Yin-Chen Chen yinchen618@gmail.com |Portfolio (Live Demo): https://pu-in-practice.vercel.app

PhD Application | Graduate School of Frontier Sciences, University of Tokyo | October 2026 Entry

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Research Objective

My research investigates the application of state-of-the-art machine learning theory to complex, real-world systems. Leveraging a unique 95-unit smart residential testbed, I have successfully implemented, validated, and extended novel methodologies in weakly-supervised and robust learning. This work has already benchmarked foundational models (uPU/nnPU) on real-world data characterized by online label shift and other forms of imperfect information. My objective is to deepen this research, contributing both theoretically and practically to the development of reliable learning algorithms for dynamic, human-centered environments.

Education

M.S., Engineering Science and Ocean Engineering | **National Taiwan University**, Taiwan | 2009
Laboratory: Information and Network Application Lab (Advisor: Prof. Ray-I Chang)

B.S., Computer Science and Engineering | **Tatung University**, Taiwan | 2006

Admitted to PhD Program, Engineering Science and Ocean Engineering | **National Taiwan University**, Taiwan | 2009
[Admitted without oral examination; withdrew for national service and to pursue industry experience]

Research Interests

Weak Supervision (e.g., PU Learning, Complementary Labels), Label Noise, Domain Adaptation, Anomaly Detection, Time-Series Modeling, and Causal Inference in Real-World Human-Centered Systems.

Publications

Ray-I Chang, **Yin-Chen Chen**, et al. "Design and Implementation of an IoT Gateway for Zigbee and Wifi." *WSEAS Transactions on Communications*, Vol. 21, pp. 225-229, 2022.
[Cited by 1 on Google Scholar]

Yin-Chen Chen, Chi-Cheng Chuang, et al. "Integrated Wireless Access Point Architecture for Wireless Sensor Networks." *Proceedings of the 11th International Conference on Advanced Communication Technology (ICACT)*, 2009. [EI-indexed]
[Cited by 15 on Google Scholar]

Yin-Chen Chen, Chi-Cheng Chuang, and Ray-I Chang. "Wireless Sensor Network within an Open-Source Agent Framework." *Workshop on Wireless, Ad Hoc, and Sensor Networks*, Taiwan, 2009.

Jia-Shian Lin, Chi-Cheng Chuang, Ray-I Chang, **Yin-Chen Chen**, et al. "A Priority-based Pattern Matching Location Algorithm for Wireless Sensor Networks." *Proceedings of the 11th International Conference on Advanced Communication Technology (ICACT)*, 2009.

Real-World Human Dynamics Laboratory (Smart Residential Testbed)

- Designed and implemented a smart property system for a personally owned and managed portfolio of 95 rental units, encompassing two multi-story buildings and three commercial spaces.
- This environment serves as a unique real-world testbed enabling research in **behavioral modeling, event-driven automation, and context-aware adaptive control.** The platform's key infrastructure includes:
  - **Advanced IoT Hardware:** Deployed dual-voltage smart meters, remote switches, and facial recognition access systems across 95 units.
  - **On-Premise AI Systems:** Built private infrastructure for LLM (DeepSeek) and Generative AI (Stable Diffusion) experimentation to support behavior recognition and semantic pattern analysis. Developed a custom facial recognition system for automated event logging.
  - **Applied Research Validation:** Leveraged the platform to develop a public-facing case study on weakly-supervised anomaly detection, validating uPU/nnPU models and benchmarking a novel temporal-aware approach.

- The platform continuously collects high-resolution, multimodal time-series data (e.g., energy, movement) characterized by sparse labels and recurring distribution shifts, representing a rare asset for validating advances in robust learning. Personally, I lead all property renovations and manage an ongoing 2-8 person operations team. A live demonstration of this testbed and its associated case studies is available at: pu-in-practice.vercel.app

Teaching Experience

Part-time Lecturer (AI & Programming) | Chung Yuan Christian University, Dept. of Commercial Design | 2022 – Present

- Designed and taught foundational AI and computing courses for non-STEM students.
- Achieved consistent teaching evaluations above **4.6/5.0** across all semesters.
- Transformed the course into a live demonstration of applied AI by developing and deploying custom systems, including a facial recognition attendance tracker and a conversational bot for grade management.
- Developed and deployed a live HTML/CSS/JS learning platform, integrating a DeepSeek-Coder LLM via Ollama for real-time, prompt-based code generation. The platform features a Monaco Editor interface, an iframe preview, Google OAuth for student authentication, and isolated session management, providing an interactive AI-assisted coding environment for the classroom.

Professional Experience

Founder / General Manager | Infowin Technology Co., Ltd., Taiwan | 2015 – Present

- Led end-to-end enterprise system development, managing software architecture, cloud deployment, and international client communication.
- Architected and deployed a smart campus system for Aichi International Academy in Nagoya, Japan, integrating IoT sensors for a full digital transformation of campus operations.
- Managed all phases of on-site development and client coordination in Japan (2017-2019).
- Designed and built bespoke management systems for clients in education, finance, and real estate, including a portfolio platform for a Singapore-based investment firm.

Software Engineer | **IBM Taiwan**, Taipei | 2011 – 2014

- Developed and debugged UEFI firmware for IBM System x servers, focusing on Intel x86-based Reliability, Availability, and Serviceability (RAS) features.
- Served on the global UEFI solution team, performing root-cause analysis for critical system issues in high-stakes data center environments such as data centers and research labs.

Technical Skills

Adept at architecting and deploying end-to-end systems that integrate hardware and software to enable behavioral monitoring, time-series data collection, and anomaly detection in real-world environments.

- **Deep Learning & Models** PU Learning (uPU, nnPU), Reinforcement Learning (Q-Learning), Generative Models (Stable Diffusion), LLM Deployment (DeepSeek), Computer Vision (Facial Recognition)
- **Frameworks & Libraries** PyTorch, Scikit-learn, Pandas, OpenCV
- **Programming & Data** Python, C/C++, Java, JavaScript, PostgreSQL, MySQL, RESTful APIs
- **IoT & Embedded Systems** Smart Meters, Sensor Integration, MCU Development, UEFI Firmware
- **Infrastructure & Tools** AWS, Docker, Git, Linux

Awards & Honors

- **University-Level Excellent Course Design Award**, Chung Yuan Christian University, 2024, 2025
- **Outstanding Landlord Award**, Chung Yuan Christian University, 2018
- **Third Prize** (NT$40,000), 4th ARM Code-O-Rama Embedded Programming Contest, 2008
- **Champion** (NT$100,000), 3rd ARM Code-O-Rama Embedded Programming Contest, 2007
- **Champion** (NT$100,000), 7th NTU Innovation Competition, 2007 (no champion awarded in 5th & 6th)

Languages

- Mandarin Chinese (Native), English (Fluent), Japanese (Intermediate, JLPT N2)