Gene Boo Ee Jin

Quantitative Risk & Analytics Specialist

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Professional Summary

Quantitative risk specialist with 20+ years of experience in financial derivatives, risk modeling (VaR, ES, Euler Allocation, Copulae), and data analytics. Proven expertise in developing and validating risk models across multiple asset classes, leading technical teams, and delivering client-focused solutions. Adept at Python (numpy, scipy, pandas, polars, mpmath), Rust, VBA/C++, SQL, and cloud platforms (Google Cloud Run). Well-versed in REST API design, Salesforce, Grafana, Postman. Familiar with modern AI/ML (XGBoost, LLMs), having studied foundational concepts 25 years ago. Passionate about optimization, numerical methods (FFT, Quadrature, MGFs), and building innovative tools like ExcelBridge—a fully self-designed plugin system that brings Python-like analytics to Excel, Google Sheets, and LibreOffice without any local pre-installation of Python and its large libraries.

Core Competencies

Quantitative Analysis

- Derivatives Pricing (FFT, Quadrature, MGFs, Local Vol, SABR, FD, Variance-Reduced MC, Analytical)
- MC Simulation & Copula Modeling
- Risk Metrics: VaR, ES, Euler Allocation
- Gradient Boosting / PCA / Hybrid Models

Technical Expertise

- Python (Pandas, NumPy, SciPy, Polars, mpmath), Rust (basic)
- VBA/Excel, C++ Quant Libraries, SQL
- Salesforce, Grafana, Postman, REST APIs
- HTML, CSS, JavaScript, Google Cloud Run

Risk Management

- Market, Operational & Liquidity Risk (IRRBB)
- Model Validation (Traded/Non-traded)
- Regulatory Compliance (MAS, BNM, Basel)
- Euler Allocation for OpRisk Capital

Leadership & Strategy

- Team Leadership (Regional 5+ members)
- Pre/Post-Sales Engagement (Qontigo/Simcorp)
- Regulatory & Technical Documentation
- Workflow Automation & Optimization

Professional Experience

IBMR Projects Consultant Ambank Group

Mar 2025 – Present

- Optimized Dupire PDE Local Vol surface building & Autocallable valuation in Python (NumPy, SciPy, Numba) for VaR engine.
- Provided SA-CCR implementation guidance for structures that did not fit within the vanilla framework.
- Automated OOC early withdrawal detection using Python (Pandas, Polars) & SQL on a 100GB historical database.
- Created semi-automated spreadsheet and pdf tools for reporting team.
- Developed accelerated Monte Carlo frameworks (mpmath for high-precision) for derivative pricing; advised IRRBB team on prepayment modeling.

`</> Python (NumPy, SciPy, Pandas, Polars, mpmath, duckdb, joblib)` `SQL` `VBA`

Product Specialist Qontigo / AxiomaRisk (Simcorp)

Dec 2021 – Jun 2023

- Conducted pre/post-sales for AxiomaRisk & Performance Attribution across multi-asset classes (EQ, FX, FI, Crypto).
- Developed Python automation using AxiomaRisk API, reducing report generation time by 70%; created Python and Excel validation tools for clients via XLWings and AxiomaRisk REST API; used Postman for API testing, Grafana for monitoring.

`</> Python (Pandas, XLWings)` `REST API` `Postman` `Excel / VBA` `Salesforce` `Grafana`

Senior Quantitative Analyst Maybank Group

Sep 2019 – Aug 2021

- Designed Monte Carlo + bootstrap models for OpRisk capital; implemented Gaussian & t-copulae on adjusted bootstrapped points for tail-risk aggregation with Euler allocation across 8 main business units. Studied the impacts of cyber risk, climate risk and legislative risk.
- Built FFT-based convolution tools (NumPy, SciPy) for joint distribution modeling; developed Quadratic COVID-19 R_0 prediction model (92% accuracy).

`</> Python (NumPy, SciPy, Pandas)` `C++ libraries`

Head of Market Risk Model Validation Maybank Group

Mar 2014 – Mar 2019

- Led regional team validating traded/non-traded portfolios; worked with BNM, MAS, HKMA.
- Developed independent pricing engines and validators for FXO, IRO, Commodity, Equity Derivatives (C++/Python); validated IRRBB framework and deposit pre-mature withdrawal modeling approaches.

`</> C++ (xlw)` `</> Python (SciPy, NumPy, xlwings, pyxll)` `VBA` `SQL`

Senior Quantitative Analyst — Ambank Group

Apr 2009 – Mar 2014

- Developed benchmark pricing models for derivatives across FX, EQ, IR; created volatility surface generators (C++/Python/VBA).

C++ | Python (early numpy) | VBA

Risk Specialist — Pilot Multimedia

Jun 2007 – Jan 2008

- XML-based staging tools, VB plug-ins for C# credit risk project; logistic regression for PD.

VB6 / VBA | C# | XML

Market Risk Analyst — Fortis Bank (BNP Paribas)

Aug 2006 – Jan 2007

- Asian Basket option pricing and Greeks: Deelstra, Curran 2M+, Ju, Gram-Charlier, FFT, MC (C++/Python).

C++ | Python (NumPy, FFT)

Contracts Analyst — Electrabel SA (ENGIE)

Aug 2000 – May 2006

- Spark/crack spread pricers in VBA/C++ for Murex; Winter method profiling in SAS.

VBA | C++ | SAS | Murex

Education

MBA, Global Management

Hochschule Bremen

1999 | Grade: 1.0

BA, Business Administration

Hertfordshire, UK

1998 | 2nd Upper Honours

Certifications

- AICB – Risk Management: Principles & Framework
- AICB – Risk Models, Capital & ALM
- Microsoft Visual Basic 6

Hobby Projects

ExcelBridge
Zero-install Excel add-in (server-side Python).
github.com/geneboo/gene-products/releases/tag/v2.2.8

Fit_it!
Upload data, best-fit distributions + KDE.
fit-it-app.run.app

FunkyGraffy
Math viz on Render.
funkygraffy.onrender.com

FourierDoodler
Draw anything and watch fourier epicycles being used to trace it.
fourier-doodler-3805819345.asia-southeast1.run.app

SaaS Universe
Derivative pricing, Kalman, convolver, etc. (Coming soon)

PersVa
Encrypted storage concept (private).

FileObfuscator
AES+XOR+scrambling (private).

VPN
Multi-layer encryption (private).

Written Works

Risk-Neutral Pricing via MGFs under Non-Normality
MGF drift corrections.
HTML PDF

Mind the Gap (Under the Curve)
Quadrature compendium.
HTMLPDF

Understanding Fourier Transform
Convolution for Black-Scholes (not Carr-Madan).
PDF

FFT Cross Correlation vs. Pearson
Addendum with Python.
HTMLPDF

Art of Buy-Side Arbitrage
Quant perspective.
HTMLPDF

Linguistics

- English – Native
- Mandarin – Fluent
- German – Intermediate
- French – Basic
- Flemish – Basic
- Cantonese – Basic
- Malay – Basic

Cloud & AI

Cloud Deployment
Google Cloud Run, serverless, REST API, Postman, Grafana.

AI/ML Familiarity
LLMs (ChatGPT, Ollama, Grok, Gemini, Deepseek), prompt formulation. Python/Rust/C++ libs: numpy, scipy, pandas, polars, mpmath, cuda-py, pyo3, fastapi, scikit-learn, xgboost, copulae, ARIMA/GARCH, fftw, QuantLib.