# Frankline Oyolo

franklinemisango4@gmail.com
+852 5104 2909
https://misango.me
linkedin.com/in/misango
github.com/FranklineMisango

An Engineering Undergraduate with a Technical and Quantitative background building multi-asset trading infrastructures and machine-learning research pipelines across assets to deliver pricing, risk, and client-centric investment insights. I am keen on markets roles that blend AI, Mathematics, and a diversified business outlook.

## EDUCATION & NOTABLE COURSEWORK

*University of Hong Kong (2022–2027)*
Bachelor of Engineering in Data Science and Engineering

- COMP3351: Advanced Algorithm Analysis ; COMP2119: Data Structures and Algorithms ; COMP3230: Principles of OS
- COMP3314: Machine Learning; COMP3278: Databases ; COMP3340: Applied Deep Learning; COMP3361: NLP
- COMP3355: Cyber Security ; FITE3010: Big Data and Data Mining; COMP3513: Big Data Systems
- MATH2014: Multi-variable Calculus ; STAT2601: Probability & Statistics I; STAT2602: Probability Statistics II
- **Independent Coursework:** Financial Markets, Investment Management, Portfolio Construction and Analysis

## WORK EXPERIENCE

**Markets - Sales and Trading Summer Analyst, Citigroup Global Markets Asia Limited (Summer 2026):Hong Kong SAR**

- Selected for a 1.5% acceptance rotational program across markets desks, requiring rapid adaptation to various asset classes
- Streamlined morning market briefings by automating the extraction of key volatility metrics and overnight flows using Python
- Synthesized APAC market drivers to pitch equity strategies to Desk Heads, identify alpha opportunities within the TMT space.
- Modeled G10 and EM currency pair volatility using Excel and Python to support senior traders in executing hedging strategies.

**Summer@EPFL Research Fellow, École Polytechnique Fédérale de Lausanne (Summer 2025): Lausanne, Switzerland**

- Joined the Architecture Lab (Dr. Jefferey Huang) through the selective (1.3%) Summer@EPFL research fellowship.
- Engineered a multi-scale feature integration pipeline using Python to extract demographics and credit transactions at stations
- Published to prestigious ACM SIGSPATIAL, showing a customized Machine Learning model for fiscal demand forecasting
- Achieved 27% RMSE reduction over ST-GCN baselines with 13.4% gains from OSM integration; providing ablation studies

**Solutions Architect, Digital Business Solutions, BASF SE (Jan 2025 - Jun 2025): Hong Kong SAR**

- Developed SHAP- interpretable valuation models decomposing enterprise drivers to guide semiconductor strategy
- Designed Python-based DiD and local-projection shock models generating 50k Monte Carlo paths, reducing DSO volatility
- Implemented a Graph algorithm for route optimization using DEAP framework, reducing transportation costs in EU

**Data Governance Summer Analyst , Asia Data Office, Manulife Financial Corporation (Summer 2024): Hong Kong SAR**

- Automated data quality checks with Great Expectations framework in C#, improving new business margin screening precision
- Implemented column-level lineage tracking using Snowflake and GitOps, mapping premium data to IFRS 17 calculation layers
- Built meta data enrichment engine using Python; increasing actuarial tag coverage of 2.3M Azure Purview Assets to 65%.

**Department of Architecture, University of Hong Kong (Dec 2023 - May 2024): Hong Kong SAR**

- Joined the Research Lab (Dr. Eric Schuldenfrei) to lead advanced spatial analysis and microbial containment studies
- Built an AI-driven instance segmentation pipeline for architectural analysis, achieving 91.8% across 1,000+ floor plans.
- Developed a distributed system for a 200-node robotics swarm; achieved sub-5ms latency for airflow monitoring

**Data Analyst , CTO's Office, TalentLabs Asia Limited (Summer 2023): Hong Kong SAR**

- Built Dashboards using GCP LookerML processing sentiment from our customer AI, helping the marketing team fix issues
- Automated Google Cloud ETL pipelines with Prefect orchestrator, reducing weekly reporting time for the CTO
- Developed distributed web scraper harvesting 8000 jobs per day via Python Scrapy/Selenium with 2CAPTCHA integration.

**Principal Founder, Quantitative Research and Development, Arithmax Research Capital (Sep 2025 - Present) : Remote**

- Designs ultra low-latency medium frequency trading infrastructure in C++ to achieve sub-millisecond event precision
- Builds high-throughput market-making infrastructure in Rust, C and C# to fasten advanced mathematical models
- Programs Xilinx Zynq (ARM64 + FPGA) with VHDL/Verilog with real-time market data feeds for Faster Market Making

## MARKETS RESEARCH, HARDWARE AND SOFTWARE PROJECTS

- AlgoForge: A 40-starred repository that focuses on quantitative engineering, high-frequency trading strategies, and derivatives pricing models. My research utilizes advanced mathematics and statistics for modeling, alongside data science workflows.
- VeriTrade: FPGA trading engine featuring a sub-500ns RTL strategy core and GPU-accelerated parallel market data processing. It integrates 4 HPC visualization frontends with real-time compliance for ultra-low-latency HFT environments.
- FeenQR: An AI-native, open-source platform with a C# and Python Backend alongside Razor frontend for quantitative research, and market analysis across all classes It integrates institutional-grade data, AI agents, and over 80 financial services.
- TradeKernel: An Assembly and C Bare-Metal Real-Time OS for HFT with a custom tickless scheduler and kernel-bypass networking. Implemented real-time memory management and ns-level optimizations to achieve sub-microsecond latency
- Paper A : Developed a risk-parity portfolio model using stochastic control equations to achieve 46.2 % annualized returns. Mitigated volatility decay in leveraged ETFs via GARCH optimized weighting, reducing decay by 38%/ naive allocation.
- Paper B : Designed a regression with an 84% accuracy to identify FX regime shifts and predict currency crashes. Utilized FX-implied volatility surfaces to engineer hedging strategies, reducing drawdown by 24% during market dislocations.
- Paper C: Built an intraday breakout model with volatility-targeted sizing and session-aware signal filtering for E-mini futures. Improved execution by integrating slippage and adaptive stop logic to reduce drawdown during high-volatility intervals.