

Stanley Chow

Recommendation Systems - Search & Ranking - Machine Learning - Applied Mathematics
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EDUCATION

The University of Hong Kong (HKU)

BSc in Mathematics - Second Major in Computer Science - Minor in Finance | Expected May 2028

GPA: 3.98 / 4.30. Dean's List; HKU Entrance Scholarship; Lee Shau Kee Scholarship.

University of California, Los Angeles (UCLA)

Exchange study in Mathematics | 2025-2026

Stanford University

International Honors Program | Summer 2025

RESEARCH EXPERIENCE

HKU Summer Research Fellowship - Parabolic Inverse-Source Reconstruction

Supervisor: Prof. Zhiwen Zhang | May 2026-Present

- Developed reproducible finite-difference and regularized inverse experiments for recovering indicator sources from noisy diffusion observations.
- Separated raw source error from heat-visible and thresholded geometric recovery; studied level-set stability and observation-scale identifiability.
- Designed coverage-aware POD bases with held-out diagnostics for snapshot-law shift and offline-online reliability checks.
- Prepared two manuscript packages; the work is ongoing and is not listed as published.

Urban Rail Network Optimization - Independent Research

2023 | Recognized in the S.-T. Yau High School Science Award

Modeled rail alignment under geometric and engineering constraints using analytical optimization and Particle Swarm Optimization.

SELECTED PROJECTS

H&M; Two-Stage Personalized Recommendation System | [Repository](#)

Built nine-channel candidate retrieval and LambdaRank over 31.8M transactions; reached 0.034479 frozen-future MAP@12 and generated bounded-memory predictions for 1.37M customers across 138 shards.

DocuQuest Agent | [Repository](#)

Implemented a C++17 lexical retrieval pipeline with tokenization, a custom BST multimap, inverted indexing, deterministic tests, and an injected LLM client.

Behavioral Personality Analytics | [Repository](#)

Compared 381 leakage-resistant configurations; selected a three-feature Gradient Boosting model with 0.9651 holdout ROC-AUC on generated data, with external-validity limitations documented.

Flight Price Prediction & Pricing Analysis | [Repository](#)

Collaborative XGBoost study over 300,153 rows; contributed Experiments 1 and 2 code and Experiment 2 interpretation. Reported random-split limitations and avoided causal pricing claims.

TECHNICAL SKILLS

Languages: Python, C++, SQL, MATLAB

ML & Data: PyTorch, LightGBM, XGBoost, scikit-learn, pandas, NumPy, SciPy, DuckDB

Recommendation & Search: candidate retrieval, collaborative filtering, two-tower models, LightGCN, LambdaRank, negative sampling, temporal validation

Research & Engineering: Git, CMake, Jupyter, LaTeX, numerical optimization, PDEs, Monte Carlo experiments