

CHUNG-YU WANG

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Summary

Software Developer and Machine Learning Researcher with a strong background in building, testing, and deploying AI-driven applications. Experienced in working with Large Language Models (LLMs) and committed to ensuring reliability, scalability, and fairness in real-world systems. Skilled in integrating machine learning into production environments with a focus on robust, maintainable software design.

Experience

Smart System Testing Lab

York University, Toronto, Canada

Research Assistant

Sep 2023–Present

- Enhanced **pass@1 accuracy by up to 1.9%** and **reduced token usage by 49.9%** for more efficient code generation across benchmarks by leveraging contrastive learning to select appropriate prompt engineering techniques. ([Paper under review](#))
- Outperformed the state-of-the-art zero-shot approach by **7.6% and 3.9% Pass@1 accuracy** with GPT-3.5 and GPT-4 on mathematical benchmark datasets by creating an innovative prompting pipeline. ([Paper under review](#))
- Uncovered the primary use cases of LLM-generated code in real-world scenarios through analysis of developer–model interactions. ([Paper published in 21st International Conference on Mining Software Repositories, MSR '24](#))

Computational Biology & Intelligence System Lab

NUK, Kaohsiung, Taiwan

Research Assistant

Jan 2021–Jan 2022

- Achieved an **AUC of 83%**, outperforming 26% of existing methods in identifying transcription factor–gene pair associations from biomedical literature by fine-tuning BERT models. ([Paper published in Computational and Structural Biotechnology Journal](#))

Information Management Department

NUK, Kaohsiung, Taiwan

Computer Facilities & Network Administrator

Sep 2020–June 2021

- Managed IP addresses and virtual machines using **Kernel-based Virtual Machine (KVM)**, and maintained websites for the IM department and over 10 faculties.

Technical Skills

Programming & Web Skills	Python, Java, C/C++, Flutter, HTML/CSS, PHP, JavaScript, React.js, Node.js
Software Development	Git, Linux, JUnit, Docker, Kubernetes, AWS ECR/EC2, CI/CD Pipeline
Database	MySQL, Firebase, PostgreSQL, MongoDB
ML Libraries	Pytorch, Tensorflow, Keras

Education

York University

Toronto, Canada

M.Sc. of Computer Science

Sep. 2023 - Present

National University of Kaohsiung

Kaohsiung, Taiwan

Bachelor of Information Management

Sep. 2018 - Jun. 2022

Featured Projects

“InsightMe”: A chatbot designed to answer questions about me

- Retrieved personal information from documents and generated accurate answers using **Retrieval-Augmented Generation (RAG)**, implemented with **LangChain**.
- Deployed web application using **Next.js**, **Docker**, **AWS ECR/EC2**, and **Nginx**.

“Fairness Algorithm Design”: Fairness in online bipartite matching problems

- Proposed a new algorithm called Priority-Update-Match, which ensures fairness among different groups in online bipartite matching problems.
- Reduced **89% of fairness gap** among different groups compared to the greedy algorithm.

“Pick Up Choose”: An automatic grading application for jujubes

- Achieved **93% AUC** by fine-tuning an EfficientNet model for classifying causes of jujube injuries.
- Fine-tuned YOLOv4 object detection models to capture jujubes location information in images.
- Designed a real-time application for automatically classifying jujube grades on smartphones with **Flutter**, **Firebase**, and **Websocket**.

Awards & Services

Outstanding Poster Presentation Award

- CSER'24 (Consortium for Software Engineering Research)**

Ontario, Nov 2024

Awarded Best Presentation out of 20+ presenters at a national conference in Canada.

Outstanding Project Award

- Graduation Project Competition**

Kaohsiung, Dec 2021

Recognized as one of the top 3 teams among 10+ for designing an exceptional graduation project.

Conference Staff

- Executive Staff, ICST'24 (International Conference on Software Testing)**

Ontario, Apr 2024

Managed logistics and communications for an international conference with 200+ attendees, ensuring smooth coordination among speakers, panelists, and participants.