Chih-Wei Tseng

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RESEARCH INTERESTS

- Artificial Intelligence: Large Language Models (LLMs), AI, Acceleration, and Compression
- Robotics
- Healthcare Technology

EDUCATION

National Yang Ming Chiao Tung University - Hsinchu, Taiwan

Master of Science, Electrical and Control Engineering | Feb. 2022 –Mar. 2024

- GPA: 4.14/4.30
- Thesis Title: Remote Photoplethysmography Atrial Fibrillation Detection System Based on Edge Computing Device

Tamkang University - New Taipei City, Taiwan

Bachelor of Science, Electrical and Computer Engineering | Sep. 2018 - Jan. 2022

- 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

- Developing generative models and classifiers for reconstructing ECG signals from PPG data for multi-class arrhythmia detection (manuscript in preparation).
- Leading a team of three master's students on projects in generative AI, large language models (LLMs), and self-driving car technologies.
- Building a data augmentation system for trajectory prediction, focusing on specific event reconstructions (e.g., car accidents and rare weather conditions).

National Yang Ming Chiao Tung University - Hsinchu, Taiwan

Graduate Researcher/Teaching Assistant (Automatic Control Systems & Control System Design) | Feb. 2022 - Mar. 2024

- Led the project "Research and Systematic Realization of Imaging-Based Detection of Atrial Fibrillation and Arrhythmia," sponsored by NSTC (3 years, $214,915).
- Published as First Author in the **IEEE Journal of Biomedical and Health Informatics** (Q1, Impact Factor: 7.7).
- Recognized with the **17th TSC Thesis Award - Distinction** (Top 11 out 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

- Developed a remote atrial fibrillation (AF) detection system optimized for mobile devices.
- Achieved a 99% reduction in model size, parameters, and FLOPs, and a 50% reduction in latency compared to previous studies.
- Delivered a detection accuracy of 90% or higher across all scenarios, including motion disturbances and variable light conditions.

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

- Designed an image classification system for poker playing using YOLO-v4, achieving 98% accuracy.
- Built a platform and user interface to demonstrate the training process of multiple reinforcement learning (RL) agents executing independent card strategies, achieving a 70% winning rate.
- Integrated a robotic arm system for card playing, leveraging pose detection to enable automated interaction with users' 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 (Accepted for publication in vol. 29, issue 1, January 2025.)

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 Artificial Neural Network	99%

AWARDS

The Seventeen TSC Thesis Award - Distinction
Taipei City, Taiwan | Nov. 2024
Ranked Top 11 out of 1,023 graduate students for exceptional thesis quality.
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 | Sep. 2018 –Jan. 2022
Ranked in the top 1% of students in the department for five consecutive semesters.
National Science and Technology Council Udergraduate Fellowship
Taipei City, Taiwan | Jul. 2021 - Jan. 2022
Awarded to exceptional undergraduate proposals with a highly competitive acceptance rate of less than 30%.
Undergraduate Thesis Innovation Award 3rd place
New Taipei City, Taiwan | Dec. 2021
Received the department's highest recognition for undergraduate thesis innovation.

SKILLS

- **Programming:** Python, C/C++, Java, Kotlin, Matlab, Verilog.
- **Software Tools:** Microsoft Word, Microsoft Excel(Certificate), Microsoft Visio, SolidWorks, Android Studio.