Jeric Lew Jieyi

Research Assistant (Robotics)

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Education

National University of Singapore (NUS), Singapore
Master of Engineering (Mechanical Engineering) | GPA: 5.0/5.0 — Aug 2025 – May 2027
Bachelor of Engineering (Mechanical Engineering) | GPA: 4.9/5.0 — Aug 2021 – May 2025
Robotics Specialisation; Minor in Computer Science; Minor in Innovation and Design Program

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

Research Experience

MARMot Lab, National University of Singapore (NUS), Singapore
Research Assistant & Master's Thesis with Guillaume Sartoretti — Aug 2025 – Present
- Research on unsupervised reinforcement learning (RL) with world models for single/multi-agents [7]
- Mentoring thesis students on diffusion models and RL for path planning

Research Intern & Bachelor's Thesis with Guillaume Sartoretti & Cao Yuhong — Aug 2023 – Jul 2025
- Research on diffusion models and RL for path planning in single/multi-agent robot systems
- Developed and tested novel deep-learning methods in high-fidelity simulations and real robots

AirLab, Carnegie Mellon University (CMU), Pittsburgh, PA
Robotics Research Intern with Sebastian Scherer & Wenshan Wang — Jun 2024 – Aug 2024
- Research on off-road navigation as a part of CMU's Robotics Institute Summer Scholars program
- Distilled vision foundation models (DINOv2) for faster inference and higher feature resolution [2]
- Integrated pipeline into a large, complex, multi-language off-road navigation stack with ROS [3]

Selected Projects

Unsupervised Skill Discovery with World Models — Work In Progress
Master's thesis aimed at unsupervised learning of skills with downstream composition via world models
- Implemented highly parallelised reinforcement learning environments with JAX
- Preliminary results with world model composition of discovered skills for a multi-agent team

Diffusion Models for Informative Path Planning (IPP) — github.com/marmotlab/DARE & AID
Bachelor's thesis on leveraging long-horizon diffusion trajectories for single and multi agent IPP
- Achieved strong performance with behaviour cloning on privileged expert data for single agent IPP [4]
- Enabled multi-agent coordination by sharing long horizon trajectories and RL finetuning (DPPO) [5]
- Enabled test-time multi-agent coordination with diffusion models trained with diverse behaviour [6]

PPO for Block Pushing Task with Robot Arm — github.com/JericLew/Push_MuJoCo
Graduate class on deep RL for robotics
- Designed a custom MuJoCo simulation environment for block pushing task
- Teacher-Student distillation from RL-trained privileged state-based policy to vision-based policy
- Attained 70% success rate with student policy trained without expert human demonstrations

Skills

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

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

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

Concepts: Reinforcement Learning (PPO, SAC, etc.), Imitation Learning (Diffusion, Flow Matching), Computer Vision (UNet, ViT, DINOv2), Planning (A*, D*, RRT*, etc.)

Selected Publications

* denotes equal contribution

[7] Put Your Skills To Work: Chaining Unsupervised Skills as a Random Walk for Exploration
Jeric Lew, Keunhyuk Yang, Collister Chua Tanishq Duhan, Benjamin Eysenbach, Guillaume Sartoretti
PTA Workshop, Conference on Neural Information Processing Systems (NeurIPS), 2026 | To Be Presented
International Conference on Learning Representations (ICLR), 2027 | Under Review

[6] Planner-Conditioned Diffusion for Coordinated Multi-Agent Exploration
Marcus Yu Siong Teo*, **Jeric Lew***, Tanishq Duhan, Guillaume Sartoretti
International Symposium on Distributed Autonomous Robotic Systems (DARS), 2026 | Code

[5] AID: Agent Intent from Diffusion for Multi-Agent Informative Path Planning
Jeric Lew, Yuhong Cao, Derek Ming Siang Tan, Guillaume Sartoretti
International Conference on Swarm Intelligence (ANTS), 2026 | Code

[4] 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 | Code | Video

[3] 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

[2] 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

[1] 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

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

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