

# Hao-yung Weng

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## EDUCATION

### Carnegie Mellon University, School of Computer Science

Master of Science in Machine Learning

Sep 2024 – Dec 2025 (Expected)

Pittsburgh, PA, United States

- **GPA:** 4.0/4.0, **Relevant Coursework:** Introduction to ML (PhD-level), Advanced Deep Learning, Generative AI

### National Taiwan University

Bachelor of Science in Computer Science, Valedictorian, Summa Cum Laude (top 1%)

Sep 2019 – Jun 2023

Taipei, Taiwan

- **GPA:** 4.28/4.3, **Rank:** 1/177, **Awards:** Outstanding Youth of Taiwan, Presidential Award, Dean's List (4x), Best TA Award

## SKILLS

**Programming:** Python, C, C++

**Libraries & Tools:** PyTorch, NumPy, Scikit-learn, Pandas, Hugging Face, Docker

**Domains:** LLM, Natural Language Processing, Speech Processing, Parameter-Efficient Fine-Tuning, Federated Learning

## INDUSTRY EXPERIENCE

### HeyGen

AI Research Intern

May 2025 – Aug 2025

Los Angeles, CA, United States

- Launched flagship product “Video Agent” as a founding team member, enabling multi-scene video generation from prompts and optional media by architecting an AI agentic system that fuses LLMs with multimodal generative models.
- Reduced video representation size by over 10x by designing a custom XML-like language and parser that converts arbitrary videos into this format, enabling the system to infer and reuse visual styles as references for new generations.

### WorldQuant

Quantitative Research Intern

Jan 2023 – Feb 2023

Taipei, Taiwan

- Developed “Alphas” models for equity market prediction, achieving a Sharpe ratio over 3.7 and turnover below 10% by leveraging diverse datasets (price, volume, options, analyst ratings) and decade-long fine-tuning on U.S. stock market data.

### Google

Software Engineering Intern

Jun 2022 – Oct 2022

Taipei, Taiwan

- Reduced the time spent on addressing Joint Design Manufacturing (JDM)-related issues by 25% through designing and implementing an automated Python tool to locate bugs during collaboration.

### ASUS Intelligent Cloud Services (AICS)

Software Engineering Intern

Mar 2022 – Jun 2022

Taipei, Taiwan

- Enabled two of Taiwan's top 10 hospitals to transition from paper-based systems by building a digital medical AI platform.

## RESEARCH EXPERIENCE

### Auton Lab

Research Assistant, Advisor: Professor Artur Dubrawski

Feb 2025 – Present

Carnegie Mellon University

- Outperformed the standard same-rank LoRA approach in federated learning by introducing a framework that removes the assumption of identical architectures, enabling knowledge sharing across heterogeneous clients through knowledge distillation.

### Speech Processing & Machine Learning Laboratory

Research Assistant, Advisor: Professor Hung-yi Lee

Feb 2022 – Dec 2023

National Taiwan University

- Improved the performance and efficiency of self-supervised speech models by using Neural Architecture Search (NAS) to optimize the selection, structure, and placement of Parameter-Efficient Fine-Tuning (PEFT) modules, including LoRA and adapters.

### Machine Intelligence & Understanding Laboratory

Research Assistant, Advisor: Professor Yun-Nung Chen

Sep 2021 – Jun 2023

National Taiwan University

- Devised a Transfer Learning framework to assess model suitability, achieving over 85% accuracy in selecting and sequencing intermediate tasks using the “Transferability” metric.

## PUBLICATION

### PEFT for Speech: Unveiling Optimal Placement, Merging Strategies, and Ensemble Techniques

Tzu-Han Lin<sup>†</sup>, How-Shing Wang<sup>†</sup>, **Hao-yung Weng<sup>†</sup>**, Kuang-Chen Peng<sup>‡</sup>, Zih-Ching Chen<sup>\*</sup>, Hung-yi Lee<sup>\*</sup> ICASSP SASB 2024

## EXTRACURRICULAR ACTIVITIES

### National Taiwan University, CS Student Council

Director of Academic Section

Sep 2021 – Jun 2022

National Taiwan University

- Enhanced diversity and equity in Taiwan's computer science education by leading a six-day camp with 50+ college volunteers, reaching 120+ high school students, delivering Git and Linux lectures, and providing free passes for underrepresented groups.