Daniel **Yao-Ting, Huang**

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Summary

As an Electrical Engineering undergraduate at National Taiwan University, I have amassed substantial research experience through my work at NTU-RobotLearning-Lab and the Advanced Control Laboratory. My innovative edge is showcased by a portfolio of side projects, including a prize-winning VR Quidditch simulator and the "Magic Hand" gesture-controlled presentation system. My practical problem-solving capabilities have been further honed through internships at CAVEDU, where I focused on AI education, and at ITRI, working on autonomous vehicle systems.

Education

National Taiwan University(NTU)

Taipei, Taiwan

B.S. in Electrical Engineering — *Sep. 2019 - Aug. 2023*

- Overall GPA: 3.71/4.3(3.64/4.0) Last 60 GPA: 3.75/4.3(3.69/4.3)
- CS-related GPA: 4/4.3(3.94/4.0)
- Teaching Assistant for Cornerstone EECS Design and Implementation (2023 Spring) - Instructor: Prof. Ho-Lin Chen
- Selected Courses: Advanced Computer Vision, Robotics, Machine Learning, Reinforcement Learning, Computer Vision: from recognition to geometry*, Digital Visual Effects, Deep Learning for Computer Vision*, Algorithms, Computer Architecture, Introduction to Computer Networks.(*indicates graduate courses)

Research

Robot Learning Lab

Shau-Hua, Sun

Undergradate research student — *July 2022 – present*

- Investigating Unsupervised Reinforcement Learning (RL) problems based on SPIRL.
- Enhancing learning efficiency of RL algorithms through innovative structuring for continuous skill acquisition.

Advance Control Lab

Li-Chen, Fu

Undergradate research student — *Feb 2022 – June 2022*

- Assisted the experiment of the UAV (unmanned aerial vehicle) system.
- Conducted experiments and developed a visual odometry system to improve indoor UAV navigation in GPS-denied environments using optical flow techniques.

Work Experience

Industrial Technology Research Institute(Intern)

Hsinchu, Taiwan

Reinforcement Learning, Autonomous system, ROS, Docker — *Aug. 2023 - present*

- Contributed to the self-driving automobile group by applying reinforcement learning for behavioral prediction of autonomous vehicles.
- Designed a virtual training environment for reinforcement learning framework based on real-world collected vehicle data.

CAVEDU(Summer Intern)

Taipei, Taiwan

Python, Google AIY, Program Education — *Jan. 2016 - Jun. 2017*

- Aided in the development of educational content using Google AIY Kits.
- Designed and taught a Python course for high school students, fostering STEM skills in classes averaging 6-7 students.

Projects

Deep Learning Boosts Visual Odometry

CSIE7421 Advanced Computer Vision — *May 2023 - Jun 2023*

- Engineered a rapid visual odometry system integrating Meta's 'segment anything' vision model with advanced camera optics.
- Transformed sequential imagery from varying car perspectives into precise environmental trajectories.
- Enhanced output accuracy by applying causal filters and object's selection rules for trajectory smoothing.

Magic Hand

A gesture control system using Jetson Nano and RealSense for intuitive hand-based presentation management. — *Apr 2023 - May 2023*

- Utilized Intel RealSense technology for precise arm motion and depth data capture.
- Designed the system on a Jetson Nano platform, ensuring responsive real-time processing.
- Integrated automatic projector screen plane correction for an enhanced user interaction experience.

Sushiro-Bot

CSIE5047 Robotics *Oct 2022 - Dec 2022*

- Developed a 7-axis robot arm for making Nigiri-sushi and Tekka-maki, incorporating computer vision techniques for precision.
- Used computer vision techniques to automatically evaluate the quality of the sushi and calculate the best gripping point for soft ingredients

VR Quidditch

A Unity-based Quidditch simulator with a 3-DoF motion platform for an authentic flight experience. *July 2021 - Oct 2021*

- Assisted the construction of the motion platform that can be installed on any chair.
- Developed the firmware for smoothing the serialized data of the gyro sensor embedded in the broom and wand controller.
- Designed the haptic feedback algorithm, including the seat's vibration and the wind's intensity.

Leadership & Volunteer experience

2022 MakeNTU

Event General Coordinator *Aug 2021 - May 2022*

- Orchestrated a national competition with over 34 teams and 134 undergraduates, leading marketing and coordination efforts.
- Enhanced event visibility, contributing to a 20% increase in participant engagement.

Academic Department of NTUEE Student Association

Manager & Course lecturer *Sep 2020 - Aug 2023*

- Facilitated the usage and maintenance of machine tools for student projects.
- Managed inventory, ensuring the availability of modules and microcontrollers for over 200 students.
- Delivered lectures on the fundamental use and advanced techniques of AutoCAD and Fusion360.

Computer program consulting service

Volunteer *Sep 2020 - Jan 2021*

- Provided weekly consultation services to assist students from various departments in overcoming challenges with programming languages such as C++ and Python.

Awards & Competitions

2023	**3rd prize of enterprise prize & Best Application Award**, MakeNTU	*Taipei, Taiwan*
2021	**3rd prize of Interactive Technology**, NIICC	*Taipei, Taiwan*
2021	**4th prize of enterprise prize**, MakeNTU	*Taipei, Taiwan*
2020	**Special prize of enterprise prize**, Meichu Hackathon	*Shinchu, Taiwan*
2020	**Special prize of enterprise award**, MakeNTU	*Taipei, Taiwan*

Skills

Programming	Python, C++, C#, Matlab, Javascript
Tools and Technologies	Pytorch, OpenCV, ROS, Git
Hardware	Raspberry Pi, Jetson Nano, STM32, Arduino, UAVs
Designing Tools	Unity, Blender, AutoCAD, Fusion360, EasyEDA