Liang Lee

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Research Interests

Large Language Models; Cognitive Neuroscience; Deep Learning; Explainable AI; Bayesian Inference; Decision-Making; State Space Models; Causal inference; Reinforcement Learning; Retrieval Augmented Generation

Experience

Digital Transformation Project – AI-Driven Teaching and Learning Group, NYCU **Hsinchu, Taiwan**
AI Researcher *2024–Present*

- Finetune large language models for AI tutor applications
- Implement personalized feedback mechanisms based on learner input
- Design and integrate adaptive testing modules for tailored assessments
- Develop avatar-based teaching systems with interactive visual interfaces

Higher Education Resources for Openness, NYCU **Hsinchu, Taiwan**
Software Engineer *2022–2024*

- Develop LLM-based AI tutor and assessment tools
- Analyze big data for learning behavior outcomes and decision-making
- Research learning effectiveness in MOOCs (Massive Open Online Courses)

National Yang Ming Chiao Tung University **Hsinchu, Taiwan**
Research assistant, Cognition and Science Learning *2019–2021*

- Refined fMRI tasks and organized behavioral-neural data for analyzing brain activation during conceptual conflict
- Collected online learning logs and mental models to analyze how self-generated representations affect inquiry performance
- Analyzed eye-tracking and fMRI data to examine attention and reasoning in conceptual change

Education

National Yang Ming Chiao Tung University **Taipei, Taiwan**
PhD student, Institute of Neuroscience, Brain Connectivity Lab & Brain Plasticity Lab *2024–Present*

National Yang Ming Chiao Tung University **Hsinchu, Taiwan**
Master of Education, Cognition and Science Learning, Institute of Education *2019–2022*
Program of Big Data Analysis, Institute of Statistics & Institute of Data Science and Engineering
Supervisor: Prof. Hsiao Ching She
Title: Using eye movement data and deep learning to build a prediction model for the response accuracy of digital science content

National Yang Ming Chiao Tung University **Hsinchu, Taiwan**
Bachelor of Science, Department of Electrophysics *2014–2019*
K-12 Science Teaching Certificate (Natural Sciences with specialism in Physics)

Publications (In Preparation)

[1]: **Liang Lee**, Meng-Jun Cheng, Por-Chi Kao, Ping-Tzyy Jung, Hsiao-Ching She. Enhancing students' computer-based science assessment performance with deep learning models trained on eye-tracking data.(under review)

Conferences

[1]: **Liang Lee**, Yi-Zhen Hsu, Shang-Hua N. Lin, Ching-Po Lin, Li-Hung Chang. Investigating Implicit and Explicit Motor Adaptation Using Explainable Deep Learning Approach. *Taiwan Society of Cognitive Neuroscience Annual Meeting*, 2025

[2]: Ken-Zen Chen & **Liang Lee**. Implementing Large Language Models for Student Essay Assessment in MOOCs: Exploring Effectiveness of Prompt Engineering Methods. *Open Education Global Conference*, 2024

[3]: Yin-Fung Luk, Ken-Zen Chen, **Liang Lee**. Discussion Forum Text Classification in Online Courses Assisted with BERT. *Taiwan Association for Educational Communications and Technology Conference*, 2021

Awards

2025: **High Distinction Award**, Excellent Student Paper Competition, 2025 Taiwan Society of Cognitive Neuroscience Annual Meeting

Grants/Scholarship

2024: The Ministry of Education (MOE) PhD scholarship

2024: The Ministry of Science and Technology (MOST) Subsidy (OEGlobal 2024 Conference)

Invited Talks

2025: **AI and the Mind: Bridging Neuroscience and Artificial Intelligence**. Seminar, Institute of Neuroscience, National Yang Ming Chiao Tung University

2025: **From Language to Intelligence: How Large Language Models Reshape Our Dialogue with AI**. Taipei City Hospital

2024: **AI and ethics**. Morality and Human Cognition, Liberal Arts College, National Yang Ming Chiao Tung University

2024: **Introduction to AI: The Past, Present, and Future of Artificial Intelligence**. Kang Chiao International School Linkou Campus

2023: **The Application of ChatGPT in Teaching and Curriculum Design**. Center for Teacher Education, National Yang Ming Chiao Tung University

Teaching Experience

Teaching Assistant — **Hsinchu, Taiwan**
Morality and Human Cognition, National Yang Ming Chiao Tung University — *2024*

Teaching Assistant — **Hsinchu, Taiwan**
Python Workshop, Sciwork Conference 2023 — *2023*

High School Physics - Mechanics and Thermal Physics — **Online**
Chinese Taipei School (Kuala Lumpur) — *2022–2023*

High School Physics - Natural Sciences and Inquiry Practices — **Hsinchu, Taiwan**
Hsinchu Chien Kung Senior High School — *2019–2020*

Certificates

[1]: **High School Teacher Certificate (Natural Sciences with specialism in Physics)**

[2]: **Level C Technician for Industrial Electronics Certificate**

Skills

Programming Languages: Python, R, Arduino, Matlab

Libraries: PyTorch, LangChain, Scikit-learn, Pandas, PyMC, OpenCV

Languages: Mandarin (native), English (fluent), German (beginner)