Joshua Teo

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Analytical and driven Computer Science student specializing in Artificial Intelligence, with a strong foundation in quantitative research and financial modeling. Experienced in algorithmic trading, predictive modeling, and statistical analysis using Python. Passionate about applying mathematical rigor and computational tools to build data-driven trading systems and extract insights from financial markets

EDUCATION

- National University of Singapore — *Bachelor of Computing in Computer Science* (Aug 2024 – May 2028)
- GPA: 4.78 / 5.0 | Focus: Artificial Intelligence & Machine Learning
- Achievements: 1st Runner-Up (Top 2 of 81 teams), IDEATE 2025 Makeathon, NUS

QUANTITATIVE EXPERIENCE

Magnificent 7 RSI Backtesting System — *Quantitative Research Project* (Sep 2025 – Oct 2025)
- Designed and optimized an RSI-based momentum trading strategy on the Magnificent 7 stocks using 40+ years of market data (1981–2023).
- Built a data pipeline with `yfinance` and `pandas` to clean and preprocess time-series data for model evaluation.
- Simulated dynamic portfolio rebalancing, trade execution, and performance tracking with realistic frictions (transaction costs, slippage).
- Achieved 29.77% annualized return and 0.72 Sharpe Ratio, outperforming the S&P 500 benchmark through rigorous statistical analysis.
- GitHub: https://github.com/JoshTKx/magnificent7-backtest

HDB Resale Price Prediction Model — *Machine Learning Project* (Aug 2025 – Present)
- Trained a neural network in PyTorch to predict HDB resale prices with 90% R^2 and 7.5% MAPE on over 213,000 transactions.
- Engineered complex features (location, floor area, lease decay) to model nonlinear relationships between variables.
- Applied model tuning and validation to ensure robustness and generalizability across regions and flat types.
- GitHub: github.com/JoshTKx/hdb-resale-prediction

AURA Project (Computer Vision) — *IDEATE 2025 Makeathon, 1st Runner-Up* (Aug 2025 – Present)

- Refined and stabilized a Python computer vision module (OpenCV, MediaPipe) for the 5x Sit-to-Stand test.
- Resolved critical memory leaks within the Flask API server via explicit instance cleanup and resource management.
- Built real-time visual debugging tools for pose tracking to verify and optimize model detection accuracy.
- GitHub: github.com/JoshTKx/The-Aura-App

SKILLS

- **Quantitative Research:** Time-Series Analysis, Statistical Modeling, Backtesting, Portfolio Simulation, Optimization
- **AI & Machine Learning:** PyTorch, Pandas, NumPy, Matplotlib, LangGraph
- **Programming:** Python, Java, C, JavaScript
- **Developer Tools:** Git, VS Code, IntelliJ, Vim
- **Web Development:** React, Django, SQLite