CHIAO-WEI HSU

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🏛 EDUCATION

Northwestern University	*GPA: 3.88/4.0*	Since Sep. 2023
Master of Science in Computer Science		*Evanston, IL*

- ♣ **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**

💼 EXPERIENCE

Software Engineer and Machine Learning Intern (Ongoing)	Jun. 2024 – Sep. 2024
Himax Imaging Corp.	*Irvine, CA*

- 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)	Oct. 2018 – Dec. 2022
Academia Sinica	*Taiwan*

- 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]**.
- Designed and implemented a **Hierarchical Multi-Head Multi-Layer Attention** mechanism from the ground up, enhancing model interpretability and performance.

Software Developer	Aug. 2017 – May. 2018
Luye Gaotai	*Taiwan*

- Developed **3D vision graphics** (autostereogram) program by **JavaScript**.
- Developed a portal website using **HTML5/CSS3**, **BootStrap**, **PHP**, and **JavaScript**.

🖥 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

- Developed a mobile app that can hear, see, and throw dad jokes and fun facts to the driver with different personalities.
- Incorporated AI models, **YOLOv4**, **GPT-4**, **Text-To-Speech**, **Speech-To-Text**, to streamline from image recognition to natural language processing.
- Adopted **Django** as back-end, and **React Native**, **Expo** for mobile development.

🛠 SKILLS AND KNOWLEDGE

Other Programming Languages: C/C++, 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.