

LEI TIANYOU

Email: tianyou.lei@u.nus.edu

Mobile: +65 83067304

PROFILE SUMMARY

GDipSA (NUS-ISS) student combining machine learning with full-stack software engineering. Designed and benchmarked deep-learning models including a transfer-learning CNN classifier and a social science study applying ML to a dataset of over 40,000 samples, and ships production-ready systems with Java/Spring Boot/ReactJS

SKILLS

- Machine Learning: deep learning (CNN, transfer learning); gradient boosting & ensemble methods (CatBoost, XGBoost), end-to-end ML workflow with SHAP interpretability
- Programming Languages: Python, Java, MySQL (Proficient); R, JavaScript, C++ (Familiar)
- Full-Stack Web Development: Spring Boot, MVC, REST APIs, JPA/Hibernate (ORM), ReactJS, Thymeleaf
- DevSecOps: Cloud Native, Docker, Terraform, Ansible, Git, security scanning, automation testing
- Business Analysis: ACCA Diploma in Accounting and Business, financial statement analysis, industry research
- Languages: English (IELTS 7.5, 2025), Chinese (Native), Japanese (Basic)

EDUCATION

National University of Singapore

Jul 2025 - Present

Graduate Diploma in Systems Analysis (GDipSA)

- Relevant coursework: Machine Learning, Web Application Development, Agile Software Delivery, Big Data

Chongqing University

Sep 2022 - Jun 2026

Bachelor of Management, Administration Management

- Designed and executed a supervised ML study predicting internal and external political efficacy using European Social Survey (ESS) Round 11 data covering ~39,000 respondents across 23 European countries

RESEARCH

Co-Author

Jan 2025 - Dec 2026

Thesis - Key Predictors of Political Efficacy Based on ML

- Benchmarked 11 models (tree-based ensembles, gradient boosting, SVR, KNN, neural network), selected CatBoost as final model based on R^2 , MAE, RMSE
- Built reproducible modelling pipeline in Python & R, including complete-case cleaning, categorical encoding
- Applied SHAP interpretability (mean absolute values and dependence plots) to rank feature importance

PROJECTS

Plan-Stage Designer

Jun 2026 - Jun 2026

DevSecOps CI/CD Pipeline Design

- Owned Plan-stage design and coordinated with another team member to align Plan↔Monitor feedback loop
- Exceeded the Plan-stage scope to help shape team-wide toolchain decisions across containerisation, IaC, GitOps, and co-designed one end-to-end DevSecOps CI/CD pipeline

Team Lead**Dec 2025 - Jan 2026****Fruit Image Classifier - CNN with Transfer Learning**

- Developed a custom PIL-based pre-processing and augmentation pipeline, corrected severe class imbalance (20 vs 75 samples) via weighted sampling and class-weighted loss, and tuned hyperparameters with multi-seed robustness validation
- Led the Version 2 and final optimisation iterations of a 5-person team building a CNN for four-class fruit image classification, applying transfer learning with MobileNetV2 to reach 0.92 accuracy / 0.87 F1

Backend Developer**Sep 2025 - Nov 2025****Full-Stack Shopping-Cart Web Application**

- Co-owned backend development with the other two teammate, building RESTful API services on a Spring Boot backend with JPA/Hibernate ORM persistence over a SQL database
- Bridged the front-end/back-end boundary by defining API contracts with a 2-person ReactJS frontend team, integrating components into a single e-commerce application spanning 6 core features

EXPERIENCE

Business Centre Intern**Jan 2024 - Feb 2024****CITIC Securities, Hubei Branch**

- Studied extensive internal industry research reports, produced basic industry research reports
- Led a 3-member team to design diversified investment strategies tailored to client needs
- Created 2 ChatGPT-assisted scripts for portfolio-return analysis, applied Python for calculations and Excel VBA for automated reporting, devised an innovative workflow for final investment decision