

Jung-Chun Liu

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Education

National Taiwan University

Sep 2021 - Jun 2023

M.S. in Electrical Engineering, **Computer Science** Track

- Overall GPA: 4.0/4.0
- Advisor: Tian-Li Yu
- Selected Courses: Robotics, Stochastic Control, Introduction to Logic, Advanced Algorithms

National Taiwan University

Sep 2016 - Jun 2021

B.S.E. in **Electrical Engineering** and B.S. in **Psychology**

- Overall GPA: 3.8/4.0, last 60 GPA: 3.9/4.0
- Advisor: Tsung-Te Liu, Su-Ling Yeh
- Selected Courses:
 - **Computer Science:** Probability & Statistics, Data Structure & Programming, The Design & Analysis of Algorithms, Introduction to Artificial Intelligence & Machine Learning, Genetic Algorithm
 - **Cognitive Science:** Human Learning & Cognition, Perceptual Psychology, Physiological Psychology, Methods of Psychological Experiments, Psychological Testing

Publications

1. **Jung-Chun Liu**, Chi-Hsien Chang, Shao-Hua Sun, and Tian-Li Yu. “Integrating Planning and Deep Reinforcement Learning via Automatic Induction of Task Substructures.” Accepted to *NeurIPS Workshop on Generalization in Planning*, 2023. Also submitted to *International Conference on Learning Representations (ICLR)*, 2024. (Score: 5/6/6/8, ranked top 17.73% as of Nov 27).
2. Wen-Zhong Fang, Chi-Hsien Chang, **Jung-Chun Liu**, and Tian-Li Yu. “GP with Ranging-Binding Technique for Symbolic Regression.” *Proceedings of the Companion Conference on Genetic and Evolutionary Computation (GECCO)*, 563–566, 2023.
3. **Jung-Chun Liu** and Tsung-Te Liu. “Multi-Robot Formation Control using Collective Behavior Model and Reinforcement Learning.” *IEEE International Symposium on Circuits and Systems (ISCAS)*, 2261–65, 2022.
4. **Jung-Chun Liu**, Kuei-An Li, Su-Ling Yeh, and Shao-Yi Chien. “Assessing perceptual load and cognitive load by fixation-related information of eye movements.” *Sensors* 22 (3): 1187, 2022.

Research Experiences

NTU Robot Learning Laboratory

Sep 2023 - Present

Research Assistant with Prof. Shao-Hua Sun

- **Incorporating Large Language Model into Reinforcement Learning and Program Synthesis**
 - Proposed a method to pre-train reinforcement learning agent with the trajectories generated by LLM.
 - Worked on mapping domain-specific language to sensor input for program synthesis using LLM.

Taiwan Evolutionary Intelligence Laboratory

Sep 2021 - Jun 2023

Graduate Student with Prof. Tian-Li Yu

- **Automatic Learning Framework with Planning and Deep Reinforcement Learning**
 - Proposed a framework to integrate planning and DRL for sparse-reward goal-directed MDP problems.
 - Designed an approach to induce task substructures using genetic programming.
 - The framework outperforms other SOTA methods, including BC-PPO, DQN-RBS, GAIL, and RIDE, and demonstrates the generalizability to learn various tasks.

Explorer of Perception and Attention Lab

Mar 2020 - Aug 2021

Research Assistant with Prof. Su-Ling Yeh

- **The Influence of Long-Term Behavior on Robot Acceptance in Human-Robot Interaction**
 - Programmed robot behaviors on the Android platform for psychological experiments.
 - Implemented face recognition and expression detection using Keras.

Ganzin Technology

Jul 2020 - Mar 2021

Research Intern with Prof. Su-Ling Yeh and Prof. Shao-Yi Chien

- **Workload Research using Eye Tracking Technology**
 - Designed the procedure and instructions of psychological experiments.
 - Implemented the interfaces and programs to assess workload using an eye tracker.
 - Collaborated with Explorer of Perception and Attention Lab.

Energy-Efficient Circuits and Systems Lab

Sep 2018 - Aug 2021

Undergraduate Researcher with Prof. Tsung-Te Liu

- **Distributed Multi-Robot Formation Control**
 - Incorporated collective behavior model and RL for distributed multi-robot formation control.
 - Devised a hardware architecture that reduces the area and power consumption by 12%.
 - The method outperforms previous methods in JSSC and ISSCC.
- **Energy-Efficient Hardware Design of Elliptic Curve Cryptography**
 - Improved the window algorithm of ECC hardware methods which reduces the calculation by 10%.

Honors

Pan Wen Yuan Foundation Scholarship

May 2023

Dean's list, Top 5% in a class of 188 EE students based on GPA

Sep 2019

Teaching Experiences

Cornerstone EECS Design and Implementation

Feb 2021 - Jun 2023

Teaching Assistant

- Taught 72 freshmen to design Arduino autonomous cars using various electronic components.
- Gave speeches to teach students how to write progress reports in the STAR format.
- Built a website to visualize algorithm searches, enhancing students' understanding on algorithm design.

Computer Programming

Sep 2021 - Jan 2022

Teaching Assistant

- Taught C++ programming to 50 freshmen in lab sessions.
- Designed the course assignments, exams, and projects.

Leadership & Extracurricular Activities

Public Address Team, NTU Student Association

Sep 2019 - Jun 2020

Lighting System Officer

- Managed and arranged the auditorium stage lighting system, including the power system, digital communication networks, and more than 30 stage lighting instruments.
- Trained 15 team members to be proficient in the lighting system.
- Voluntarily provided technical support as a lighting designer for student activities and performances.