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*

- **Research interests:** Natural Language Processing, Large Language Models, Parameter-Efficient Fine-Tuning

National Taiwan University (NTU) *Sep. 2019 – Jun. 2023*
Bachelor of Science in Computer Science, Summa Cum Laude (top 1%) *Taipei, Taiwan*

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

Work Experience

WorldQuant *Jan. 2023 – Feb. 2023*
Quantitative Research Intern *Taipei, Taiwan*

- Implemented "Alphas," mathematical models for predicting equity market movements, on internal platforms.
- Created a highly profitable trading strategy that achieved a Sharpe ratio over 3.7 and a turnover rate below 10% by fine-tuning and testing trading strategies using a decade of U.S. stock market data.

Google *Jun. 2022 – Oct. 2022*
Software Engineering Intern, gBMC Team *Taipei, Taiwan*

- Reduced the time spent on addressing JDM-related issues by 25% by designing and implementing an automated Python tool to locate bugs during collaboration.
- Automated the once manual process of discovering regressions by developing an additional tool and integrating it with the internal database to analyze historical data.

ASUS Intelligent Cloud Services (AICS) *Mar. 2022 – Jun. 2022*
Software Engineering Intern *Taipei, Taiwan*

- Developed a digital medical AI platform with a team, which led to its adoption by two of Taiwan's top 10 largest hospitals for transitioning from paper-based systems.

Research Experience

Speech Processing & Machine Learning Laboratory *Feb. 2022 – Dec. 2023*
Advisor: Professor Hung-yi Lee *NTU EE*

- Enhanced performance and efficiency by utilizing Neural Architecture Search (NAS) algorithms to optimize adapter selection, structure, and placement within self-supervised speech representation models.
- Developed methods to ensemble various smaller adapters within the same layer of pre-trained models, which improved performance while maintaining a constant overall number of parameters.

Machine Intelligence & Understanding Laboratory *Sep. 2021 – Jun. 2023*
Advisor: Professor Yun-Nung Chen *NTU CSIE*

- Established and defined "Transferability," a new metric to assess the suitability of models for Transfer Learning across different tasks.
- Demonstrated over 85% success rate in accurately selecting and sequencing intermediate tasks among various possibilities for Transfer Learning by leveraging the defined "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

Taiwan Technology for Inclusion Project *Mar. 2022 – Jun. 2022*
Project Coordinator *Taipei, Taiwan*

- Authored the implementation proposal in collaboration with Taiwan's National Science and Technology Council, focusing on technological education for over 100 social welfare organizations.