

# Yueh-Po Peng

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## Experience

### Institute of Information Science, Academia Sinica

RESEARCH ASSISTANT

Taipei, Taiwan

Mar. 2022 - Present

#### Research Topics: Self-Supervised Learning, Medical Imaging

- Surveyed end-to-end **self-supervised learning** methods for decoding mental states from brain activity (fMRI).
- Conducted **distributed training** experiments on large-scale, **high-resolution 4D medical image (fMRI)** using **TWCC HPC**.
- Proposed a whole-brain feature selection method for decoding musical pitch from brain activity (fMRI) [2].

### Tomofun

RESEARCH & DEVELOPMENT - AI INTERN

Taipei, Taiwan

Mar. 2023 - Jul. 2024

#### Research Topics: Computer Vision, Large Language Models, Multimodal Learning

- Developed an automatic short **music video generation system** for daily pet clips.
- Surveyed various strategies of **visual large language models (LLaVA)** to generate image-caption pairs for knowledge distillation.

## Education

### National Taiwan University

M.S. IN DATA SCIENCE

Taipei, Taiwan

Feb. 2023 - Jun. 2024

### National Taiwan University

B.S. IN COMPUTER SCIENCE AND INFORMATION ENGINEERING (CSIE)

Taipei, Taiwan

Sep. 2019 - Jan. 2022

## Research & Project

### Guitar Effect Removal

Pytorch, Lightning

MACHINE LEARNING RESEARCH ON REMOVING DISTORTION EFFECT FROM ELECTRIC GUITAR

- Proposed a two-stage method to remove distortion effects from guitar recordings using **Positive Grid** VST plugins.
- Analyzed baseline models on synthetic and VST-rendered effects, demonstrating superior performance.
- Published in DAFx 2024 [1]. (**paper**, **demo**)

### Whole Brain fMRI Features Selection

Pytorch, Scikit-learn

MACHINE LEARNING RESEARCH TO FIND CORRELATION BETWEEN FMRI AND MUSICAL PITCH

- Proposed a two-stage method to extract fMRI features and predict musical pitch.
- Evaluated ML models' performance and analyzed correlation between pitch and fMRI patterns.
- Published in ICASSP 2023 [2]. (**paper**)

## Publications

- [1] Lee, Y. S.\*, **Peng, Y. P.\***, Wu, J. T., Cheng, M., Su, L., & Yang, Y. H., "Distortion recovery: A two-stage method for guitar effect removal," in Proc. Int. Conf. Digital Audio Effects 2024 (DAFx'24). (\* equally contributed)
- [2] Cheung, V. K.\*, **Peng, Y. P.\***, Lin, J. H., & Su, L., "Decoding Musical Pitch from Human Brain Activity with Automatic Voxel-Wise Whole-Brain FMRI Feature Selection," in Proc. IEEE International Conference on Acoustics, Speech and Signal Processing 2023 (ICASSP'23). (\* equally contributed)

## Awards

- 2020 **5th Place (Team) and 6th Place (Individual) out of 22 Teams**, Quantitative Trading Contest, Crypto Arsenal
- 2020 **32nd / 146 teams**, AICUP Singing Transcription Contest
- 2018 **19th (top 3%)**, National Cheng Kung University Calculus Competition

## Skills

### Languages/Frameworks

Python, Pytorch, Tensorflow, Pandas, Sklearn, Slurm, Flask, HTML, Javascript, C++, C, Linux

### Skillset

Machine Learning, Self-Supervised Learning, Medical Image, Music Information Research, Distributed Training