIES

Innovation Open House Program   **Taipei, Taiwan**

Student Representative, Speaker   Oct. 2018

- Represented the Department of Power Mechanical Engineering, NTHU.

- Gave a 45-minute online speech about a combination of work, school, and life experiences.

Guitar Club, National Tsing Hua University   **Hsinchu, Taiwan**

Vocalist, Guitarist   Aug. 2016 – Jan. 2017

- Started a 5-person acoustic guitar band and scheduled weekly practice.

- Gave performances in the midterm concert.

Yilan County Animal Shelter   **Yilan, Taiwan**

Volunteer   Sep. 2020

- Took care of stray dogs and updated their health records.

- Helped the shelter increase adoptions so that the dogs can find a new home.