Ting-Chen Cho

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Education

Taipei Municipal Datong High School — Graduate Jun 2021
National Taiwan University — Expected Jan 2027

- **Bachelor of Science in Public Health**
- **Health Big Data Program**: Completed interdisciplinary course covering public health data analysis, big data applications, and statistical computing.

Certifications: NVIDIA Fundamentals of Deep Learning (2025)

Relevant Course

Data Analysis and ML with Python
Python Programming Foundation
Web Application Programming
Manufacturing Data Science
Epidemiology
Operating Systems
Database Management
Programming Design – C++
Linear Algebra
Computer Networks
Biostatistics I/II
Deep Reinforcement Learning

Experience

Taipei Veterans General Hospital — Comprehensive Breast Health Center — Taipei, Taiwan
Research Intern, Cancer Translational Research & Health Big Data Analysis — *Jul – Aug 2026*

- Tested whether polygenic risk scores add to a questionnaire-based breast cancer risk model in a screening cohort of 5,569 women. They do, but only *before* imaging — once the mammogram reading is available the gain disappears.
- Built the in-house score out-of-sample by construction, with per-fold GWAS, clumping and thresholding inside a stratified 5-fold split, and caught five post-diagnosis fields that would have leaked the outcome.

AirQuant – Alpha Team — Remote
Quant Developer — *Jan – Feb 2026*

- Collaborated with the alpha team to design arbitrage strategies based on order flow and order book dynamics, contributing to the development of quantitative trading strategies.
- Supported strategy implementation in code, helping translate research ideas into trading algorithms.

Projects

Full write-ups — method, results and what the results do and do not support — at william25885.github.io.

REINFORCEMENT LEARNING

SMART-D — LLM-Guided Multi-Agent RL | *PyTorch, PPO, vLLM* — Write-up | Code

- A frozen LLM proposes joint subgoals during training and is distilled into the policy, so it can be switched off at deployment. On the Overcooked-AI layout where a barrier forces the two agents to hand ingredients across a counter, standard PPO never delivers a single dish. Three-author project — mine was the SMART-D implementation, the evaluation environment and the paper's Methodology.

Scene-Specialized DQN for Multi-Level Generalization | *PyTorch, Rainbow DQN, ViZDoom* — Write-up | Code

- Five level-specialised experts and a classifier that picks one from the opening frames, rather than a single policy stretched across five maps with different enemies and visual styles. Exploration bonuses are scaled per level and switched off where finding enemies is not the difficulty.

DEEP LEARNING & GENERATIVE MODELLING

Self-Supervised Medical Image Segmentation | *PyTorch, SimCLR, TransUNet* Write-up | Code

- Three configurations trained to separate architecture from initialisation: the Transformer bottleneck alone changed nothing, while SimCLR pretraining on the unlabelled images is what improved both accuracy and the validation-to-test gap. No external pretrained weights anywhere.

2D Generative Models — DDPM, DDIM, GAN, MeanFlow | *PyTorch, Optimal Transport* Write-up | Code

- Four families written from scratch on a 2D target whose density is known exactly, so sample quality is measurable and a sample's cost reads as network evaluations. DDIM at 100 denoising steps matches DDPM at 1000; one-step generation needs a different objective, not a shortened sampler.

Go Rank Prediction | *PyTorch, CatBoost, scikit-learn* Write-up | Code

- Rank is ordered rather than categorical, so each sequence model carries a CORAL head instead of choosing between nine unrelated labels. Stacking a Transformer, a BiLSTM and gradient boosting, then pooling predictions across crops, seeds and games, reaches **80.65% on held-out data** against 11% for chance.

FULL-STACK DEVELOPMENT

Bello — Social Meetup & Real-time Chat System | *Vue 3, Flask, PostgreSQL, Vercel* Write-up | Code

- Meetup hosting with real-time private and group chat, a friend system and location autocomplete, on a 4NF PostgreSQL schema behind a modular Flask backend deployed serverless. Live at bello-tw.vercel.app.

LINE Travel Bot — Conversational Travel Planner | *Next.js, TypeScript, Prisma, Gemini API* Write-up | Code

- Multi-step dialogue collects travel preferences and Gemini generates the itinerary. Conversation state is persisted per user rather than held in memory, which is what makes serverless deployment possible.

SYSTEMS & NETWORKING

Micropayment System — SSL/TLS Client–Server Payment Platform | *C++, OpenSSL, pthreads* Write-up | Code

- Account operations run over TLS against a thread-pool server while payments travel directly between peers. Each client forks a child process to accept inbound transfers while the parent serves the interactive menu.

Leadership & Activities

Rural Service Team

Volunteer *Jul 2025*

- Participated in a rural service program in Liujiao Township, Chiayi County, assisting with health education initiatives and conducting environmental surveys to support local community development.

Harvard Taipei Academy Host Family Program

Volunteer *Jun – Aug 2024*

- Hosted visiting Harvard University students in Taiwan, introducing them to local Taiwanese culture and heritage sites.
- Planned and coordinated group meals, home cooking, cultural experiences, and outdoor activities to support cross-cultural exchange.

Freshman Orientation Camp

Orientation Group Leader *Aug 2023*

- Guided and supported incoming students during university orientation, facilitating group communication and coordinating team activities.