Hsin-Ling (Justin) Hsu

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Education

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

- **Rank: 6 / 74** [~8%] **| GPA: 4.25 / 4.30**
- 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

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

Publications & On-Going Work

Total citations: 12; h-index: 2 (Google Scholar, Sep. 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: 8)* *(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 National Top Prize 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: 4)* *(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."* **Under Review**, 2025. *(paper link)*

Work Experience

Student Researcher Sep. 2025 – Present
Software Security Lab, MIS, NCCU (Advisor: Prof. Fang Yu) *Taipei, Taiwan*
- Engaged in research on program analysis and software testing, with a focus on extending Python concolic testing (PyCT) techniques toward applications in neural network interpretability and security analysis. *(GitHub link)*

Research Assistant Dec. 2024 – Present
AI Research Team, Far Eastern Memorial Hospital (Advisor: Dr. Fang-Ming Hung) *New Taipei, Taiwan*
- [1] [4] Conducted research on disease prediction, medical plan generation, and epileptogenic zone localization, leveraging large language models, CLIP, reinforcement learning, knowledge graphs, and retrieval methods. Trained and evaluated models on electronic health records and SOAP notes from multiple clinical departments.

Research Assistant 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 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.

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

Reviewer

- **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.

Freelancer (2023 – Present)

- Successfully completed 10+ software development and technical consulting projects.

- Experienced in web scraping, LLM-based stock fundamental analysis data processing, ML stock price prediction project consulting, AI for board games, etc.

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 "LLaMA-2 Model Training and Fine-tuning Demonstration with the 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.

National 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.

Selected Projects

AutoMouser   2025 – Present

*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 – Present

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 – Present

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.

Other Industry and Research Projects   2023 – 2024

Project outputs during the employment period

- Developed multiple applied AI systems, including a L'Oréal product recommendation engine, an AI-based quality inspection system, ChainSea AI Trainer and Customer Service Knowledge-Base QA system, as well as contributing to the Aile.Cloud APP intelligent integration project.

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

Programming Languages

- Python, C/C++, Java, JavaScript, HTML/CSS, SQL

Frameworks/Libraries/Tools

- PyTorch, Transformers, scikit-learn, Pandas, NumPy, Flask

Cloud & DevOps

- GCP, AWS, Thunder Compute, Langfuse, Linux, Docker, Git