

HSIAO-TZU HUNG

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EDUCATION

National Taiwan University

March 2020 - Feb. 2022

M.S @ Computer Science (Focus: Deep Learning) | Advisor: Dr. Yi-Hsuan Yang & Prof. Roger Jang

National Tsing Hua University

September 2010 – June 2014

B.S @ Physics

COURSES AND PROGRAMMING SKILLS

Engineering: Python, Git, Linux Shell Script, C++, Perl

AI/ML: PyTorch, TensorFlow, Scikit-learn

Data Visualization: Matplotlib, seaborn

User Interface: PyQt5

Fullstack : Flask, HTML, Docker, MongoDB

Course: Algorithm Design and Analysis, Operating System, Computer Architecture, Machine Learning, Deep Learning for Computer Vision

WORK EXPERIENCE

MediaTek, Taiwan

Aug 2022 - current

Machine Learning Develop Engineer

Skill: Python, PyTorch, Perl

- Collaborate with the hardware design verification team to optimize the verification flow with machine learning techniques. The deployed ML-based model saved 20% simulation time.
- Develop and maintain a production system that allows users to use the ML model.

Amazon Ring, Taiwan

June 2021 - Aug. 2021

Acoustic Engineering Intern

Skill: PyTorch, Audio Signal Processing, C++, PyQt5

- In order to speed up the acoustic component developing cycle, I built an application that contained a user interface, a CNN-Self-Attention Model for automatic audio quality assessment, and a root-cause classification model. This application turns the verification process from 1 day to 10 minutes.

Research Center for IT Innovation, Academia Sinica, Taiwan

March 2020 - Feb. 2022

Part-time Machine Learning Research Assistant

Proposed EMOPIA, an emotion-controlled piano music generation model based on a Transformer framework, published in ISMIR 2021[1](acceptance rate: 40% - 50%), incorporated with the team in KAIST, Korea. The result shows that my method has 17% higher accuracy in controlling emotion, and has 13% improvement in the overall quality.

Taiwan AI Labs, Taiwan

Feb. 2019 – Feb. 2020

Full-time Machine Learning Research Internship

Skill: Python, Docker, MongoDB

- Automatic Jazz Piano Music Generation: Investigated Multi-tasking and Fine-tuning techniques to deal with small-sized dataset[2]. The result shows that my method gets an 11% higher score on the subjective test.
- Music emotion recognition: Utilize the VQ-VAE model to get an embedding with rich information[3]

- Acquired hands-on experiences in speech processing and natural language processing.

PUBLICATIONS

1. Hsiao-Tzu Hung, Joann Ching, Seungheon Doh, Nabin Kim, Juhan Nam and Yi-Hsuan Yang, EMOPIA: A Multi-Modal Pop Piano Dataset For Emotion Recognition and Emotion-based Music Generation, in *Proc. International Society for Music Information Retrieval (ISMIR)*, 2021.
2. Hsiao-Tzu Hung, Chung-Yang Wang, Yi-Hsuan Yang, Hsin-Min Wang, “Improving automatic Jazz melody generation by transfer learning techniques,” in *Proc. Asia Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)*, 2019.
3. Hsiao-Tzu Hung, Yu-Hua Chen, Maximilian Mayer, Michael Vtter, Eva Zangerle, Yi-Hsuan Yang “MediaEval 2019 Emotion and Theme Recognition task: A VQ-VAE based approach”, in *Proc. MediaEval Benchmarking Initiative for Multimedia Evaluation (MediaEval)*, 2019.

SOFT SKILL

Ownership. I consider myself to be a good team player and have being part of diverse projects with a variety of people.(See Publications [1,3])

Good communication skills. Developed through my teaching career. Students think I am a good lecturer that deliver concepts that are easy to understand.

Bias for Action and Adaptability. Specially strengthened when I switch my career to computer science.