Yen-Nan (Aaron) Ho

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AI Engineer

Data Scientist at Harbor Tech focused on industrial AI products and customer delivery. Lead product/domain design for Harbor AI 2.0 monitoring and an equipment inspection project from requirements through on-site delivery. Combine data analysis, system integration, and AI-assisted engineering to turn diagnostic methods into usable, verifiable products.

Core Skills

- **Data and Models:** Python, NumPy, pandas, SciPy, PyTorch; vibration/PRPD, RUL, CNNs, statistical analysis, ablations, and data-quality assessment.
- **AI and Product Integration:** LangChain/LangGraph, report services, vLLM, Django/Django Ninja, REST, asynchronous workflows, React/TypeScript.
- **Engineering and Delivery:** PostgreSQL, Redis, RabbitMQ, Docker, offline deployment, update/rollback, migration, automated tests, AI agents, and human review.

Work Experience

Data Scientist, Harbor Tech | Taipei | Oct 2025-Present

- **Industrial Intelligent Monitoring Platform:** Lead Harbor AI 2.0 product/domain design. Built monitoring, diagnostics, and reporting capabilities from scratch with the team and AI agents. Defined APIs, data-access contracts, and cross-service workflows; advanced legacy coexistence, migration, and progressive replacement. Version 2.0 now operates independently of 1.0.
- **Equipment End-of-Line Quality Inspection Platform:** Led requirements, specifications, AI-assisted implementation, UI/UX, and on-site delivery with engineering partners. Reorganized five to six page levels into three core interface types-plan list, work order, and board-with sensor-installation and pre-measurement checks. Demonstrated the system, trained users, and personally resolved a clock-offset-related connection failure and completed follow-up fixes. The project is ongoing; formal acceptance remains unconfirmed.
- **Model and Reporting Quality:** Traced RUL analysis to test constants misrepresented as observations, rejected the conclusion, and required parameter and ablation checks using product code from research notebooks. Advanced field-analysis methods into a platform report service, separating deterministic analysis from LLM narrative; DOCX reports and frontend downloads were merged into the mainline.
- **AI-Assisted Engineering and Delivery:** Built traceable requirements, decisions, issues, tests, and version records. Coordinated agents on isolated branches for parallel development and verification, with daily regression/monitoring and human PR/release review. Integrated offline/cross-architecture installation, update/rollback, and release delivery; owned quality criteria, domain decisions, and release-readiness judgments.

Data Science Intern, Institute of Sociology, Academia Sinica | Taipei | May 2019-Dec 2020

Combined survey-area grouping, point-to-point distances, OR-Tools TSP, and Folium to support field-survey routes, dispersion measures, and budget estimation.

Selected Research and Projects

- **MCIENet, M.S. thesis (2024):** Independently led multi-scale CNNs, data pipelines, ablations, cross-dataset evaluation, and XAI for DNA-sequence-based 3D chromatin interaction prediction. Adapted parts of ChINN preprocessing; retained cross-cell-line generalization limits.
- **Horus (2020):** Primarily owned FastReID-based person ReID integration, similarity/dual-threshold decisions, and tracking records, integrating with the team's multi-camera tracking and face recognition. First place in the undergraduate capstone competition.
- **Taipei Disaster Resource Dashboard (2025):** Proposed the topic and collected data for a team analysis of disaster-prevention resources around tourist attractions. Hackathon finalist; the public dashboard uses a fork of a friend's template.
- **TownPass Authorized Assistance Proposal (2026):** Owned topic ideation, use-case definition, and product specifications, and presented in the final round. The team reached the finals of the 2026 TownPass Microservices Hackathon.

Research and Publications

- **IIAI AAI, 2021:** A Dynamic Embedding Method for Passenger Flow Estimation. Method ideation, data, models, and experiments. Competitive Paper Award.
- **TCSE, 2020:** Hierarchical Attention Network with Sentiment Lexicons for Stock Article Emotion Analysis. Performed the research work; coauthored publication.
- **Knowledge-Based Systems, 2024:** Dynamic traffic network representation model for improving the prediction performance of passenger flow. Supporting code and technical assistance.

Education

- National Chengchi University, M.S. in Computer Science | Sep 2021-Sep 2024.
- Soochow University, B.S. in Data Science | Sep 2017-Jul 2021.