# Hao-Tian Lu

+886-970-297-111 | Taipei, Taiwan | work@tedlu.tw | tedlu.tw

## Summary

An **AI Scientist / Solutions Architect** focusing on bridging theoretical machine learning research, scalable technical implementations and ready to develop my career in empirical AI safety studies.

Experienced in academic neuroimaging / ML research with industry development and product design, while actively contributing to digital governance and AI governance advisory.

Driven by a core interest in understanding the internal behavior of large models behaviors and cognitive interactions to build user-adaptive AI systems that balance safety constraints with functional performance.

## Research Experiences

**Research Assistant of Dr. Jie-Fan Chang Lab** Sep 2022 — Present

Department of Computer Science & Information Engineering, National Taiwan University *Taipei, Taiwan*

- Designed and implemented deep learning pipelines for neuroimaging analysis, including FLAIR MRI lesion segmentation for multiple sclerosis.
- XAI methods for clinical interpretation under resource-constrained settings.
- Conducted model optimization for robustness and deployment in clinical environments.

**Research Student of MRI Lab** May 2023 — May 2025

Institute of Biomedical Sciences (IBMS), Academia Sinica *Taipei, Taiwan*

- Conducted MRI data analysis focusing on connectome and metabolic connectivity in neurodegenerative disease models.
- Led a metabolic connectivity study using Dynamic Glucose-Enhanced MRI (DGE-MRI) to investigate network-level disruptions in Huntington's disease mouse models.
- Developed analysis pipelines integrating DGE-MRI, rs-fMRI, and CEST MRI for connectome-level inference.
- Designed scalable data science infrastructure for neuroimaging research.

## Industry Experiences

**Solutions Architect** Jun 2025 — June 2026

AIOTEK Co., Ltd. *Taipei, Taiwan*

- Led development and deployment of efficient machine learning systems for edge computing environments, with 20+ technically evaluated product solutions designed.
- Translated complex AI agent & safety requirements into actionable solution architectures, ensuring edge-to-cloud reliability and cost-efficient operations.
- Bridged communication across teams to ship high-performance ML products, led workflow AI adoption across departments to optimize working efficiency.

**Scientist of Personalization Cloud** Nov 2023 — May 2025

Appier Inc. *Taipei, Taiwan*

- Conducted research on generative AI training methods and large-scale model optimization, focusing on robustness trade-offs in production-level AI systems.
- Exploratory experiments on ML approaches for personalized AI, delivered 3+ meaningful PoCs for creative solutions.
- Awarded Highest Customer Value Award (Appier Labs Day 2024).

## Education

**National Yang Ming Chiao Tung University** Taipei, Taiwan

*B.S. in Life Sciences and Genome Sciences* *2026 — 2030 (expected)*

- Accepted through ISEF 2025 national delegation admission

**Taipei Digital Experimental High School** Taipei, Taiwan

*High School Diploma (Experimental Education)* *2023 — 2026*

- Overall GPA: 3.5 / 4.0
- Chairman of 3rd Student Union

## Selected Works & Projects

**Linear Accessibility of Latent Knowledge in Sandbagging LLMs** 2026 - Present
***Individual Researcher***, ongoing research
- Designing internal state probes to evaluate whether latent factual knowledge remains linearly accessible in models optimized to underperform on specific benchmarks.
- Investigating safeguarding mechanisms to mitigate over-refusal and model degradation under strict safety constraints.

**Automated Business AI Agent Evaluation Pipeline Designing** 2026
***Lead Architect***, *affiliated w/ AIOTEK Co., Ltd.*
- Designed a multi-tier evaluation framework to validate behavioral stability and reasoning patience of production-grade AI agents, preventing semantic drift in user-facing environments.

**The Dynamics of Multi-Stakeholders and Policy Environment: From Digital Intermediary Service Act to AI Fundamental Act** 2026
***Sole Author***, *graduation thesis*
- Conducted a systematic study on the transition from the Digital Intermediary Service Act to the AI Fundamental Act, analyzing the "Brussels Effect" on Taiwan's regulatory framework.
- Performed thematic analysis on interviews with government and industry experts to identify "administrative dominance" and proposed strategies for horizontal coordination in AI safety.

**Automated Information Integrity & Credibility System using LLMs** 2024 — 2025
***Lead Developer***
- Engineered an LLM-driven verification engine from PoC to functional prototype, designing a multi-tier architecture to validate agent behavioral stability and mitigate semantic drift using optimized CoT nudging.

**Metabolic Connectivity of Huntington's Disease in Dynamic Glucose-Enhanced MRI** 2023 — 2025
***First Author***, *advised by Dr. Dennis W. Hwang & Dr. Yu-Wen Chen, Institute of Biomedical Sciences, Academia Sinica*
- Modeled network-level disruptions in brain systems using time-series clustering and connectivity analysis, focused on signal dynamics and inter-regional communication patterns.

**Signal Analysis and XAI Methods for Schizophrenia EEG Classification** 2024
***First Author***, *advised by Dr. Jie-Fan Chang, NTU CSIE*
- Temporal pattern extraction and neural signal encoding with transformed EEG representations (MTF, GAF) to explore the mechanisms of schizophrenia EEG classification features.

**Scalable CNN for Multiple Sclerosis Lesion Segmentation in MRI on Embedded Systems** 2022
***First Author***, *advised by Dr. Jie-Fan Chang, NTU CSIE*
- Balancing performance and computational efficiency in constrained environments through model architecture design combining dilated convolution and specialized data processing for MRI data in edge computing.

## Governance Advisory & Policy Impact

**Committee Member of Youth Advisory Committee** Jan 2025 — Present
Taipei City Government *Taipei, Taiwan*
- Advisor of AI usage regulations for public sectors and urban development-related stakeholders.
- Conducted research on data governance and datafied governance policies.

**Technical Contributor of Digital Law Taskforce** Oct 2024 — Present
Judicial Reform Foundation *Taipei, Taiwan*
- Conducted in-depth research of latest digital governance frameworks for policy recommendations, focusing on verifiable safety cases and mandatory impact assessments for high-risk AI deployments.
- Contributed in the drafting of Digital Bill of Rights, defining fundamental rights regarding algorithmic transparency, automated decision-making transparency, and data sovereignty.

**Program Technology Consultant** Jul 2025 — Sep 2025
Public Television Service Foundation *Taiwan (Hybrid)*
- Advised on AI system design, technical evaluation, data privacy, and ethical implications of deploying AI in public and data-sensitive contexts.

**Committee Member of Youth Advisory Committee** Apr 2024 — Apr 2025
K-12 Education Administration, Ministry of Education, Taiwan *Taipei, Taiwan*
- Legislation research on digital rights, educational privacy, data governance and accessibility in education.
- Advocated for legislative advancements to strengthen privacy protections and promote inclusive education initiatives.

## Teaching Experiences

**Lecture Designer** Jan 2024 — Present
Ministry of Education High School AI Course Program *Taiwan (Hybrid)*
- Contributed to computer science education research, focusing on innovative teaching methodologies.

**Consultant & Industry Instructor** Jan 2024 — Jun 2024
NTU Artificial Intelligence Research Club *Taiwan (Hybrid)*
- Guided several mentees to build generative AI & computer vision approach optimization projects.

## Awards & Honors

2025.01 **First Award & Highest Honor Award of Taiwan International Science Fair 2025**
- Selected as Taiwan delegation for Regeneron ISEF 2025

2024.07 **University Group Third Award of 2024 Social Designer Contest**
- Information credibility query virtual assistant based on LLM
- Issued by New Taipei City Government Youth Department

2024.05 **Outstanding Poster Award of Symposium of the Frontiers in Biomedical Magnetic Resonance**
- Issued by Taiwan Magnetic Resonance Society

2024.02 **Fourth Award of 2024 Taiwan International Science Fair**
- Issued by National Taiwan Science Education Center

2022.08 **Third Place of 62nd National Primary & High School Science Fair (NPHSSF)**
- Issued by Ministrty of Education, Taiwan

## Talks & Conferences

2026.06 **Digital Reconstruction: A Macro-Micro Analysis of Policy and Platform Behaviors** – Panelist
Dual-Research Presentation & Salon

2025.12 **What Kind of Digital Environment Are We Building for the Next Generation?** – Invited talk
Judicial Reform Foundation Taichung Office

2025.12 **2025 AI and Youth Empowerment International Forum** – Invited panelist
CROSSROAD, NOWNEWS, EdYouth, Better Together for NextGen Taiwan

2024.10 **AI in Medical Imaging, AI Ethics and Governance** – Invited talk
Graduate Program Artificial Intelligence Special Lecture, Industry Academia Innovation School, NYCU

2024.08 **Securing Trust: Ethical Governance in Championing Children Digital Rights** – Invited panelist
Asia Pacific Regional Internet Governance Forum (APrIGF) 2024

2024.05 **Connectivity Analysis of Glucose Metabolism in HD: A New Perspective Provided by DGE MRI**
Poster at 2024 Symposium of the Frontiers in Biomedical Magnetic Resonance

2023.12 **AI Assembly - Data Sharing and Model Licensing Expert Workshop** – Invited discussant
Taiwan Artificial Intelligence Consensus Collaborative Workshop

2023.12 **Open Source Deep Learning with Implementation of Architectures** – Speech
Conference for Open Source Coders, Users, and Promotors 2022

## Languages

- **Mandarin, Taiwanese:** Native proficiency
- **English:** Professional proficiency (IELTS Overall 8.0, 2025.09)
- **Spanish:** Limited working proficiency