

Ting-Jun Wang

Master of Computer Science and Information Engineering,
National Taiwan University

Passionate about building end-to-end systems—from web platforms and infrastructure automation to embedded devices and AI/ML applications.



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National Taiwan University Sep 2023 - Dec 2025

Master of Science in Computer Science and Information Engineering

National Chi Nan University Sep 2019 - Jun 2023

Bachelor of Science in Computer Science and Information Engineering - **Ranking: 1/50**, [Transcript](#)

PUBLICATIONS

NAV-NF: A Benchmark and Framework for Vision-Language Navigation under Infeasible Instructions

Hung-Ting Su, **Ting-Jun Wang**(co-first author), Jia-Fong Yeh, Min Sun, Winston H. Hsu. Under submission

EXPERIENCE

Unix & Network Administration, CMLab, NTU

2024.02 ~ 2025.06

- Administered 12+ servers, including NAS, multi-GPU computing machines, and web servers.
 - Introduced **rootless Docker** and developed **automated installation scripts**, enabling members to run more diverse experiments.
 - Developed a **Discord bot** for lab members to link accounts and receive personalized notifications for lab tasks.
 - Developed **multiple automation tools to improve workstation management efficiency**, including disk cleanup notifications and tools, GPU overuse alert system, and workstation disk usage statistics tools.
- Managed lab network for ~150 users, ensuring stable connectivity and secure access.
 - Collaborated with Dept. CSIE IT staff to **redesign the lab network architecture**, enhancing network reliability and security

Research Assistant, Dept. of Public Policy & Administration, NCNU

2020.09 ~ 2021.06

- Maintained and developed new features for a web-based legal education game, using PHP (Laravel) and JavaScript.
 - Implemented a daily quest system, **increasing next-day user retention by ~17%**.
 - Improved **database normalization** and **query performance** (average query time **reduced from 750 ms to 78 ms**).
 - Proactively **suggested collecting user feedback** to the project team, identified UX issues, and implemented improvements, resulting in a **34% increase in end-of-term satisfaction scores**.

SIDE PROJECTS

Course Scheduling Tool for NCNU ([Demo](#))

Python/SQLite/Vue.js

- Independently designed and developed an unofficial course scheduling website for students, live for four years and serving up to **3,200 users per semester** (out of ~6,000 students at National Chi Nan University).

Campus Restaurant Delivery System ([Demo Video](#))

PHP/MariaDB/Redis/Docker/K8s

- Created a web application enabling students at National Chi Nan University to order meals from campus restaurants, **collaborating with all participating restaurant vendors and student delivery partners** to ensure smooth operations, with **more than 100 users served**.
- Deployed the application on a Kubernetes cluster spanning three Raspberry Pi 3B+ devices, enhancing system reliability

Deep Learning Model Implementations From Scratch (PyTorch)

Python/PyTorch

- Studied key AI research papers and reimplemented foundational models, including Transformers and Diffusion Models, gaining strong PyTorch proficiency and a solid basis for future AI research.
 - Implemented a **Transformer architecture from scratch**, training it as a translation model. ([GitHub](#))
 - Implemented a **DDPM (Denoising Diffusion Probabilistic Model) from scratch**, training it on the MNIST dataset. ([GitHub](#))
 - Implemented an LSTM-based chatbot to mimic PTT user conversations. ([GitHub](#))

Text-to-3D Model Generation Pipeline and AR Deployment ([Demo Video](#))

OpenCV/Camera Calibration/Camera Pose Estimation

- Built a new Text-to-3D generation pipeline and implemented an AR application using **camera calibration** and **pose estimation** to visualize and interact with generated 3D models in real-world scenes
- Optimized the DreamFusion pipeline (ICLR 2023) by integrating DreamGaussian (ICLR 2024), **reducing Text-to-3D generation time from 20 minutes to ~80 seconds**.
- Enabled interactive manipulation of generated 3D models in AR, allowing rotation, scaling, and real-time placement within physical environments.

STM32-Based Game Controller with Racer Game

STM32/BLE/Wi-Fi/FreeRTOS

- Developed an interactive game system using a B-L475E-IOT01A2 development board with STM32 MCU to receive LSM6DSL accelerometer data and transmit it via Wi-Fi or Bluetooth Low Energy to a Raspberry Pi.
- Implemented game display and state computation on the Raspberry Pi, sending collision and victory events back to the MCU to trigger LEDs and buzzer alerts.

Embedded Music Synthesizer on 8051 MCU

Intel-8051

- Engineered a PWM-based sound generation system with tone mapping and recording/playback capabilities on an 8051 MCU.

Decentralized GPU Resource Sharing Platform for AI Training via Blockchain ([Slide](#))

Docker/Smart Contract/Blockchain/PyTorch

- Designed and implemented a blockchain-based GPU scheduling system, enabling users to submit AI training tasks and automatically match idle GPU providers in AI Lab through smart-contract-driven coordination.
 - Developed a **Node Manager service** for GPU providers that **builds GPU clusters and offers training resources**, supporting device discovery (UDP broadcast), cluster formation, task execution, and Docker container lifecycle management for consistent training environments.
 - Built an **ERC-20 token & scheduler smart contract** on Ethereum to handle task transactions, resource pricing, and incentive mechanisms for GPU contributors.
 - Conducted performance evaluation showing that our sharing system not only benefits users lacking GPU resources, but can also achieve up to a 1.67× training speedup in certain distributed training scenarios

TECHNICAL SKILLS

Languages: Python, C/C++, JavaScript, PHP, SQL, Solidity

AI/ML: PyTorch

Embedded: STM32 (HAL/FreeRTOS), BLE, Wi-Fi, 8051

Systems: Linux, Docker, Kubernetes, Networking

Web: Vue.js, Laravel, Redis, MariaDB, SQLite