Ryan Hsiang (項達均)

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EDUCATION

National Taiwan University   *Sep 2022 – Present*
B.S. Electrical Engineering
Courses: Deep Learning and Computer Vision, Reinforcement Learning, Machine Learning, Quantum Information and Computation

RESEARCH EXPERIENCES

AI for Science Group   *California Institute of Technology*
Summer Undergraduate Research Fellowship | Advisor: Prof. Anima Anandkumar   *Feb 2025 – Aug 2025*
- Updated the LeanDojo benchmark on the latest version of Mathlib4.
- Fine-tuned ReProver's tactic generator using the pretrained Kimina-Prover-7B language model.
- Implemented multi-platform support for LeanCopilot.

Reinforcement Learning and Games Lab   *Institute of Information Science, Academia Sinica*
Advisor: Prof. Ti-Rong Wu   *June 2024 – Aug 2024*
- Conducted Research related to AlphaZero and Reinforcement Learning
- Developed a reinforcement learning environment for Chess in C++
- Trained AlphaZero, MuZero on chess endgame positions

PROJECTS

Curiosity and Memory in POMDP Imitation Learning   *Nov 2024 – Dec 2024*
Report
- Investigated the problem of incomplete information in POMDP
- Integrated memory-based architectures with Behavior Cloning
- Proposed a framework to facilitate exploration for the agent in partially observable environments.

Multimodal Perception and Comprehension of Corner Cases in Autonomous Driving   *Nov 2024 – Dec 2024*
Poster
- Participated in the ECCV 2024 Challenge.
- Fine-tuned the LLaVA-1.5-7b Vision-Language Model with Weight-Decomposed Low-Rank Adaptation (DoRA)
- Trained the DoRA Fine-tuned LLaVA model using Direct Preference Optimization (DPO)

Learning to Predict Quantum Dynamics   *Jun 2025*
Report
- Final project for the Quantum Computation and Information course in Spring 2025.
- Surveyed recent machine learning approaches for quantum dynamics simulation, including FNO, REFF, and classical shadows.
- Compared ML algorithms for predicting quantum dynamics in Heisenberg chains against traditional methods.

EXTRACURRICULAR ACTIVITIES

2025 NTUEE LightDance Software Team Leader   *Oct 2023 – Mar 2025*

- Development of the LightDance Editor for light choreography using Blender, Rust, and MySQL.
- Managed a team of 13 members and a codebase of over 30000 lines of code.
- Implemented dynamic LED light effects with JavaScript.

NTUEE Student Association Information Department   *Sep 2023 – Dec 2024*
- Helped maintain and develop websites and services for the student association, including a game for NTU's EE week and the Department's course map.
- Gave lectures on programming in Rust.

2022 Physics Olympiad National Team Reserve Member   *Mar 2022 – May 2022*
- Selected as an Alternate for the 2022 IPHO national team, ranking 9th in the national selection camp.

SKILLS

Languages: C++, Python, Rust, JavaScript, Lean
Machine Learning: PyTorch
Web Programming: React.js, Next.js, Tailwind CSS, Node.js, Express.js, GraphQL, MongoDB, MySQL
Game Programming: Unity
Others: Git/GitHub, Docker, Linux