

Tsung-Min (Vincent) Pai

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EDUCATION

Electrical Engineering, National Taiwan University (NTU)

Bachelor of Science in Engineering

Taipei, Taiwan
Sep 2021 - Present

- Last-60-credit GPA: 3.87/4.0
- **Relevant Courses:** *Machine Learning, *Generative Artificial Intelligence, Foundation of Artificial Intelligence, Data Analysis, Data Visualization, Programming for Business Computing, Data Structure, Algorithms, *Decentralized Finance, Wireless and Mobile Networking, Computer Networks, Network and Multimedia, Electronics etc... (* graduate-level)

Bioenvironmental System Engineering, National Taiwan University (NTU)

Bachelor of Science in Engineering

Taipei, Taiwan
Sep 2020 - Jun 2021

- Dean's List Award: 2020 Fall (**Top 5%**), Overall Ranking: **1/51 (Top 1%)**

WORK EXPERIENCE

AI Engineer, LOGOLO

Contractor, Remote

New Westminster, Canada
Sep 2025 - Present

- Developed an AI grading system for national legal examinations providing real-time feedback with 95% accuracy.
- Designed a parallelized AI architecture that accelerated the grading process by 90% over manual methods.

AI Engineer, Genibuilder

Full Time

Taipei, Taiwan
Sep 2024 - Aug 2025

- Engineered a conversational AI agent to replace aesthetic clinic consultants, automating the advisory process for real-time response and reducing client operational costs by 80%.
- Utilized a multi-agent architecture with the DSPy concurrent framework, RAG, Database design, and context engineering.
- Designed an AI system realistically simulating user-product interactions, reducing manual validation time by over 80%.
- Developed an AI-powered data extraction pipeline to automatically deliver authentic client chat logs for the R&D team.

AI Engineer, Compal Electronics

Intern

Taipei, Taiwan
Jul 2024 - Aug 2024

- Conducted researches about knowledge graph, RAG, LLM agent, LLM fine-tuning for product improvement. 🌐

Research Intern, IIS, Academia Sinica

Intern | Principal Investigator: **Dr. Meng-Chang Chen**

Taipei, Taiwan
Jul 2023 - Mar 2024

- Trained the Trans Family and SecureBERT models to generate the embedding of the knowledge graph for classification.
- Trained GraphSAGE, GCN, and GAT models to detect malicious behaviors in Windows system log with about 83% recall.

RESEARCH EXPERIENCE

Speech Processing and Machine Learning Laboratory (SPMLLab), NTU

Undergraduate Researcher | Advisor: **Prof. Hung-yi Lee**

Taipei, Taiwan
Aug 2023 - Present

- Introduced *BILLY*, merging persona vectors of LLMs to enhance the creativity and replace discussion of multi-LLM systems. Boosting Originality by 15% and reducing the cost by 95% than multi-LLM baseline (Co-advised by **Prof. Shao-Hua Sun**). 🌐
- Contributed the *Covid19CoughAudioClassification* task to the Dynamic-SUPERB benchmark by devising and preprocessing a novel dataset for evaluating universal speech models. 🌐

Robot Learning Laboratory (RLLab), NTU

Undergraduate Researcher | Advisor: **Prof. Shao-Hua Sun**

Taipei, Taiwan
Nov 2023 - Oct 2024

- Developed a multi-agent discussion framework using role-play that boosted LLM creativity scores by 20% over existing methods. (Co-advised by **Prof. Hung-yi Lee**) 🌐
- Designed an LLM creativity evaluation benchmark and metrics with 0.7 human-level correlation, validated on over 1,400 text generations.

- Utilized RNN, CatBoost, and XGBoost for the prediction and classification of mobile device handovers.
- Providing the core dataset for classification models of handovers through live UDP protocol experiments on the MRT.

PUBLICATIONS & CONFERENCE EXPERIENCE

- **Tsung-Min Pai**, Jui-I Wang, Li-Chun Lu, Kai-Wei Chang, Shao-Hua Sun, Hung-yi Lee, "BILLY 🧑: Steering Large Language Models via Merging Persona Vectors for Creative Generation", Under Review of ARR (**First Author**) 📄 **waiting arxiv**
- Chien-yu Huang, ..., **Tsung-Min Pai**, ..., Hung-yi Lee, "Dynamic-SUPERB Phase-2: An Open Benchmark Evolving through Collaborative Expansion for Comprehensive Evaluation of Spoken Language Models with 180+ Tasks", **ICLR 2025**. 📄
- Li-Chun Lu*, Shou-Jen Chen*, **Tsung-Min Pai**, Chan-Hung Yu, Hung-yi Lee, Shao-Hua Sun, "LLM Discussion: Enhancing the Creativity of Large Language Models via Discussion Framework and Role-Play", **COLM 2024**. (**Second Author**) 📄
- **Reviewer** of International World Wide Web Conference (**WWW**) **2025**

PROJECTS

EltAI Engine

Project Leader

Taipei, Taiwan

Oct 2024

- Engineered an LLM agent for ELTA TV, powered by multi-modal RAG to deliver real-time sports game analysis, multilingual interaction, and result prediction capabilities for enhanced user experience.
- Achieved a spot in the Top 10 out of 836 teams and won the Corporate Challenge Award in GenAI Stars 2024 hackathon.

Texas Hold'em AI

Self Project

Taipei, Taiwan

May 2024

- Engineered a Texas Hold'em AI using a multi-threaded C++ engine to calculate precise, real-time win probabilities through exhaustive enumeration post-flop.
- Conducted a comparative analysis of diverse paradigms including Monte Carlo simulation, Q-learning, DQN, and MCCFR.

Exchange Student Matching Platform

Project Leader

Taipei, Taiwan

May 2024

- Developed a comprehensive exchange student matching platform using Django, integrating robust user authentication, profile management, and multi-conditional filtering capabilities.
- Implemented a matching algorithm with KNN to facilitate personalized recommendations and mutual friend connections.

TEACHING EXPERIENCE

Generative Artificial Intelligence Course, NTU (Course Webpage 📄)

Teaching Assistant (TA)

Taipei, Taiwan

Sep 2024 - Aug 2025

- Collaborated with 30+ TAs to manage a class of over 1,000 students and 1,000 auditors.
- Designed and graded a coursework related to token importance and LLM interpretation with two other TAs.
- Contributed to "Large Language Model as an Assignment Evaluator: Insights, Feedback, and Challenges in a 1000+ Student Course", published in **EMNLP 2024** 📄

ACTIVITIES

GenAI Stars 2024 Hackathon (Top 10 of almost 1000 Teams 📄)

Team Leader

Taipei, Taiwan

Oct 2024

Department Basketball Team, NTU Electrical Engineering

Vice Captain / Coach / Team Member

Taipei, Taiwan

Sep 2021 - Aug 2025

School Basketball Team, NTU

Team Member

Taipei, Taiwan

Sep 2020 - Aug 2021

SKILLS

Spoken Languages: Chinese (Native), English (Fluent, TOEFL: R:27 / L:24 / S:24 / W:26)

Programming Languages: Python, C++, Golang, HTML / CSS, Matlab, JavaScript, Verilog

Miscellaneous: Pytorch, Scikit-Learn, LangChain, LlamaIndex, GCP, CICD, Git, n8n, MongoDB, Redis, PSpice