Hao-yung Weng

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Education

Carnegie Mellon University, School of Computer Science *Sep 2024 – Dec 2025 (Expected)*
Master of Science in Machine Learning *Pittsburgh, PA, United States*

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

National Taiwan University *Sep 2019 – Jun 2023*
Bachelor of Science in Computer Science, Valedictorian, Summa Cum Laude (top 1%) *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, Federated Learning, Parameter-Efficient Fine-Tuning

Industry Experience

HeyGen *May 2025 – Aug 2025*
AI Research Intern *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 *Jan 2023 – Feb 2023*
Quantitative Research Intern *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 *Jun 2022 – Oct 2022*
Software Engineering Intern *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) *Mar 2022 – Jun 2022*
Software Engineering Intern *Taipei, Taiwan*

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

Research Experience

Auton Lab *Feb 2025 – Present*
Research Assistant, Advisor: Professor Artur Dubrawski *Carnegie Mellon University*

- Proposed a novel federated learning framework for foundation models that enhances fine-tuning efficiency and knowledge sharing across heterogeneous clients by leveraging knowledge distillation and adaptive personalization techniques.

Speech Processing & Machine Learning Laboratory *Feb 2022 – Dec 2023*
Research Assistant, Advisor: Professor Hung-yi Lee *National Taiwan University*

- Enhanced performance and efficiency by utilizing Neural Architecture Search (NAS) algorithms to optimize adapter selection, structure, and placement within self-supervised speech representation models.

Machine Intelligence & Understanding Laboratory *Sep 2021 – Jun 2023*
Research Assistant, Advisor: Professor Yun-Nung Chen *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[†], How-Shing Wang[†], **Hao-yung Weng**[‡], Kuang-Chen Peng[‡], Zih-Ching Chen[*], Hung-yi Lee[*] ICASSP SASB 2024

Extracurricular Activities

National Taiwan University, CS Student Council *Sep 2021 – Jun 2022*
Director of Academic Section *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.