

# WEI-KUAN CHIANG

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## EDUCATION

**Yuan Ze University**, Taoyuan, Taiwan

Feb. 2024 – Jun. 2026

B.S., Department of Computer Science and Engineering | GPA: 3.94/4.00

**Providence University**, Taichung, Taiwan

Sep. 2022 – Feb. 2024

Department of Computer Science and Information Engineering | Overall Average: 92.4/100

## ACADEMIC RESEARCH & PROJECTS

**Researcher, NSTC Project, Yuan Ze University**, Taiwan

*Hardware Optimization of March mSR+ Algorithm in BIST for Memory Testing*

- Led an NSTC-funded project under W.-K. Chiang, focusing on improving memory BIST performance.
- Designed and verified hardware implementations using RTL-level techniques.
- Research accepted for presentation at ICRAS 2025 in Osaka, Japan.

**Research Assistant, NSTC Project, Yuan Ze University**, Taiwan

*Automatic Synthesis of OTP Memory IP for Embedded Systems*

- Supported memory-IP development for low-power SoC applications under Prof. Ming-Yi Lin.

## PUBLICATIONS

### Journal Article

Lin, M.-Y., **Chiang, W.-K.**, & Wang, C.-H. (2025). Enhancing memory BIST with an optimized RTL-BIST IP core: A low-power, high-fault-coverage approach. *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*. Advance online publication. <https://doi.org/10.1109/TVLSI.2025.3581296>

### Conference Papers

**Chiang, W.-K.** (2026). Parameter-efficient fine-tuning for functional RTL debugging with large language models. *The 9th International Conference on Machine Learning and Machine Intelligence (MLMI 2026)*, Tokyo, Japan.

**Chiang, W.-K.** (2025). Optimized memory reliability solutions for AI-driven automation systems. *International Conference on Robotics and Automation Sciences (ICRAS)*, Osaka, Japan.

**Chiang, W.-K.** (2025). Design and application of FPGA-accelerated convolutional neural networks based on the PYNQ-Z2 platform. *23rd Conference on Information Technology and Application in Outlying Islands (ITAOI)*, Penghu, Taiwan.

**Chiang, W.-K.** (2025). Improving YOLO efficiency in edge computing via hardware acceleration and quantization techniques. *23rd Conference on Information Technology and Application in Outlying Islands (ITAOI)*, Penghu, Taiwan.

**Chiang, W.-K.** (2025). Design of an SRAM and OTP built-in self-test architecture based on the March C- enhanced algorithm. *TANET & NCS 2025*, Yilan, Taiwan.

**Chiang, W.-K.** (2025). Design of a self-repairing BISR memory architecture combining BIST and OTP. *Taiwan Academic Network Conference & National Computer Symposium (TANET & NCS)*, Yilan, Taiwan.

## PROFESSIONAL & TEACHING EXPERIENCE

**Software Engineer, Robust**, Taoyuan, Taiwan

Dec. 2024 – Present

- Led a three-person team to integrate voice interaction, eye tracking, and crowd recognition into an AI digital-human panel within four weeks; delivered the system ahead of schedule for production use at a major cinema in Taipei.
- Developed a real-time face-tracking system for context-aware advertising delivery in taxis and other smart-display environments.
- Developed and integrated an AI-powered smart wine-cabinet solution for FamilyMart retail environments, supporting interactive product presentation and smart retail operations.
- Built smart-home functions and device-integration workflows with Home Assistant, connecting sensors, devices, and automation logic into unified control scenarios.
- Implemented vehicle-flow analytics using YOLO object detection and the Hungarian algorithm for frame-to-frame association, enabling vehicle tracking and traffic counting.

**Microprocessor Teaching Assistant, Yuan Ze University**, Taoyuan, Taiwan

Feb. 2026 – Jun. 2026

- Prepared exercises on processor architecture, instruction sets, interrupts, timers, and memory-mapped I/O.
- Guided embedded-system labs using C and assembly, helping students debug peripheral interfaces and hardware-software integration.

**Competitive Programming Teaching Assistant, Yuan Ze University**, Taoyuan, Taiwan

Sep. 2025 – Jan. 2026

- Designed weekly training modules on algorithmic problem solving, data structures, dynamic programming, and graph algorithms.
- Led hands-on problem-solving sessions and provided individualized code reviews and debugging guidance.

### **Assembly Language & Computer Organization Teaching Assistant, Yuan Ze University**

Feb. 2025 – Jun. 2025

- Reviewed assignments to ensure fair grading, identified students' learning gaps, and provided targeted suggestions.
- Provided after-class problem-solving guidance to strengthen understanding of assembly language and computer-architecture fundamentals.

### **Digital Systems Design & Practice Teaching Assistant, Yuan Ze University**

Sep. 2024 – Feb. 2025

- Planned Verilog classroom exercises and FPGA experiments, helping students become familiar with the ModelSim simulation platform.
- Optimized laboratory workflows and prepared tutorial materials and example files, improving practical efficiency and independent problem solving.

### **Programming (II) Teaching Assistant, Providence University**

Sep. 2023 – Feb. 2024

- Tutored advanced C/C++ topics, including pointers, structures, and file operations, and supported approximately 10 students per week with homework and debugging.
- Built an automated grading system that improved grading efficiency by 60%; discussed common errors and optimization strategies to strengthen programming skills.

### **Calculus Teaching Assistant, Providence University**

Sep. 2023 – Feb. 2024

- Prepared handouts and supplementary materials and provided one-on-one tutoring to more than 20 students.
- Helped reinforce foundational concepts and problem-solving skills; the course achieved an 85% final pass rate.

## **LEADERSHIP & INTERNATIONAL EXPERIENCE**

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### **International Ambassador (Invited), The University of Manchester**

2026

- Invited to support cross-cultural outreach and peer engagement with prospective and incoming international students.

### **President, 530 Competitive Programming Training Center, Providence University**

Feb. 2023 – Feb. 2024

- Recruited more than 120 students, developed basic and advanced training, and doubled competition registrations through coordinated events and instruction.
- Designed and promoted structured beginner and advanced training courses, strengthening students' practical problem-solving skills and the university's competitive-programming community.

### **Language-Intensive Study Program, University of Calgary**

Jan. 2025 – Feb. 2025

- Completed certified language training and strengthened cross-cultural communication through international collaboration.

### **After-School Volunteer, SiaoLi Elementary School**

Feb. 2024 – Jun. 2024

- Supported reading and homework while using games and activities to build motivation, trust, and confidence.

## **HONORS & AWARDS**

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- Academic Gold Award, Yuan Ze University — 2026
- Honorable Mention, 2026 National Creative and Intelligent Technology Competition
- Second Place, 2025 Engineering Paper Competition, Student Branch, Chinese Institute of Engineers — Jul. 2025
- Honorable Mention, 2025 ICPC Taiwan Private University Programming Contest — Jul. 2025
- Top 10 Finalist, 2024 Shalun Cybersecurity Newcomer Matchmaking and Cultivation Program, Ministry of Digital Affairs — Nov. 2024
- Honorable Mention, 2024 ICPC Asia Taichung Regional Programming Contest — Nov. 2024
- Bronze Mention, 2024 ICPC Asia Taiwan Online Programming Contest — Sep. 2024
- Bronze Mention, 2024 ICPC Taiwan Private University Programming Contest — Jul. 2024
- Honorable Mention, 2023 ICPC Taiwan Private University Programming Contest — Jun. 2023
- Honorable Mention, 2022 ICPC Asia Taiwan Online Programming Contest — Oct. 2022

## **TECHNICAL SKILLS**

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Programming & HDL: Python, C, C++, Verilog, VHDL; familiar with Java, JavaScript, HTML/CSS, and MySQL.

ML & Data: TensorFlow, PyTorch, OpenCV, scikit-learn, NumPy, Pandas, and Keras.

Tools: Git, Linux, ModelSim, Quartus, Vivado, Visual Studio Code, Arduino IDE, LaTeX, Figma, and Excel.

Languages: Chinese (native); English (technical writing and presentations).