PAUL WAWSZCZYK

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EDUCATION

Expected 12/23	**NEW YORK UNIVERSITY**	New York, NY

The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- *Coursework:* stochastic processes, Black-Scholes, derivatives pricing, fixed income, linear regression, APT models, FX models, asset-backed securities, numerical optimization

09/20 - 08/22	**ÉCOLE CENTRALE DE LYON**	Lyon, France

M.S. in Engineering
- *Coursework:* machine learning, particle physics, signal processing, materials science, mechanical engineering, electrical engineering, robotics, corporate finance and accounting, economics

09/20 - 07/21	**LYON 1 UNIVERSITY**	Lyon, France

B.S. in Mathematics
- *Coursework:* differential calculus, complex analysis, measure theory, probability and statistics

09/18 - 08/20	**LYCÉE LAKANAL**	Sceaux, France

Preparatory Classes, Major in Mathematics and Physics

EXPERIENCE

05/23 - 08/023	**HSBC**	London, United Kingdom

Quantitative Researcher Intern
- Conducted high frequency alpha research in FX cash; implemented cross-currency signal with machine learning, from idea to implementation; backtested with PnL of $130k and 5.7 Sharpe
- Redacted reports for sales/trading or clients; such as on analysis of post-Credit Suisse FX spreads
- Led research on flow prediction, achieved 58% accuracy, and added indicators to dashboard
- Collaborated with traders on improving trade data and automating metrics for compliance reports

05/22 - 08/22	**LIRIS LAB (computer science research lab)**	Lyon, France

Machine Learning Research Intern
- Analyzed fairness, robustness, and their interactions in federated learning, aiming to create mechanisms to prevent systematic discrimination based on individuals' race or gender
- Implemented state-of-the-art algorithms to filter malicious clients, improving accuracy by 30%
- Integrated bias mitigation methods using multi-objective optimization and min-max methods

PROJECTS

09/22 - 12/22	**NEW YORK UNIVERSITY**	New York, NY

Pricing a Two-Asset Option
- Derived pricing formula for two-asset option (underlying based on Nikkei-225 and LIBOR)
- Modeled payoff and underlying using quanto-adjusted Brownian motion and Vasicek model
- Simulated process and estimated parameters to achieve final pricing using Monte Carlo in Python

09/21 - 08/22	**CENTRALE LYON - INSTITUTE OF FINANCIAL SCIENCE**	Lyon, France

Research Assistant in Stochastic Calculus
- Collaborated with researchers to derive 1st pricing formula for perpetual turbo warrants (exotics)
- Computed analytically and/or numerically in Python delta, gamma, vega, and volatility smile
- Implemented pricing formulas and backtested on financial products scraped from Goldman Sachs

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (pandas, scipy, sklearn, pytorch, tensorflow), VBA, Java, kdb+/q, SQL, MATLAB
Languages: English (fluent), French (native), Spanish and Japanese (basic)
Interests: Chess: competed in numerous tournaments from regional to international (Elo 1900)