

# Jung-Chun Liu

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## Education

### National Taiwan University

2021 - 2023

M.S. in Electrical Engineering (Track: **Computer Science**)

- Overall GPA: 3.96/4.0
- Thesis: Automatic Induction of Task Substructures from Expert Demonstrations via Genetic Programming
- Advisor: Tian-Li Yu
- Related Coursework: Robotics, Stochastic Control, Introduction to Logic, Advanced Algorithms

### National Taiwan University

2016 - 2021

B.S. in **Electrical Engineering** and **Psychology** (Double Major)

- **Dean's list** (Top 5% based on GPA), 2019 Spring
- Overall GPA: 3.76/4.0, last 60 GPA: 3.92/4.0
- Advisor: Tsung-Te Liu (Integrated Circuit and System Design), Su-Ling Yeh (Perceptual Psychology)
- Related Coursework:
  - **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

### Conference

- **Jung-Chun Liu** and Tsung-Te Liu. 2022. "Multi-Robot Formation Control using Collective Behavior Model and Reinforcement Learning." *IEEE International Symposium on Circuits and Systems (ISCAS)*, 2261–65.
- Wen-Zhong Fang, Chi-Hsien Chang, **Jung-Chun Liu** and Tian-Li Yu. 2023. "GP with Ranging-Binding Technique for Symbolic Regression." *Proceedings of the Companion Conference on Genetic and Evolutionary Computation (GECCO)*, 563–566.

### Journal

- **Jung-Chun Liu**, Kuei-An Li, Su-Ling Yeh, and Shao-Yi Chien. 2022. "Assessing perceptual load and cognitive load by fixation-related information of eye movements." *Sensors* 22 (3): 1187.

## Research Experiences

### Research Assistant

2023 - Recent

NTU Robot Learning Laboratory, Supervisor: Prof. Shao-Hua Sun

- **Integrating Large Language Model with Reinforcement Learning**
  - Proposed a method to guide reinforcement learning agent with the instructions generated by LLM.

### Graduate Student

2021 - 2023

Taiwan Evolutionary Intelligence Laboratory, Supervisor: Prof. Tian-Li Yu

- **Automatic Learning Framework with Planning and Deep Reinforcement Learning**
  - Proposed a framework to integrate classical planning and DRL for general MDP problems.
  - Design an approach leveraging action models that outperforms other SOTA methods, including PPO, DQN, GAIL, and the exploration-based method.
  - Demonstrated generalizability of the agents to learn various tasks.

**Undergraduate Research Assistant**

2020 - 2022

Explorer of Perception and Attention Lab, Supervisor: 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.

**Research Intern**

2020 - 2021

Ganzin Technology, Supervisor: 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.

**Undergraduate Research**

2018 - 2021

Energy-Efficient Circuits and Systems Lab, Supervisor: 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 which reduces the area and power consumption and outperformed previous methods in JSSC and ISSCC.

**Honors**

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| 2023 | <b>Pan Wen Yuan Foundation Scholarship</b> , \$1560 for one semester |
| 2019 | <b>Dean List</b> , Top 5% based on GPA                               |

**Teaching Experiences****Teaching Assistant**

2021 - 2023

Cornerstone EECS Design and Implementation

- Taught 72 first-year students to design Arduino autonomous cars using various tools.
- 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.

**Teaching Assistant**

2021 - 2022

Computer Programming

- Taught 50 first-year students in lab and helped them learn C++ programming.
- Designed the course assignments, exams, and projects.

**Leadership & Extracurricular Activities****Lighting System Officer**

2019 - 2020

Public Address Team, NTU Student Association

- Managed and arranged the auditorium stage lighting system, including the power system, digital communication networks, and 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.