HSIAO-TZU HUNG

+886934457497 ⋄ fbiannahung@gmail.com ⋄ https://annahung31.github.io

EDUCATION

National Taiwan University *March 2020 - Feb. 2022*
M.S @ Computer Science (Focus: Deep Learning)
- Advisor: Prof. Yi-Hsuan Yang & Prof. Jyh-Shing Roger Jang
- Master's Thesis: Emotion-Conditioned Piano Music Generation Using Compound Word Transformer

National Tsing Hua University *September 2010 – June 2014*
B.S @ Physics

WORK EXPERIENCE

MediaTek, Taiwan **Aug 2022 - current**
Machine Learning Develop Engineer   *Skill: Python, PyTorch, Distributed Training*

· <u>Generative AI:</u> Developing in-house Large Language Model fine-tuning service for internal usage such as automatic code assertion generation.
· <u>Anomaly Detection:</u> Collaborating with the hardware design verification team to optimize the verification flow with machine learning techniques. The deployed ML-based model saved 20% simulation time.
· <u>Classification:</u> Collaborating with the static timing analysis team to optimize their working flow with Graph Neural Network. The deployed model is expected to reduce 20% of violations.

Amazon Ring, Taiwan **June 2021 - Aug. 2021**
Acoustic Engineering Intern   *Skill: PyTorch, Audio Signal Processing, C++, PyQt5*

· <u>Quality Assessment:</u> 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

· <u>Generative AI:</u> 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*

· <u>Generative AI:</u> Investigated Multi-tasking and Fine-tuning techniques to deal with small-sized dataset[2] for automatic Jazz piano music generation. The result shows that my method gets an 11% higher score on the subjective test.
· <u>Music Emotion Recognition:</u> Utilize the VQ-VAE model to get an embedding with rich information[3]

Institute of Information Science, Academia Sinica, Taiwan   July 2018 − July 2019
Full-time Research Assistant; supervised by Dr. Hsin-Min Wang
 · Acquired hands-on experiences in speech processing and natural language processing.

PROGRAMMING SKILLS

Engineering:	**Python, Git, Linux Shell Script, C++, Docker, MongoDB**
AI/ML:	**PyTorch, TensorFlow, Scikit-learn**
Open source tools:	**DeepSpeed, Hugging Face**
Data Visualization:	**Matplotlib, seaborn**
User Interface:	**PyQt5**

COURSES

Foundation:	Algorithm Design and Analysis, Operating System, Computer Architecture
AI/ML:	Machine Learning : A+, top 9.8%
	DL for Computer Vision: A+
	Advanced Topics in Multimedia Analysis and Indexing

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.