Sebastien Haag

Quantitative Finance Engineer seeking a 12 to 18 month V.I.E. in Front Office (Trading/Sales/Structuring), starting on January 1st, 2026, based in New York.

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Professional Experiences

Natixis Corporate & Investment Banking — **Apr 2025 – Oct 2025**
Quantitative Trading Analyst — *Paris, France*

- Derivative Pricing & Risk Calibration: Valuation of complex trading book derivatives under RST using Black-Scholes, Heston, and SABR models; implementation of optimization techniques to calibrate risk models and assess impacts on CET1, VaR, and Expected Shortfall.
- Stress Testing & Scenario Modeling: Development of systemic shock simulations using copulas, EVT, and Monte Carlo methods; application of unsupervised learning (k-means, DBSCAN, GMM) to segment exposures and enhance stress testing accuracy across trading positions.

Spread Research — **Apr 2024 – Oct 2024**
Convertible Bonds, Fixed Income Quantitative Analyst & Researcher — *Paris, France*

- Convertible & High-Yield Bond Analytics: Designed and automated a robust pricer for convertible and high-yield bonds (Greeks, Z-Spread, OAS, implied vol) using VBA and Bloomberg/FactSet, enabling precise valuation and risk monitoring.
- Market Intelligence & Allocation Strategy: Produced daily and monthly reports with advanced analysis (ICS, parity, Monte Carlo, spread projections); delivered underweight/overweight recommendations based on hedging ratios, volatility forecasts, and performance backtests.

Société Générale Corporate & Investment Banking — **Apr 2023 – Oct 2023**
Portfolio Valuation Officer — *Paris La Défense, France*

- Valuation & NAV Risk Controls: Built advanced mutual fund valuation models integrating Monte Carlo simulations and volatility adjustments; enhanced NAV oversight via stress testing and automated control reports.
- Process Automation Regulatory Compliance: Streamlined order flows and auditor reporting using VBA; established standardized communication protocols with asset managers and custodians to meet AMF regulatory standards.

Education

Financial Mathematics - Dual Degree: Engineering/Master | CY TECH (ex EISTI) — **2022 – 2025**
(Ranked 1/103) — *Paris, France*

- Focus: Monte Carlo Simulations (Black-Scholes model); Stochastic Processes; Machine Learning & Data Science; Portfolio Management & Financial Risk (VaR, CVaR and TVaR); Calibration; Advanced Numerical Methods; Statistics; Econometrics; Contingent Claim Valuation; Advanced Probability; Actuarial Science; Microeconomics and Macroeconomics; Topology.

Maths Sup/Maths Spé Preparatory Class | CY TECH (ex EISTI) — **2020 – 2022**
Option Mathematics/Physics (Ranked 2/216) — *Paris, France*

Projects And Memory (Available on my LinkedIn/WebSite)

Course of Advanced Portfolio Theory: From Value at Risk to Merton's Framework — **2025**

- Portfolio optimization via convex duality in incomplete markets using $\hat{X} = I(\lambda\xi/S_T^0)$.
- Theoretical critique of VaR; implementation of AVaR as a coherent, subadditive risk measure.
- Characterization of optimal strategies through equivalent martingale measures $\mathcal{M}_e$.

Calibration of the Heston Model — **2024**

- Implementation and calibration of the Heston model for option pricing.
- Application of the Levenberg-Marquardt method for fast and accurate calibration.
- Estimation of market parameters and fitting of the implied volatility surface.

Systemic Risks and Contagion in the Financial Network — **2022**

- Stochastic modeling of contagion and shocks: Simulation of interbank default cascades and non-linear loss propagation using stochastic differential equations with leverage effects.
- Monte Carlo and network analysis: Estimation of default probabilities, VaR/CVaR, and identification of critical nodes in interbank networks under extreme scenarios.

Certifications

CFA Candidate — **2024**
Bloomberg: Market Concept Certificate, Finance Fundamentals Certificate, Environmental Governance Certificate. — **2023**
JP Morgan: Investment Banking Virtual Experience Program Certificate. — **2023**
Goldman Sachs: Excel Skills for Business Experience Program. — **2023**

Others

French: Native **English:** Fluent **Spanish:** Elementary
Computer skills: Bloomberg, FactSet, LaTeX, Pack Office, RStudio, Git, Github, Maple.
Programming Languages: Python *(Advanced)*, VBA Excel *(Advanced)*, R *(Intermediate)*, C/C++ *(Intermediate)*.
Hobbies: Tennis ex-french national tennis player *(Ranked 5/6)*, Luxury Fashion (Dior, Hermès, Chanel – Backstage & Hosting).