WAN-TING HSIEH

MACHINE LEARNING SCINETIST

Leipzig,Germany | eileen.wt.hsieh@gmail.com | Linkedin hsieh-wan-ting

WORK EXPERIENCE

Machine Learning Scientist	**Inventec Corporation**	**Apr 2021 – Now**

Cardiovascular diseases detection
- Developed end-to-end heart disease detection by the proposed deep **anomaly detection** using time series ECG.
- Proposed a mix-domain self-attention Resnet to identify outliers and **improve generalizability** to unseen datasets.
- **Winner of the best poster** in Physionet/Cinc 2021 challenge.

Heart failure survival analysis
- Developed an explainable heart failure survival estimation using 30-second ECGs.
- Reached 85% AUC and 83% concordance index through instance-weighted **XGBoost**.
- Adopted an **iterative data augmentation** technique to accelerate big data **(~44 M samples)** learning process.
- Proposed **soft label for ordinal regression** to learn the interclass relationship in discrete-time survival models.
- Studied the influence of ECG morphology on heart failure estimation using **Shapley analysis**.

Benchmark of blood pressure estimation
- Benchmarked intermittent and continuous blood pressure estimation using Photoplethysmography (PPG).
- Proposed a **subject-level stratification strategy** to prevent dependency leakage in time-series PPG.
- Built **self-supervised** model architecture to draw insights from large unlabeled dataset.
- Conducted **statistical tests** to analyze the performance of multiple models.
- Had one **Nature Journal** in press

Machine Learning Scientist	**AHEAD Medicine**	**Jul 2020 – Mar 2021**

Blood cancer risk stratification and relapse detection
- Developed algorithms for blood cancer prescreening in collaboration with pharmacy and hospital.
- Implemented mass spectrometry deconvolution algorithm to enable customized parameter setting.
- Reached 93% AUC in blood cancer risk stratification by Fisher Vector encoding using flow cytometry data.

EDUCATION

Hsinchu, Taiwan	**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.
- **B.S.** in Mechanical Engineering, Jul 2017. GPA: 3.9/4.3.
  Thesis: Design a 3D stylus pen including mechanism and software application using Unity.

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

- **Exchange student** in Electrical Engineering

ACADEMIC PROJECTS

Brain fMRI representation learning		**Jul 2017 – Aug 2019**

- Implemented MRI research pipeline: Data-Preprocessing (SPM, DPARSF), Modeling (3D CNN), and Explainable AI tool.
- Propose a 3D Convolutional Autoencoder with multi-view contrastive loss (BSEN) for Alzheimer detection using fMRI.
- Proposed a Graph-Embedding-based Event-Contrastive network for Face Processing Ability Detection using fMRI.

AWARDS AND HONOR

- **2021 Winner of best paper in Physionet/Cinc Challenge,** proposed MDARsn for cardiovascular disease detection.
- **2018 Third Prize, Civil IoT Competition in Taiwan,** proposed air quality alert bot using text style transfer NLP model.

LANGUAGES AND TECHNOLOGIES

- Programming | DevOps & MLOps: **Python, SQL**, Matlab, Bash | **Git, Docker**, Linux, **MLflow, Kubeflow,** Jenkins
- Deep Learning | Data science: **Pytorch,** Tensorflow **| Scikit-learn, XGBoost,** Numpy, Pandas, Matplotlib, SHAP
- Domain: **Time series** processing, Biomedical data processing, Survival analysis, Explainable AI
- Language: Chinese (Native), English (Fluent), Deutsch (Beginner)