

# Tsung-Min (Vincent) Pai

✉ b09602017@g.ntu.edu.tw | 📞 (+886)938781636 | 🌐 | 🔄 | 🎓 | 🏠

## EDUCATION

### Electrical Engineering, National Taiwan University (NTU)

B.S. in Engineering

Taipei, Taiwan  
Sep 2021 - Present

- Last-60-credit GPA: 3.87/4.0, AI/ML Related GPA: 4.0/4.0
- **AI/ML Related Courses:** \*Machine Learning, \*Generative Artificial Intelligence, Foundation of Artificial Intelligence, Data Science, Data Visualization, Data Analysis and Machine Learning (\* graduate-level)
- **CS Related Courses:** \*Decentralized Finance, Wireless and Mobile Networking, Computer Networks, Network and Multimedia, Data Structure, Algorithms, Differential Equation, Linear Algebra, Discrete Mathematics... (\* graduate-level)

### Bioenvironmental System Engineering, National Taiwan University (NTU)

B.S. in Engineering

Taipei, Taiwan  
Sep 2020 - Jun 2021

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

## WORK EXPERIENCE

### LOGOLO

AI Engineer | 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 architecture that accelerated the grading process by 90% over manual methods.

### Genibuilder

Founding AI Engineer | 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, MongoDB, 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.

### Compal Electronics

AI Engineer | Intern

Taipei, Taiwan  
Jul 2024 - Aug 2024

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

## PUBLICATIONS & CONFERENCE EXPERIENCE

- **Tsung-Min Pai**, Jui-I Wang, Li-Chun Lu, Shao-Hua Sun, Hung-Yi Lee, Kai-Wei Chang, "BILLY: Steering Large Language Models via Merging Persona Vectors for Creative Generation", **EACL 2026, Oral, Citation 4**. 🌐
- Chien-Yu Huang, ..., **Tsung-Min Pai**, ..., Hung-Yi Lee, "Dynamic-SUPERB Phase-2: A Collaboratively Expanding Benchmark for Measuring the Capabilities of Spoken Language Models with 180 Tasks", **ICLR 2025. Citation 58**. 📄
- 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. Citation 96**. 🌐
- **Reviewer**, International World Wide Web Conference (WWW) 2025
- **Volunteer**, Asian Conference on Machine Learning (ACML) 2025

## 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 in smaller LLMs**. Boosting Originality by 15% and reducing the cost by 95% compared to the multi-agent 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** utilizing role-play that boosted LLM creativity scores by 20% over existing methods. (Co-advised by *Prof. Hung-Yi Lee*) 🌐
- Designed an **LLM creativity benchmark** with 0.7 human-level correlation, validated on 1,400+ text generations.

**Advanced Internet Technologies and Services Laboratory, IIS, Academia Sinica**  
Research Intern | Principal Investigator: **Dr. Meng-Chang Chen**

Taipei, Taiwan  
Jul 2023 - Mar 2024

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

**Wireless and Mobile Networking Laboratory (WMNLab), NTU**  
Undergraduate Researcher | Advisor: **Prof. Hung-Yu Wei**

Taipei, Taiwan  
Feb 2023 - Nov 2023

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

## PROJECTS

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**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**  
Individual Developer

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 comparative analyses of 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**, integrating robust user authentication, profile management, and multi-conditional filtering capabilities.
- Implemented a **matching algorithm with KNN** for personalized recommendations and mutual friend connections.

## TEACHING EXPERIENCE

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**Introduction to Generative AI, 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 a published paper in **EMNLP 2024** 📄

## EXTRACURRICULAR ACTIVITIES

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**GenAI Stars 2024 Hackathon, High Distinction Award (Top 10 of 836 Teams 🌐)**  
Team Leader

Taipei, Taiwan  
Oct 2024

**Department Basketball Team, NTUEE 🌐**  
Vice Captain / Coach / Team Member

Taipei, Taiwan  
Sep 2021 - Aug 2025

**School Basketball Team, NTU 🌐**  
Team Member

Taipei, Taiwan  
Sep 2020 - Aug 2021

## SKILLS

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**Spoken Languages:** Chinese (Native), English (Fluent, TOEFL: R:27 / L:25 / S:24 / W:26)

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

**Develop Tools:** Pytorch, Scikit-Learn, LangChain, LlamaIndex, GCP, CICD, Git, n8n, MongoDB, Redis, PSpice