

Wei-Han (Zoe) Hsu

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WORK EXPERIENCE

New York University IT - Anomaly Detection System for Network Security([GitHub](#)) New York
Machine Learning Engineer/Data Scientist Feb 2023 - May 2024

- Performed data mining, data analysis (EDA), preprocessing, and feature engineering on a **100GB dataset**.
- Developed scripts for the **ETL process**, ingesting **unstructured** network data through the ML pipeline.
- Led the team to develop **TensorFlow Autoencoder-based** anomaly detection, achieving a 73% F1 score on the NYU research network in identifying network anomalies, surpassing traditional firewalls.
- Implemented **MLOps** best practices using **MLflow, Docker, Kubernetes, and CI/CD**,

Medidata Solutions, a Dassault Systèmes company - MedidataAI Consultant Department New York
Data Scientist/ Commercial Analytics Intern May 2023 - Aug 2023

- Leveraged **A/B testing** methodologies to evaluate and enhance the performance of sales teams.
- Developed and implemented a **Random Forest model** for revenue prediction, conducting thorough **feature importance analysis** to identify the most effective promotion channels (phone, in-person, or email).
- **Allocate marketing budget** across media channels, reducing expenditure on less effective channels.
- Anticipated a **3% improvement in targeted customer engagement** through data-driven optimization.
- **Collaborated cross-functionally** to decode intricate data and extract comprehensive insights.
- Employed **Snowflake, Pyspark, and AWS tools** for **ad-hoc data analysis** and data processing.
- Created impactful **data visualizations** via **Tableau** to simplify complex information for stakeholders.

aetherAI- Medical device startup Taiwan
Medical Technician/ Medical Data Management Jul 2018 – Jun 2022

- Employed **SQL** to assess **data quality** for labeled cell images, achieving 0.8 accuracy in cell classification.
- Led development of Taiwan's first BM cell classification device, overseeing **clinical trial data management**.
- Collaborated cross-functionally to facilitate clinical validation processes for TFDA approval ([Publication](#))

Sleep Center of Shuang-Ho Hospital Taiwan
Data Science Research Assistant Aug 2020 – Mar 2021

- Undertook the **preprocessing** and **statistical analysis** of **Real World Data (RWD)**. (**Python** and **SPSS**)
- **Optimized and evaluated** various ML models (Random Forest, Naive Bayes, LR, SVM, KNN) for apnea subtype classification (over 80% accuracy) using cross-validation and hyperparameter tuning in **sci-kit-learn**.
- Improved internal clinical decision-making using the model and **co-authored** an article in [Diagnostics, 2021](#).

PROJECTS

Chest Radiology Report Generation | PyTorch, BigQuery, LLM, Huggingface, CV, NLP, ViT, HPC ([GitHub](#))

- Preprocessed large amounts (567GB) of X-ray images and electric health records from MIMIC-CXR.
- Applied **transfer learning** with BLIP-2 (ViLT and LLM-Vicuna) to automate Chest X-ray report generation.
- Enhanced report quality, achieving a BLEU-1 score of 0.34 through **find-tuning (LoRa)** and **prompt engineering**.

Credit Card Transaction Fraud Detection | Python, sklearn, AWS (S3, Sagemaker) ([GitHub](#))

- Conducted EDA and applied undersampling/upsampling to address class imbalance.
- Trained classifiers (Logistic Regression, KNN, SVM, Decision Tree) using AWS S3 and SageMaker.
- Achieved a 0.98 ROC score in detecting fraudulent transactions.

EDUCATION

New York University New York, NY
M.S in Data Science (GPA: 3.7/4.0) Sep 2022 – May 2024

Taipei Medical University Taiwan
B.S in Medical Laboratory Science and Biotechnology (GPA: 3.9/4.0) Sep 2016 – Jun 2020

Core Coursework: Probability and Statistics, Linear Algebra, Machine Learning, Big Data, Deep Learning

SKILLS

Libraries & ML Frameworks: Numpy, Pandas, Matplotlib, Pytorch, Tensorflow, sci-kit learn, Langchain

Programming Languages: Python, SQL, R, SPSS, SAS, C++

Tools: AWS, Azure, BigQuery, Spark, Hadoop, Snowflake, Databricks, Docker, Kubernetes, GitLab, Git, Tableau

Techniques: Statistical Analysis, Classification Analysis, Machine Learning, A/B Testing, Cloud Computing