Hsin-Ling (Justin) Hsu

Google Scholar: Hsin-Ling Hsu
GitHub: JustinHsu1019
LinkedIn: justinhsu101999

justin-code.com
justin.hsu.1019@gmail.com

Education

National Chengchi University (NCCU) Sep. 2023 – Expected Graduation: Jun. 2027
B.S. Double Major in MIS and Computer Science *Taipei, Taiwan*

- **Rank: 6 / 74** [~8%] **| GPA: 4.25 / 4.30**
- Honors: Beta Gamma Sigma Honor Society member (Top 10% of business students worldwide).
- Previously enrolled in Mathematical Sciences (Sep. 2023 – Aug. 2024), and have since continued collaborating with Prof. Jengnan Tzeng from the department on research projects [2] and [3].
- Fintech Program: Currently enrolled in the Financial Technology specialization program (completed 11/18 credits).
- **Technical Courses:** Linear Algebra, Discrete Mathematics, Data Structure, Operating System, Computer Architecture and Organization, Computer Programming, Introduction to Computer Science, Calculus, Probability, Statistics(I), Database Management Systems, Human computer interaction, System Analysis and Design, Management Science, Applications of mathematics softwares, Information Systems Project, Python for Data Analysis 101, Introduction to Data Analysis and Programming, An Introduction to Game Theory (I)
- **Related Domain Courses:** The Brain and I, AI and Society

Research Interests

Natural Language Processing; AI for Healthcare; Information Retrieval; GenAI

Publications & On-Going Work

Total citations: 31; h-index: 2; i10-index: 1 (Google Scholar, Nov. 2025)

[1] **Hsin-Ling Hsu***, Cong-Tinh Dao*, et al., *"MedPlan: A Two-Stage RAG-Based System for Personalized Medical Plan Generation." Proceedings of the 63rd Annual Meeting of the Association for Computational Linguistics (**ACL** 2025): Industry Track*, Vienna, Austria, 2025. *(Citations: 24) (paper link) (GitHub link)*
Notes: Best international conference in NLP, ∼**25.6%** acceptance rate, Avg. Rating: 7.00 [6–8].

[2] **Hsin-Ling Hsu**, Ping-Sheng Lin, Jing-Di Lin, and Jengnan Tzeng, *"KAP: MLLM-assisted OCR Text Enhancement for Hybrid Retrieval in Chinese Non-Narrative Documents." Proceedings of the FinTech in AI CUP Special Session, 18th **NTCIR** Conference*, Tokyo, Japan, 2025. *(paper link) (GitHub link)*
Notes: One of the top 3 global IR evaluation conferences. **[Oral Presentation]** | Awarded the National Excellence Prize ("Qian Biao") at AI CUP 2024.

[3] **Hsin-Ling Hsu** and Jengnan Tzeng, *"DAT: Dynamic Alpha Tuning for Hybrid Retrieval in Retrieval-Augmented Generation."* **arXiv**, 2025. *(Citations: 7) (paper link)*

[4] Chia-Hsuan Hsu, Jun-En Ding, **Hsin-Ling Hsu**, et al., *"RPRO: Ranked Preference Reinforcement Optimization for Enhancing Medical QA and Diagnostic Reasoning." **NeurIPS** 2025 Workshop on GenAI for Health*, San Diego, California, USA, 2025. *(paper link)*

[5] Chia-Hsuan Hsu, Jun-En Ding, **Hsin-Ling Hsu**, et al., *"RPRO-Med: Ranked Preference Reinforcement Optimization for Enhancing Medical Reasoning." Submitted to **Advanced Intelligent Systems***, 2025. *(paper link)*

Work Experience

Research Intern (Visiting Student) Nov. 2025 – Present
FLAIR Lab, CSE, Texas A&M University (Advisor: Prof. Kuan-Hao Huang) *Remote*

- Research on model editing and machine unlearning for large language and vision-language models, focusing on controllable and reliable modification of model behaviors while preserving overall performance.

Undergraduate Researcher Sep. 2025 – Present
Software Security Lab, MIS, NCCU (Advisor: Prof. Fang Yu) *Taipei, Taiwan*

- Research on concolic-assisted model repair for large language models, focusing on provable localized correction of natural adversarial errors. The approach integrates gradient- and SHAP-based attribution with symbolic reasoning (Z3 / PyCT) to identify and formally repair error clusters in LoRA adapters, achieving sample-efficient and verifiable robustness improvements. *(GitHub link)*

Research Assistant Dec. 2024 – Present
AI Research Team, Far Eastern Memorial Hospital (Advisor: Dr. Fang-Ming Hung) *New Taipei, Taiwan*

- [1] [4] [5] Conduct research on explainable clinical decision support systems, focusing on disease prediction and medical plan generation through the integration of large language models, reinforcement learning, knowledge graphs, and retrieval.

Research Engineer May 2024 – Present

Reinforcement Learning and Games Lab, Institute of Information Science, Academia Sinica (Advisor: Prof. Ti-Rong Wu) *Taipei, Taiwan*

- Contributing to research on solution strategies for Go variants and other two-player games.
- Developing a general-purpose Solution Tree Viewer, designing a scalable storage and visualization framework to address the lack of standardized representations, enhance explainability (XAI) of solution strategies, and support cross-game adaptation.
- Collaborated with a postdoctoral researcher by refactoring frontend, backend, UI/UX design, and database systems, optimizing from a single-database design to a distributed database with batched query optimization, which reduced the Load Data process **from two weeks to three days**; implemented core data structures and query engine in C/C++ with websocket-integrated database design to reduce multi-query game record reconstruction to a single query, significantly improving rendering and interaction efficiency.

Undergraduate Researcher Jan. 2026 – Present

Intelligent System Integration Research Lab, CS, NCCU (Advisor: Prof. Shi-Sheng Sun) *Taipei, Taiwan*

- Conducting research on V2X security and privacy, as well as AI-assisted communication systems, with a focus on integrating federated learning, deep reinforcement learning, and generative AI into intelligent transportation systems.
- Joined a joint research group with Osaka Metropolitan University and National Chung Cheng University, focusing on federated learning and communication-specific AI.

AI Intern Sep. 2024 – Jun. 2025

GoFreight (The world's largest cloud-based freight forwarding software) *Taipei, Taiwan*

- Leveraged MLLM parallelization techniques to extract logistics data (e.g., MBL, invoices) via OCR and NLP, reducing processing time by **~67%** (from 45s to 15s) while maintaining high accuracy in bounding box annotation and text-to-image mapping.
- Built LLM-based web parsers with up to **97%** accuracy, significantly reducing crawler maintenance for dynamic websites.
- Presented research on LLM Agents and business use cases to support AI strategy.

AI Engineer (Part-Time) Jul. 2023 – Sep. 2024

ChainSea Information Group *Taipei, Taiwan*

- Core R&D contributor to LLM and Whisper projects, focused on transcription, inference acceleration, and LoRA-based model tuning.
- Built RAG pipelines to enhance knowledge retrieval; developed LLM Agent for addiction counseling using structured dialogue planning.

Professional Service

Program Committee

- **WMW** (World Modeling Workshop), 2026.
- **NeurIPS** Workshop on GenAI for Health, 2025.
- **NeurIPS** Workshop on Efficient Reasoning, 2025.

Security Research (2024 – Present)

- Reported multiple security vulnerabilities on the *HITCON ZeroDay Platform*, prompting rapid emergency patches from affected organizations.

Talks

- 2025 "Secrets to Becoming a First Author at a Top AI Conference at Age 20 — The Growth Journey of a Young Researcher," Young Inspires Session at PyCon TW 2025, Taipei, Taiwan.
- 2025 "MedPlan: A Two-Stage RAG-Based System for Personalized Medical Plan Generation," ACL 2025 Industry Track (online).
- 2025 "KAP: MLLM-assisted OCR Text Enhancement for Hybrid Retrieval in Chinese Non-Narrative Documents," FinTech in AI CUP Special Session at NTCIR-18 Conference, Tokyo, Japan.
- 2024 "Code with AI," GoFreight, Taipei, Taiwan.
- 2023 "LLM & AI Insights," GoFreight, Taipei, Taiwan.
- 2023 "LLM Model Training and Fine-tuning Demonstration with LLaMA-2 7B Model," ChainSea & Anhui Yitongtianxia IT Department (online).
- 2023 "Google Cloud Study Jam: Generative AI," Google Developer Group at NCCU, Taipei, Taiwan.
- 2023 "Introduction to Databases," Google Developer Group at NCCU, Taipei, Taiwan.

Selected Competitions & Honors

Enterprise-Level Competitions

2nd Place in HOTAI MaaS Hackathon, [2/233 teams; ~0.8%] 2024
AI Travel Itinerary Health Check. News Article | Certificate *Taiwan*
- Led system design and full-stack AI dev; won **NT$250,000** prize.
- Tech: React.js, Hybrid RAG, Cross-Encoder, collaborative filtering.

3rd Place in LINE FRESH Campus Competition, [3/165 teams; ~1.8%] 2024
AI dementia care platform. News Article | Certificate *Taiwan*
- Built backend, health tracking, and multilingual chatbot with LLMs.
- Tech: RAG, LINE Messaging API, data synthesis, auto-reporting.

National-Level Awards

Finalist (Ongoing) in 22nd National Innovation Award, Smart Healthcare Group 2025 – Present
*Project **MedPlan**: A Two-Stage RAG-Based System for Personalized Medical Plan Generation. Paper Link | GitHub* *Taiwan*
- Co-participating with Far Eastern Memorial Hospital (Vice President, Department Directors, PhD students).
- Inventor of a patent under review: *"Electronic device for generating personalized assessment content and treatment plan"*.
- Industry: MOU signed with clinics / system vendors.
- Deployment: in clinical trial/implementation phase at hospital.

Note: The National Innovation Award is a Taiwan government-backed honor in healthcare and biotech innovation, comparable in prestige to the U.S. Edison Awards.

Competitive Programming

Collegiate Programming Examination (CPE) — Professional Level (A), Top 4.6% nationally (Ranked 113/2481) 2025
Organized by the Association of Taiwan Computer Programming Contest (formerly ACM-ICPC Taiwan Council) *Taiwan*
- Standardized programming exam inspired by ICPC-style problems, evaluating algorithmic reasoning, data structure design, and implementation efficiency.

Selected Projects

AutoMouser 2025
*Received **300+** GitHub Stars and **30+** forks. | Pull requests | Issues*
- AutoMouser leverages LLM-based technology to automatically generate browser automation code from your mouse movements, capturing every click, drag, and hover. This integration streamlines your workflow and enables the creation of robust, repeatable tests with enhanced precision and flexibility.
- Served as a **core contributor** (ranked #2 on the contribution leaderboard), driving new feature development, bug resolution, and architecture optimization across the codebase.

NCCUPass APP 2024 – 2026
Role: Head of AI | Advisor: Prof. Augustin Lu
- Led the AI team in the R&D of the campus AI assistant AllPass and Campus Smart Lost and Found Matching FindPass. AllPass utilizes RAG technology with multi-turn conversation memory, while FindPass combines YOLO for object detection with DINOv2 and Text Embedding Models for vector representations and weighted similarity matching.
- As of September 2024, **over 2,000 students** at National Chengchi University have registered and used the platform, and the project has received multiple accolades in startup competitions.

Smart Health Education and Nursing Consultation Mini APP 2025
Far Eastern Memorial Hospital
- Responsible for designing and building AI models within the research team, delivering core algorithms and prototypes that achieve up to **93%** accuracy in supporting smart health education and nursing consultation. The developed models are transferred to the hospital's IT department for system integration and deployment.

Taiwan Power Intelligent Robot Optimization Project 2023
ChainSea Information Group & Taiwan Power (Taiwan's largest electric power company)
- Served as a **core contributor** in leveraging LLMs to enhance and optimize training data for Taiwan Power's official website intelligent AI customer service system, "Dianbao," with the currently deployed version utilizing the improved data we developed.

Public Writings

Customer Insights Monthly — Column "Learning AI with Cats" Apr. 2025 – Present
Co-authored with Naiwei Hsu *China*
- "Learning AI with Cats: A Guide for Everyone Who Wants to Get Along with Large Language Models," Customer Insights Monthly, Apr. 2025. (link)
- "Learning AI with Cats: How to Use AI Prompting to Create Excel Reports," Customer Insights Monthly, Jun. 2025. (link)

Skills

Python, C/C++, PyTorch, Unsloth, Transformers, Flask, Langfuse, SQL, Linux, GCP, Docker, Git, HTML/CSS/JS