

Yeoh Yu Yong

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PROFESSIONAL SUMMARY

Applied Mathematics student at Nanyang Technological University with strong skills in data analysis, financial modeling, and programming in Python and R. Experienced in developing trading strategies and working on quantitative projects. Seeking to apply my analytical and technical skills in finance or data-driven roles.

EDUCATION

- **Nanyang Technological University** Singapore
BSc in Mathematical Sciences (Applied Math Track) Aug 2022 – May 2026
 - Current GPA: 4.81/5.00 (First Class Honours equivalent)
 - Dean's List AY23/24 (Top 5% of cohort)
 - Relevant Courses: Stochastic Finance, Simulation Techniques in Finance, Quantitative Trading Strategies, Neural Networks and Deep Learning, Stochastic Processes, Financial Data Analysis and Applications

- **Dunman High School** Singapore
Singapore-Cambridge GCE (Advanced Level) Jan 2014 – Dec 2019
 - H2 Mathematics, H2 Further Mathematics, H2 Computing
 - Info-comm Club Executive Committee 2019

PROJECTS

- **COVID-19 Impact Analysis on Singapore (ongoing) — R** Aug 2025 - Present
 - Needed to assess the economic impact of COVID-19 on Singapore for Final Year Project
 - Develop a Dynamic Inoperability Input-Output Model (DIIM) using Singapore's IO tables in collaboration with DSO National Laboratories
 - Constructed the DIIM in R, incorporating sector interdependencies to simulate economic disruptions
 - Plotted ordinal zoning of the sectors and identified that Education and Construction sectors as key sectors to prioritize for recovery
 - Performed sensitivity analysis and found that rankings of economic loss by sector remains consistent across 3 different simulated lockdown durations

- **ML-Optimized Pairs Trading — Python, Bayesian Optimization, XGBoost** Jan 2025 - Apr 2025
 - Tasked with improving pairs trading strategy returns using machine learning
 - Develop a machine learning-based pairs trading strategy integrating Bayesian optimization and XGBoost forecasting
 - Implemented Bayesian Optimization to select cointegrated stock pairs and used XGBoost to predict next-day price spreads in Python
 - Plotted evolution of portfolio value across various trading strategies like Buy & Hold and Trend Following to compare with the improved pairs trading strategy
 - Found that the improved pairs trading strategy outperforms benchmark strategies by achieve a 19.81% return and Sharpe ratio of 2.53

- **HDB Price Prediction — R, Linear Regression, Tree-based Methods** Jan 2025 - Apr 2025
 - Needed to construct a predictive model to predict the price of HDB flats for my Statistical Learning with R module
 - Tasked with exploring multiple machine learning models and obtain the best recommended model
 - Ran multiple machine learning models like Linear Regression, Best Subset Selection, Ridge/LASSO Regression, Bagging, Random Forest to see which achieves the lowest RMSE
 - Plotted a graph to show relationship between number of nodes and deviance to generate insights on the optimal number of terminal nodes for the tree,
 - Found that bagging achieved the lowest RMSE of 41230.59 compared to the other models

- **USD Twin Win Certificate Pricing and Risk Management — R, yfinance API** Aug 2024 - Nov 2024
 - Needed to accurately price a complex structured product and manage associated risks

- Price USD Twin Win Certificate and implement risk management techniques
- Applied multidimensional Geometric Brownian Motion simulations in R with variance reduction techniques
- Plotted price paths to compare each of the variance reduction techniques and determine which yields the most accurate prediction
- Found that implementing Empirical Martingale Correction to Control Variates gives the lowest RMSE of 18.41
- The RMSE when no variance reduction techniques was applied was 29.00

- **Ensemble Deep Learning Models for Flower Species Classification — Python** Aug 2024 - Nov 2024

- Required to classify flower species from challenging visual dataset
- Develop deep learning model for Oxford Flowers 102 dataset classification
- Built ensemble of VGG16, VGG19, and DeiT models in Python to enhance classification accuracy
- Delivered test accuracy of 80.71%, significantly surpassing original SVM model accuracy of 72.8%

EXPERIENCE

- **Bioinformatics Intern** May 2025 – Aug 2025

*Agency for Science, Technology and Research (A*STAR)* Singapore

- Address confounding bias in observational studies to improve statistical inference
- Develop hybrid matching and weighting algorithm outperforming traditional propensity score matching and IPTW
- Designed and implemented algorithm in R, tested across multiple simulations with varying noise levels
- Achieved lowest average mean squared error of 0.00890, outperforming baseline methods

- **Research Assistant Intern** Jan 2020 – Mar 2020

Red Dot Robotics Singapore

- Company aimed to build a self-driving vehicle for transporting luggage in airports, but existing machine learning models were only trained on street images from regular roads
- Needed to create a dataset specific to airport roads to improve the vehicle's accuracy
- Processed and annotated videos of airport roads by labeling relevant features
- Wrote Python code to convert annotations into ground truth data compatible with training the CNN
- Trained a new machine learning model using airport-specific data, achieving significant accuracy improvement compared to the original model trained only on street images

TECHNICAL SKILLS

- **Programming Languages & Tools:** Python (Pandas, NumPy, Scikit-learn), R (ggplot2, caret)
- **Quantitative Methods:** Stochastic Calculus (Ito's Lemma), Monte Carlo Simulation, Linear Algebra, Optimization
- **Financial Modeling & Analysis:** Derivatives Pricing (Black-Scholes, Binomial Trees), Risk Management, Hedging Strategies