

# HSIAO-TZU HUNG

+886934457497 ◇ fbiannahung@gmail.com

## EDUCATION

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**National Taiwan University**

*March 2020 - Feb. 2022*

M.S @ Computer Science

**National Tsing Hua University**

*September 2010 - June 2014*

B.S @ Physics

## COURSES AND PROGRAMMING SKILLS

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Machine Learning: Python, PyTorch, TensorFlow

Data Visualization: Matplotlib, seaborn

User Interface: PyQt5

Web Development : Flask, JavaScript, HTML

Engineering: Git, Linux, MongoDB, Docker, C++

## WORK EXPERIENCE

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**Amazon Ring, Taiwan**

June 2021 - Aug. 2021

*Acoustic engineering Intern*

- Implemented a Deep CNN-Self-Attention Model for automatic audio quality assessment
- Applied Logistic Regression to fulfill the audio degradation classification task

**Research Center for IT Innovation, Academia Sinica, Taiwan**

March 2020 - Feb. 2022

*Part-time Machine Learning Research Assistant; supervised by Dr. Yi-Hsuan Yang*

- Collected a dataset and 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

**Taiwan AI Labs, Taiwan**

Feb. 2019 – Feb. 2020

*Full-time Machine Learning Research Internship; supervised by Dr. Yi-Hsuan Yang*

- Crafted RNN-based VAE Jazz melody generation models; investigated Multi-tasking and Fine-tuning techniques to deal with small-sized dataset[2]
- Applies the VQ-VAE model to the music emotion recognition task[3]
- Implemented a crawler and compiled a dataset with 200,000+ songs
- Investigated means to speed up Transformer-based language models for music generation, such as Linformer and Fast-Transformer

**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

**Senior High schools, Taiwan** 蘭陽女中、竹北高中

July 2014 – June 2018

*Physics teacher*

## COURSE PROJECT

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### 深度學習於電腦視覺(王鈺强教授)Deep Learning for Computer Vision

*Overall score: A+*

- 3rd place (3/10) in Long-Tailed Fine-Grained Image recognition competition
  - Applied BERT-based embedding and contrastive learning to tackle the Fine-Grained problem
  - Applied resampling to deal with the unbalanced data

### 機器學習(林軒田教授)Machine Learning

*Overall score: A+*

- 62/127 in Customer Churn Prediction competition, 91/100 for the project
  - Applied KNN algorithm to handle the missing data
  - Used oversampling strategy during training to tackle the imbalanced data
  - Applied XGboost/Logistic Regression for the classification task

## PUBLICATIONS

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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.