WAN-TING HSIEH

MACHINE LEARNING RESEARCHER

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WORK EXPERIENCE

AI Research Engineer **Inventec Corporation** **April 2021**

Physiological signal processing and modeling

- Won the best poster in Physionet/Cinc 2021 challenge by proposing a mix-domain self-attention network for multiple cardiac abnormality detection using reduced lead Electrocardiogram (ECG).
  Skill set: python, pytorch, resnet, transformer, domain generalization, ECG processing
- Developed interpretable heart failure survival estimation using only 30-second ECG, improving AUC from 82% to 85%.
  Skill set: python, XGBoost, SHAP values, mysql
- Built benchmarks for machine learning based blood pressure estimation using Photoplethysmography (PPG).
  Skill set: python, pytorch, resnet, unet, LightGBM, PPG processing, mlflow

AI Engineer **AHEAD Medicine** **July 2020 – March 2021**

Biomedical data processing and modeling

- Implemented multiple myeloma relapse detection by deconvoluted the given mass spectrometry data within one month from scratch. *Skill set: python, mass spectrometry data processing*
- Developed machine learning model for blood cancer severity pre-screening using flow cytometry data, reaching AUC 93% for residual disease percentage detection. *Skill set: python, flow cytometry data processing, fisher vector*

EDUCATION

Hsinchu, Taiwan **University National Tsing Hua University** **Sep 2013 – Apr 2020**

- **M.S.** in Electrical Engineering, Apr 2020. GPA: 4.2/4.3
  Thesis: A Condition-Contrastive Embedding Network: Using Meta Information to Guide fMRI Representation Learning.
  Course: Computer vision, Data mining, Natural language processing
- **B.S.** in Mechanical Engineering, Jul 2017. GPA: 3.9/4.3.
  Course: Computer aided design, Theory of mechanisms, Dynamics

Aachen, Germany **RWTH Aachen University** **Oct 2019 – Feb 2020**

- **Exchange student** in Electrical Engineering
  Course: Digital image processing (Score: 3.0, satisfactory)

ACADEMIC PROJECTS (FMRI RESEARCHES)

Alzheimer's disease detection **Feb 2019**

- Built a 3D convolutional autoencoder structure with psychological testing information to better representing brain fMRI data in Alzheimer's classification task, achieved almost 10% improvement in discrimination performance.
- Assessed learned representation by reconstructing it to brain images using decoder in autoencoder.
  Skill set: DICOM, matlab SPM, DPARSF, python, pytorch, CNN

Face memory ability classification **Sep 2018**

- Built a graph encoding network conditioned with stimuli events to learn multi-view brain fMRI representation, achieved over 80% unweighted average recall in two-class face perception ability detection.
  Skill set: DICOM, matlab SPM, python, pytorch, graph embedding

AWARDS AND HONOR

- **2021 Winner of best paper in Physionet/Cinc Challenge**
  Propose mixed domain self-attention network for multiple cardiac abnormalities detection.
- **2018 Third Prize, Civil IoT Competition in Taiwan**
  Propose an air quality alert bot using text style transfer NLP model.

Languages and Technologies

- Language and tools: python; Git; Docker; pytorch; tensorflow; mlflow;
- Models framework: ResNet; Unet; transformer; xgboost; lightGBM; SVM
- Domain: Biomedical data processing, Time series processing, Survival analysis, Explainable AI