陳彥合 Yan-He Chen

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WORK EXPERIENCE

Delta Electronics, Delta Research Center (DRC) *Jan 2023 - Present*
Senior R&D Engineer

- Developed **novel action recognition models** with new representations (beyond RGB / skeleton-based). Designed an **automatic annotation pipeline** using SAM2, YOLO detection, and YOLO-Pose to obtain cleaner human–object representations, improving model accuracy by **+2%** and achieving **94.3% accuracy** on human–object interaction recognition.
- Designed and implemented **real-time multi-person action recognition systems** (RGB-based and skeleton-based), integrating YOLO-based detection with action recognition models.
  Achieved **30+ FPS**, **60 action classes**, and **90% accuracy**, and delivered models to internal teams.
- Researched **head pose and gaze estimation** for factory personnel monitoring.
  Integrated models and developed APIs, achieving **99% accuracy**, **<5° angular error**, and **40 FPS**.
- Developed an **image-based human balance assessment system** using pose estimation and biped walking principles. Enabled multi-view static and dynamic balance detection from RGB images only; **deployed in an AI rehabilitation mobile application**. *(Granted invention patent)*
- Implemented **hand rehabilitation action recognition** based on hand pose estimation, supporting arbitrary viewing angles from RGB images. Successfully **deployed in an AI rehabilitation app product**.
- Designed a **rule generation framework for rehabilitation exercises**, combining pose estimation with expert-defined medical knowledge to automatically generate motion rules.
- Designed and developed **Android applications** using MVVM architecture (View/Data Binding, LiveData, Navigation) with Kotlin and Java.

National Taiwan Normal University, CSIE *Sep 2022 - Jan 2023*
Research Assistant

- Researched **self-supervised and generative models** for generalized zero-shot image recognition tasks.
  Published in *Multimedia Tools and Applications*, 2024.

National Taiwan Normal University, CSIE *Feb 2018 - Oct 2018*
Research Assistant

- Built large-scale **web crawling systems** and corpora (~1 TB) for NLP model training.
- Developed an **Android application** for hospital data collection and analysis.

PATENTS

SYSTEM AND METHOD FOR HUMAN BODY BALANCE ASSESSMENT *Nov 2025*

- Taiwan Invention Patent, Granted (No. I906060), First Inventor

EXERCISE MANAGEMENT SYSTEM AND EXERCISE GUIDANCE SYSTEM ACCORDING THERETO *Feb 2025*

- Taiwan Invention Patent, Granted (No. I872990), First Inventor

SIDE PROJECT

National Taiwan University *Feb 2022 - Aug 2022*

- Conducted a study on generalized zero-shot learning for image recognition,
- published in Multimedia Systems 2024 (IF: 3.5).

National Taiwan Normal University *Mar 2021 - Aug 2021*

- Research on zero-shot learning image recognition, published in ACM ICMR 2021.

Kaohsiung Medical University Hospital Sep 2017 – Jun 2018

- Designed a mind-map–based medical record visualization system, integrating clinical data and reducing physicians' review time.

Department of Occupational Therapy, Kaohsiung Medical University Oct 2017 – Jun 2018

- Developed a Windows-based attention assessment system, reducing average rehabilitation test time by 10 minutes.

PUBLICATIONS

Self-Supervised Learning of Pseudo Classes for Generalized Zero-Shot Fine-Grained Recognition

Yan-He Chen and *Mei-Chen Yeh* *Multimedia Tools and Applications (IF: 3.0) [paper] 2024*

Indirect Visual-Semantic Alignment for Generalized Zero-Shot Recognition

Yan-He Chen and *Mei-Chen Yeh* *Multimedia Systems (IF: 3.5) [paper][code] 2024*

Weakly- and Semi-Supervised Object Localization

Zhen-Tang Huang, ***Yan-He Chen*** and *Mei-Chen Yeh* *IEEE ICASSP [paper] 2023*

Text-Enhanced Attribute-Based Attention for Generalized Zero-Shot Fine-Grained Image Classification

Yan-He Chen and *Mei-Chen Yeh* *ACM ICMR [paper] 2021*

EDUCATION

National Taiwan Normal University *Sep 2020 - Jul 2022*

Master of Computer Science and Information Engineering

Kaohsiung Medical University *Sep 2014 - Jun 2020*

Bachelor of Healthcare Administration and Medical Informatics