

CHIAO-WEI HSU

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🏠 EDUCATION

Northwestern University

GPA: 3.88/4.0

Evanston, IL

Master of Science in Computer Science

Since Sep. 2023

- ♣ **Deep Reinforcement Learning, Scalable Software Architecture, Operating Systems, Computer Networks,** Programming Languages (Compiler/Interpreter/Garbage Collector), Decentralization & Blockchain.
- ♣ **Financial Large Language Models (LLMs) with Reinforcement Learning with Stock Prices**

National Taiwan University & Ghent University

GPA: 4.23/4.3

Taiwan and Belgium

Bachelor/Master of Science in Optoelectronics

- ♣ Made **First Place (1/107)** in the second semester and **published a paper in one top conference.**
- ♣ **Analog Circuits, Digital Circuits, Signal Processing** during bachelor program in National Cheng Kung University.

👛 EXPERIENCE

Software Engineer and Machine Learning Intern (Ongoing)

Irvine, CA

Himax Imaging Corp.

Jun. 2024 – Sep. 2024

- Developing an low-consumption **compressed joint face expression, emotion and posture recognition** and **object detection** model and burning on an **endpoint AI device** based on **MobileNet** and **YOLOv8** with **Vela** and **TFLite**.
- Developing an **LLM-powered Windows Desktop App** that integrates with **the edge device and operating system** on AIPC by **ElectronJS** and **C++/C#** with **microcontroller** library and **Qt GUI framework**.

Machine Learning Engineer (Research)

Taiwan

Academia Sinica

Oct. 2018 – Dec. 2022

- Engineered a **Knowledge-driven Multi-Modal QA System** integrating **vision, speech, and text** data, advancing capabilities in cross-modal information processing [3].
- Enhanced **state-of-the-art** performance by 4% on the **Named Entity Recognition (NER)** task through strategic **fine-tuning of Transformers**, applying **Multi-Task** and **Incremental Learning** techniques, and leveraging **Data Augmentation** [1][2].

📁 PROJECTS

AI-Driven Grocery Logging and Recipe Suggestions App & DEMO

Sep. 2023 – Apr. 2024

- **Engineered prompts for GPT-4 Vision**, deployed **OCR** to scan receipts, and implemented features to send expiry notifications and receipt suggestions.
- Adopted **ReactJS**, **Vite**, and **Firebase**; conducted tests using **Cypress**.
- Developed a **Serverless RESTful API** with **ExpressJS** as back-end deployed with **AWS ElasticBean**.
- Incorporated **API Gateway** with **AWS Lambda Functions**.

AI-Powered Driver Companion Mobile App & DEMO

Mar. 2024 – Apr. 2024

- Incorporated AI models, **YOLOv4**, **GPT-4**, **Text-To-Speech**, **Speech-To-Text**, to streamline from image recognition to natural language processing, and adopted **Django** as back-end, and **React Native**, **Expo** for mobile development.

Robotic Arm with Arduino & DEMO

Sep. 2015 – Dec. 2016

- Implemented and compiled the inverse kinematics algorithm, and burnt **bootloader** in **microcontroller** of **Arduino**.
- Designed the robot arm with **3D printing**, **laser cutter** and assembled the components with **C++**.

✂ SKILLS AND KNOWLEDGE

Other Programming Languages: Java, Rust, PHP, Lisp/Racket, FORTRAN, SQL, SPARQL, LaTeX.

DevOps/MLOps: Docker-Compose, Conda, Linux shell/fish/zsh, Windows PowerShell, sed, awk, vim, GitHub Action.

📖 PUBLICATIONS

- [1] Hsu et al., “*A Redundancy-Enhanced Framework For Error Correction in Named Entity Recognition*”, pre-print '24.
- [2] Hsu et al., “*GlobalNER: Incorporating Non-local Information into Named Entity Recognition*”, pre-print '23.
- [3] Liang et al., “*A Flexible and Extensible Framework for Multiple Answer Modes Question Answering*”, ROCLING '21.

🏆 HONORS

- ✂ **First Place** at the 2020 Formosa **Artificial Intelligence Grand Challenge**; developed a Multi-Round Dialogue System and Question Answering System.
- ✂ **3rd Place** in the Taitung **Mobile App Design Competition**, 2015, for innovative app development.
- ✂ Inducted into the Phi Tau Phi **Scholastic Honor Society** for academic excellence.
- ✂ **Silver Award** at Global Startup Weekend 2015; **Silver Award** at Sanmen Startup Competition 2016; **2nd Place** at PitchCamp for building an upcycling C2C/B2C platform and consultancy as a **then-cofounder**. The business has grown to 30 employees since 2016 and successfully raised 2 million US dollars in seed funding in 2025.
- ✂ **Outstanding Social Youth** of 2017 awarded by Chiayi City for exceptional community service and leadership.