

# Ryan Hsiang (項達均)

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## EDUCATION

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### 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

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### 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

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### 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

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### 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

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**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