Jeric Lew Jieyi

Final Year Mechanical Engineering Undergraduate

lew.jeric@gmail.com | +65 9384 9540 | Woodlands, Singapore
jericlew.github.io/ | linkedin.com/in/jericlew | github.com/JericLew

Education

National University of Singapore | GPA: 4.88/5.0 Aug 2021 – May 2025
Bachelor of Engineering (Mechanical Engineering), Robotics Specialisation
Minor in Computer Science; Minor in Innovation and Design Program;
Special Program: Tembusu College University Town College Program (2-Year Liberal Arts)

Georgia Institute of Technology | GPA: 4.0/4.0 Jan 2024 – May 2024
Undergraduate Study Abroad (Non-Degree)

Relevant Coursework: *Robotics; Deep Learning for Robotics; Robotics System Design; Perception & Robotics; Machine Learning; Artificial Intelligence; Soft Robotics; Feedback Control Systems; Microprocessor Applications; Data Structures & Algorithms; Programming Methodology I & II*

Research & Professional Experience

Robotics Research Intern @ MARMot Lab – Singapore Aug 2023 – Present
National University of Singapore (NUS) | *Dr. Guillaume Sartoretti* & *Dr. Cao Yuhong*
Deep Learning approaches for Autonomous Robotic Exploration (ARE)

- Leading research on diffusion models and RL for path planning in single/multi-agent robot systems
- Developing and testing novel deep-learning methods in high fidelity simulations and real robots
- Mentoring students on projects, and sharing research findings through lab-wide presentations

Robotics Research Intern @ AirLab – Pittsburgh, PA Jun 2024 – Aug 2024
Carnegie Mellon University (CMU) Robotics Institute | *Dr. Sebastian Scherer* & *Dr. Wenshan Wang*
Robust off-road navigation as a part of CMU's Robotics Institute Summer Scholars program

- Distilled vision foundation models (DINOv2, RADIO) for faster inference and higher feature resolution
- Optimized LiDAR-based feature extraction with an efficient C++ plane-fitting algorithm
- Integrated pipeline into a large, complex, multi-language off-road navigation stack with ROS

Robotics Intern @ DSO National Laboratories – Singapore May 2023 – Aug 2023

- Deployed real-time object detection (YOLOv5) and tracking (DeepSORT) on Jetson Xavier NX
- Integrated cameras into a robotic system by developing ROS2 software drivers

Mechanical Design Intern @ Alpha Electrics – Singapore May 2022 – Nov 2022

- Engaged in rapid prototyping and testing using additive manufacturing techniques (3D Printing)
- Designed improved battery internals using 3D CAD software (SOLIDWORKS)

Publications

DARE: Diffusion Policy for Autonomous Robot Exploration

Yuhong Cao*, **Jeric Lew***, Jingsong Liang, Jin Cheng, Guillaume Sartoretti
IEEE International Conference on Robotics and Automation (ICRA), 2025 | Video

SALON: Self-supervised Adaptive Learning for Off-road Navigation

Matthew Sivaprakasam, Samuel Triest, Cherie Ho, Shubhra Aich, **Jeric Lew**, Isaiah Adu, Wenshan Wang, Sebastian Scherer
IEEE International Conference on Robotics and Automation (ICRA), 2025 | Project | Video

SHRED: Swift High-Resolution features via Efficient Distillation

Jeric Lew, Matthew Sivaprakasam, Samuel Triest, Wenshan Wang, Sebastian Scherer
RISS Working Papers Journal, 2024 | Poster | Video

A novel application for real-time arrhythmia detection using YOLOv8

Guang Jun Nicholas Ang, Aritejh Kr Goil, Henryk Chan, **Jieyi Jeric Lew**, Xin Chun Lee, Raihan Bin Ahmad Mustaffa, Timotius Jason, Ze Ting Woon, Bingquan Shen
arXiv, 2024

Skills

Programming Languages: Python, C/C++, MATLAB, Java, ARM-7 Assembly

Frameworks/Tools: PyTorch, ROS1/2, MuJoCo, CUDA, OpenCV, Arduino

Hardware: SOLIDWORKS, 3D Printing, Machining, Microcontroller, Blender

Concepts: Deep-Learning (ResNet, UNet, ViT, Diffusion, etc), Reinforcement Learning (PPO, SAC, etc), Computer Vision, Planning (A*, D*, RRT*, etc)

Selected Projects

PPO for Block Pushing Task with Robot Arm github.com/JericLew/Push_MuJoCo

Graduate robotics class to leverage DRL for any robotics task

- Designed a custom MuJoCo simulation environment for specific block pushing task
- Designed neural network architecture for privileged state inputs and more realistic vision inputs
- Leveraged PPO with behaviour cloning to train a vision-based policy from pre-trained privileged policy

Robotics System Design ft. TurtleBot github.com/Magmanat/r2auto_nav

Undergraduate robotics class with the task to traverse and map a maze and then locating a hot target and firing projectiles

- Sized and chose actuators and sensors for chose design based on literature review and calculations.
- Interfaced thermal camera and NFC reader with ROS2
- Developed navigation and target seeking algorithm using Python with ROS2 and Linux environment

Deep-Learning Pose Estimation for Sports Training github.com/JasonYapzx/sportform

Hackathon entry aimed to promote healthy living by gamifying exercises

- Utilised deep-learning computer vision algorithm (YOLOv8) for human pose estimation to locate joints
- Developed Python scripts with OpenCV to count exercise repetitions and check form of exercise

Teaching

Teaching Assistant, ME1102 Engineering Principles and Practice I — Fall 2024
Teaching Assistant, EG1311 Design and Make — Summer 2022 - Fall 2023
Teaching Assistant, CS1010E Programming Methodology — Fall 2022

Awards and Honors

Best Student in Microprocessor Applications — Spring 2023
Dean's List — Fall **2022**, **2023**, **2024**
NUS Merit Scholarship — Fall 2021 - Spring 2025