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

National Taiwan University　　　　*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 profitable equity market prediction, by utilizing diverse datasets including price, volume, option, analyst, and fundamental data on internal platforms.
- Achieved a highly profitable trading strategy with a Sharpe ratio over 3.7 and a turnover rate below 10% by fine-tuning and testing it on 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 Joint Design Manufacturing (JDM)-related issues by 25% through 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*

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

RESEARCH EXPERIENCE

Speech Processing & Machine Learning Laboratory　　　　*Feb. 2022 – Dec. 2023*
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.
- 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　　　　*National Taiwan University*

- Proposed a framework for optimizing the selection of the most suitable intermediate tasks by establishing and defining "Transferability," a metric to assess model suitability for Transfer Learning.
- Demonstrated an over 85% success rate in accurately selecting and sequencing intermediate tasks by utilizing the newly defined "Transferability" metric across various possibilities.

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*

- Promoted diversity and equity in Taiwan's Computer Science education by leading a six-day camp for over 120 high school students with a team of over 50 college students, providing free passes for underrepresented groups.
- Bridged the resource gap between freshmen from public and private high schools by creating lectures on widely used tools, including Git and Linux, to ensure equal technical preparation.