Yi-Shin Lin

Ph.D.

About Me

Quantitative researcher in psychological and educational measurement. Research Assistant Professor at the Centre for Information Technology in Education, Faculty of Education, The University of Hong Kong. I work on psychometric modelling (item response theory, cognitive diagnosis, Bayesian methods) for large-scale educational assessment. Earlier research: experimental psychology and open-source software for hierarchical Bayesian inference.

Contact Information

Location: Hong Kong

Skills & Expertise

Methods

Item response theory, cognitive diagnostic models, hierarchical Bayesian inference, generalised linear mixed and multilevel models; large-scale assessment data (TIMSS, PISA, ICILS, PIRLS, ICCS).

Programming

R (package development), C, C++/Rcpp, Python, MATLAB, CUDA; high-performance computing and reproducible analysis pipelines.

Professional Experience

Research Assistant Professor at The University of Hong Kong

April 2026–Current

- Psychometric design and analysis for a longitudinal study of students' learning in a digital world (CITE, Faculty of Education).
- Item response theory calibration, field-trial design and assessment-platform integration for school-based data collection.

Postdoctoral Researcher at National Academy for Educational Research, Taiwan

July 2025–December 2025

- Bayesian cognitive diagnostic modelling for large-scale educational assessment, with open-source software (ggdmc).
- Cross-national study of mathematics confidence in TIMSS across 49 countries (GLMM, Bayesian multilevel mediation).
- Reproducible analysis infrastructure for TIMSS, ICILS, ICCS, PIRLS and PISA.

Research Fellow at University of Leeds

March 2020–September 2023

- Laboratory and video-based naturalistic studies of road-user decision-making.
- Stochastic differential equation software (C++ with an R interface) and toolkits for extracting traffic trajectories from video.
- Machine-learning models of driver behaviour; student supervision and manuscript review.

Postdoctoral Research Fellow at University of Tasmania

September 2015–August 2018

- High-performance computing software for hierarchical Bayesian inference, including parallel PDA estimation.
- Managed an 8-GPU computing server for the lab's modelling work.
- Bayesian inference workshops in Taiwan and Australia.

Achievements

PhD

University of Birmingham

Experimental Psychology. Thesis: a hierarchical Bayesian decision-making model of visual search.

Master of Arts

The City University of New York

Cognitive Neuroscience

BSc

National Taiwan University

Psychology. Dean's List.

Hobbies & Interests

Water sports, mountaineering and cycling; entry-level black belt in Shotokan karate.