Yu-Tong Chuang
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Minneapolis, USA **chuan120@umn.edu**

Education

Sep 2024 - Present *Master of Computer Science*, University of Minnesota – Twin Cities, USA

EXPERIENCE

Graduate Research Assistant Sep 2024 - Present

Skills | Transformers, PyTorch, Tesseract, Multi-Modal Modeling, Generative AI, Bayesian Optimization, AI trustworthy
Department of Computer Science & Engineering, University of Minnesota – Twin Cities, USA
Department of Industrial and Systems Engineering, University of Minnesota – Twin Cities, USA

Project: Document AI & Layout Generation

Engineered a hybrid GAN and CNN pipeline for generated layout-aware document and synthetic datasets to address data scarcity

Project: Urban Region Embedding for Land-Use Classification in Taiwan

Developed a multi-view GNN framework and incorporated prompting feature extraction to better align embeddings with functional urban semantics, supporting heterogeneous spatio-temporal modeling research.

Project: Meta-Learned PINO Framework for Fast PDE Adaptation

Implemented an iMAML-enhanced Physics-Informed Neural Operator enabling rapid adaptation to new PDE

Project: Multi-Objective Bayesian Optimization for LLM Fine-Tuning

Built a calibration-aware Bayesian optimization pipeline using Gaussian Process surrogates to jointly optimize accuracy and Expected Calibration Error over data-mixture weights.

Enabled discovery of training mixtures that improve reliability and trustworsy of fine-tuned LLMs for downstream reasoning tasks.

Research Assistant Oct 2021 - May 2024

Skills | TensorFlow, RNN, LSTM, Docker, Flask, System Deployment
Department of Biomedical Sciences & Engineering, National Central University

Patents: Development of a model for predicting the risk of diabetic nephropathy and a model-based approach for predicting diabetic nephropathy [TW patent I848789]
Built an early diabetic nephropathy prediction model powered by big data analysis for early diagnostic support.
Deployed Flask-based web systems with Docker containerization,ensuring portability and operational efficiency.

Research Intern, Institute of Molecular and Genomic Medicine Jul 2022 - Dec 2022

Skills | R, Quality Control, Git, CI/CD
National Health Research Institutes, Taiwan

- Developed a precision health system to provide potential risk ofdiseases, providing individualized medical treatment suggestion.
- Utilized R and Python for gene sequencing research, and employedadvanced algorithms and big data analysis.

R&D IT Intern Oct 2022 - May 2023

Skills | PowerShell, Azure, Automation
Qisda Corporation, Taiwan

- Developed automated PowerShell scripts to streamline device updates and deliver scheduled update notifications to users.
- Performed unit-level checks to verify monitor functionality and ensure device performance met client requirements.
- Used Microsoft Azure to manage, track, and monitor device status across distributed environments.

Undergraduate Research Assistant Sep 2021 - Dec 2022

Skills | Python, Numpy, Pandas, Matplotlib, XGBoost, DNN, CNN Random Forest, SVM
Department of Computer Science & Engineering, National Central University, Taiwan

Publications: Identifying Drug Resistance in Enterococcus Faecium Through Mass Spectral Features and Comparison Among Different Machine Learning Algorithms. [TANET 22']
Compared Machine Learning Methods and Deep Learning Methods to find the best model and enhancing the accuracy of bacterial resistance modeling by 30%

AWARDS & ACCOMPLISHMENT

AgentDS-Bench Competition – Third Place

IEEE International Conference on Healthcare Informatics (ICHI 2026) Affiliated Challenge
Developed human–AI collaborative solutions across various data domains, exceeding baseline benchmarks by over 10%

STEM Achievement Presentation - Second Place

Office of STEM Fields and Female R&D Talent Development
Showcased the outcome of Cirrhosis Prediction System and expressed the outlook of medical technology, 26th Dec, 2022

National Central University Proposal Competition for University Affairs Issues - First Place

Office of Institutional Research, National Central University, 15th Oct, 2019
Integrated database theory and AI models with campus affairs issues
Predicting the correlation between professor teaching quality andresearch outcomes using Random Forest, securing first place.