Ting Hsuan **Liao**

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"The only stupid question is the one you were afraid to ask but never did."

Education

National Tsing Hua University   *Hsinchu, Taiwan*

BACHELOR OF COMPUTER SCIENCE   *Sept. 2018 ~ June 2022 (exp.)*

- **Overall GPA**: 4.16 / 4.30, cumulative ranking: 9/178
- **Major GPA**: 4.26 / 4.30
- **Last 60 units**: 4.29 / 4.30
- **Key Coursework**: Operating System, Design and Analysis of Algorithms, Computer Architecture, Data Structures, Special Topics on Deep Reinforcement Learning, Software Project Management, Introduction to Embedded Systems

Honors & Awards

2021	**National Scholarship of Pan Wen-Yuan Foundation**, 12 out of the country
2021	**Scholarship for Incoming Master Student of National Tsing Hua University**, top students in Departmant of Computer Science
2021 Spring	**Academic Excellence Award**, top 5% of class in semester
2021	**Scholarship for EECS Excellent Students**, 6 out of 144 students
2020 Fall	**Academic Excellence Award**, top 5% of class in semester
2020 Spring	**Academic Excellence Award**, top 5% of class in semester
2019 Spring	**Academic Excellence Award**, top 5% of class in semester
2018	**Excellence Teenager Award**, top 1% of school

Research Interest

Computer Vision
Reinforcement Learning
Machine learning
Unsupervised Domain Adaptation

Selected Projects

Domain Adaptive Semantic Segmentation with Edge Prediction
- Transfer models trained in a source domain with ground truth labels to a target domain without any annotated data samples.
- Introduce a new model takes edge prediction as auxiliary task to improve segmentation performance.

Sim-to-Real: Autonomous Driving with Unsupervised Domain Adaptation
- Train Reinforcement Learning agent in simulation scene with semantic segmentation image as input to avoid obstacles and self-driving.
- Adapt result to reality in university campus with trained Unsupervised Domain Adaptation model.

Optical Flow As Input Representation On Reinforcement Learning Survey
- Research on the pros and cons on optical flow toward Reinforcement Learning process.

ACM MMSys'21 Grand Challenge on Detecting Cheapfakes
- Challenge in detecting Cheapfakes that misuse of real photographs with incompatible image description.
- Implemented several tricks including changing objective function, trying text augmentation and so on, to beat the baseline.

Brain Tumor Segmentation Challenge on Kaggle
- Build model takes extra information to guide segmentation prediction.
- Take challenge on Kaggle that aims to predict the segmentation of brain tumor.

2021 Interscholastic Innovation Game Design Competition
- Introduce a novel game by Unity Engine and attend competition from 5 universities.

EECS Department Personnel Daily Routine Analysis with LPWAN Sensor

- Using LoRa-2038 sensor, integrating LoRaWAN, GPS, Bluetooth and G sensor, to detect access frequency of department building.
- Gather data with MQTT and present analysis on a self-built website.

Implement Operating System with Nachos

- Implement fundamental operating system methods including CPU scheduling, file system and so on with Nachos.

On Land HoverCraft with Basys 3 FPGA Development Board

- Design a on land hovercraft controlled by FPGA with Android APP and bluetooth.
- Construct the hovercraft with 3D printing produced by SolidWorks software.

M&M Chocolate Color Sorting Machine with Arduino

- Design a embedded system color sorting machine with Arduino and LunchPad microcontrollers.
- Construct the machine with 3D printing and multipule sensors including keypad, color detector, servo motor and so on.

Experience

ELSA Lab at National Tsing Hua University | Undergraduate Research Assistant   *Spring 2020 ∼ Present*

- Conduct research toward Computer Vision (CV) and Reinforcement Learning (RL).
- Assist in writing academic papers which are accepted by international conferences.

Logic Design Laboratory Course at National Tsing Hua University | Teaching Assistant   *Fall 2020 and Fall 2021*

- Design lab assignments for course usage and address students' questions.
- Homework scoring and demo.

National Tsing Hua University | Academic Counselor   *Spring 2021*

- Provide academic support to students that have difficulty of learning.

Extracurricular Activity

Department Women's Volleyball Team | Captain   *Fall 2019 ∼ Spring 2021*

- Organize the team daily practice.
- Participate in the competitions as a leader and set up strategies.

Department Student Association | Secretary   *Fall 2019 ∼ Spring 2020*

- Provide assistance in holding departmental events and activities.

NTHU Computer Science Department | Event Assisted Manager   *Fall 2019 ∼ Spring 2020*

- Hold and provide assistance in activities on behalf of the NTHU CS department.
- Assist manage in Christmas Joint Prom with 300 guests from five departments.
- Leader of Social Steward Team in Computer Science Night secured over 10,000 NTD sponsorship.
- Assist manage in NTHU CS summer camp with over 100 participants.

Skills

Language: Mandarin (native), English (proficient)
Programming: C/C++, C#, Python, Verilog, Java, Golang, Javascript
Machine learning: Tensorflow, Keras, Pytorch, SciPy, Scikit-Learn, NLTK, Matplotlib