Chih-Wei Tseng

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RESEARCH INTERESTS

Artificial Intelligence (LLM, Gen. AI, Acceleration & Compression), Robotics, Healthcare

EDUCATION

National Yangming Chiao Tung University, Hsinchu, Taiwan — Feb. 2022 | Mar. 2024
Master of Science, Electrical and Control Engineering — GPA: 4.14/4.30
Thesis Title: Remote Photoplethysmography Atrial Fibrillation Detection System Based on Edge Computing Device

Tamkang University, New Taipei City, Taiwan — Sep. 2018 | Jan. 2022
Bachelor of Science, Electrical and Computer Engineering — Rank: 1/81, GPA: 3.969/4.00
Thesis Title: Poker Playing System Based on Deep Learning and Robotic Arm.

ACADEMIC EXPERIENCE

National Yangming Chiao Tung University — Hsinchu, Taiwan
Research Assistant(Full-time) — Apr. 2024 | Present

- Build the generative model and classifier for PPG reconstruct ECG muti-classification of arrhythmia (prepare to publish).
- leading a group composed of 3 master students in generative AI, LLM, and self-driving car fields.
- Build data augment system for Trajectory prediction on specific event reconstruction(Ex: car accident, rare weather condition).

National Yang Ming Chiao Tung University — Hsinchu, Taiwan
Graduate Researcher/Teacher Assistant(Automatic Control System & Control System Design) — Feb. 2022 | Mar. 2024

- Leading the project of **"Research and systematic realization of imaging-based detection of atrial fibrillation and arrhythmia"**, which sponsored by NSTC for 3 years $214,915.
- Being First Author published and accepted by the IEEE Journal of Biomedical and Health Informatics (Q1, IF: 7.7).
- Awarded the 17th TSC Thesis Award - Distinction (Top 11 of 1,023 participants)

PROJECTS

Research and systematic realization of imaging-based detection of atrial fibrillation and arrhythmia — Hsinchu, Taiwan
Advisor: Chair Professor Bing-Fei Wu
Sponsor: National Science and Technology Council
Jul. 2022 | Jul. 2025

- Successfully developed a remote atrial fibrillation (AF) detection system optimized for mobile devices.
- Achieve at least a 99% reduction in model size, parameters, FLOPs, and 50% reduction on latency compared to previous studies.
- The detection average accuracy across all scenarios including motion disturbances and variable light disturbances reached 90% or higher.

Poker Playing System Utilizing Deep Learning and Robotic Arm — New Taipei City, Taiwan
Advisor: Prof. Ching-Chang Wong
Sponsor: National Science and Technology Council
Jul. 2021 – Feb. 2022

- Developed an image classification system for poker playing utilizing YOLO-v4 with 98% accuracy.
- Developed a platform and user interface to demonstrate the training process of multiple reinforcement learning (RL) agents in executing independent card strategies through unsupervised learning, achieving a winning rate of 70%.
- Integrated a robotic arm system for card playing, utilizing pose detection to enable automated interaction with the user' s arm movements.

PUBLICATIONS

Journal paper

- **C. -W. Tseng**, B. -F. Wu, and Y. Sun, "A Real-Time Contact-Free Atrial Fibrillation Detection System for Mobile Devices," in *IEEE Journal of Biomedical and Health Informatics*, doi: 10.1109/JBHI.2024.3422155

SELECTED COURSES

Master's Courses		**Bachelor's Courses**	
Deep Learning/Deep Learning Lab	A/A	Linear Algebra	96%
Image Processing	A+	Contorl System	95%
Robotics	A+	Operating System	93%
Digital Signal Processing	A-	Introduction to articial neural network	99%

AWARDS

The Seventeen TSC Thesis Award - Distinction Taipei City, Taiwan
Top 11 of 1,023 graduate students' thesis. Nov. 2024

Graduate Student Presidential Award Hsinchu, Taiwan | Feb. 2023
Recognized for outstanding research achievements; ranked in the top 10% of graduate students and nominated by the department director.

Presidential Award * 5 Times New Taipei City, Taiwan
Top 1% of students in the department for each semester Sep. 2018 - Jan. 2022

National Science and Technology Council Udergraduate Fellowship Taipei City, Taiwan
This Award is only for excellent undergraduate students proposal (less then 30% Acceptence rate) Jul. 2021 - Jan. 2022

Undergraduate Thesis Innovation Award 3^{rd} place New Taipei City, Taiwan
The Highest award for undergraduate thesis in the department. Dec. 2021

SKILLS

- **Programming:** Python, C/C++, Java, Kotlin, Matlab, Verilog.
- **Software:** Word, Excel(with certificate), Visio, SolidWorks, Andriod Studio.