

YI-JIE CHEN

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EDUCATION

National Yang Ming Chiao Tung University | Hsinchu, Taiwan

B.S. in Computer Science | Expected Jun. 2027 | GPA: 4.06/4.3

- **M.S. in Computer Science planned for Fall 2027 (admission pending)**
- **Relevant Courses:** Data Structures, Algorithms, Operating Systems, Computer Graphics, Machine Learning, Natural Language Processing, Image Processing

Technical University of Denmark (DTU) | Kongens Lyngby, Denmark

Exchange Student, Computer Science | Feb. 2027 – Jun. 2027 (Incoming)

TECHNICAL SKILLS

Languages: Python, C/C++, TypeScript, JavaScript

Frameworks & Backend: React, FastAPI, WebSocket, REST APIs, PostgreSQL, Cloudflare Workers

Systems & Networking: Linux, Docker, Git, SDN (OpenFlow, ONOS)

ML & Information Retrieval: PyTorch, OpenCV, BM25, BGE-M3, XGBoost, FunASR, Silero VAD

RESEARCH EXPERIENCE

HAIX Lab (Human-Computer Interaction), NYCU | Hsinchu, Taiwan

Aug. 2025 – Present

Undergraduate Researcher — OmniObserve | Advisor: Prof. Grace Yu-Chun Yen

- Replaced FunASR with Breeze-ASR-25 in a WebSocket-based transcription pipeline using FastAPI and WhisperLiveKit, with live drafts and deduplicated final transcripts.
- Scaled streaming ASR across two GPU workers using least-active-connection routing with round-robin tie breaking and per-worker connection monitoring.
- Routed public speech to shared transcripts and private speech to participant-specific AI processing.
- Built a React/TypeScript UI for editing Idea Blocks and linking them to source transcripts.

PROJECTS

Hybrid Retrieval Pipeline for Multimodal RAG | Intro to NLP

Spring 2026

- Built a hybrid retrieval pipeline combining BM25 sparse retrieval and BGE-M3 dense retrieval, merged with Reciprocal Rank Fusion (RRF).
- Added cross-encoder reranking and an XGBRanker learning-to-rank model with engineered features, reaching 0.803 Recall@5 on the held-out private leaderboard.

SDN & 5G Core Network Testbeds | Network Systems Capstone

Spring 2026

- Built an OpenFlow 1.3 service-chaining testbed on Open vSwitch with three REST-switchable policies for latency, security, and load balancing; exported port metrics to Prometheus and Grafana.
- Containerized a 5G standalone network with srsRAN gNB/UE and Open5GS; debugged AMF/SCTP binding and gNB-UE connectivity using logs and packet traces.

HONORS & AWARDS

- OmniObserve: Selected for the NSTC Undergraduate Research Project (2026–27); Honorable Mention at the NYCU CS Project Competition (2025–26); poster accepted at TAICHI 2026.
- Best Application & Best Popularity Awards, OpenHCI 2026 — SoulSee (1 of 2 teams selected for TAICHI demo)