Bryan DELAMOUR

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Education

University Paris Dauphine-PSL — Paris, France
Master 2, Mathematics Research Master's degree – MASEF – Stochastic Calculus Major — 2022

Courses: Stochastic Calculus, Optimal Stochastic Control, Monte Carlo & Stochastic Optimization, Jump Processes, Volterra & Fractional Processes, Hawkes Processes & High Frequency Trading, Mean Field Game Theory, Machine Learning & Neural Networks

Master's thesis: "Deep Learning Rough Volatility & Deep Calibration of Rough Stochastic Volatility Models", supervisor Paul Gassiat

Research projects:

- *"Multilevel Monte Carlo Path Simulation", Giles (2008)*
- *"Hybrid scheme for Brownian Semistationary Processes", Bennedsen, Lunde, Pakkanen (2017)*
- *"Deep Learning (rough) Volatility", Horvath, Muguruza, Tomas (2019)*
- *"Deep Calibration of Rough Stochastic Volatility Models", Bayer, Stemper (2019)*
- *"Deep Hedging Under Rough Volatility", Horvath, Teichmann, Zuric (2021)*
- *"Turbocharging Monte Carlo Pricing of the Rough Bergomi Model", McCrickerd, Pakkanen (2018)*

University Paris Dauphine-PSL — Paris, France
Master 1, Mathematics – Statistics Major — 2020

Courses: Discrete Stochastic Processes, Poisson Processes, Stochastic & Ordinary Differential Equations, Generalized Linear Models, Convex & General Optimization, Nonparametric Statistics, Statistical Learning Theory, Monte Carlo Methods, Time Series Analysis

Master's thesis: "Correlation Between Toponymy and Geography of French Municipalities" (Implemented in R), supervisor Robin Ryder

C++ project: Vector, Matrix & Tensor classes implementation

University Paris Dauphine-PSL — Paris, France
Bachelor of Science, Mathematics – Probability Theory Major — 2019

Courses: Lebesgue Integration & Measure Theory, Topology, Functional Analysis, Hilbert Analysis, Advanced Calculus & Optimization, Probability III, Linear Algebra III, Analysis III, Mathematical Statistics, Statistical Modelling, Differential Equations

Python project: Double Pendulum Chaos Motion

R project: Random Variables Simulation Methods, Variance Reduction Methods

University of Greenwich — London, United Kingdom
Master of Science, Banking & Finance (Distinction) — 2016

Master's thesis: "Political Risk & Foreign Exchange Market: an Exploration of the Brexit Impact on the Sterling", supervisor Lianfeng Quan

Research Projects

Multilevel Monte Carlo Path Simulation
Implemented with Python the Multilevel Monte Carlo method and reproduced Michael B. Giles' results

- *Multilevel Monte Carlo improves the classic Monte Carlo method by reducing the computational complexity*
- *For a same level of precision, the multilevel method runs 10 to more than 1000 times faster*
- *Implemented Black-Scholes and Heston models, Milstein and Euler discretization schemes*

Deep Learning Rough Volatility, Deep Calibration of Rough Stochastic Volatility Models
Implemented with python, neural networks trained to learn the map from implied volatility surfaces to rough Bergomi parameters and from rough Bergomi parameters to implied volatility surfaces

- *The model is precise with an average relative error of 1.15% for calibration, 0.5% for volatility surface*
- *Hybrid Scheme implemented to generate rough Bergomi paths, Turbo Charging Monte Carlo for faster/precise implied volatilities*

Deep Hedging Under Rough Volatility
Produced hedging strategies using neural networks and rough volatility models

- *Performs as precise as stochastic models' hedging*
- *Simulation of fractional Brownian motion with circulant method: Wood & Chan (1994), rough Bergomi model implemented*

Web Scraping / Message Automation
Implemented with Python automations to increase my job search reach

- *Messaged (via LinkedIn/Gmail) over 5000 people filtered with information available on their LinkedIn profile*
- *Improved response rate from 1% to 10% using time/message/request strategies*
- *Collected information from contacts to allow follow ups*
- *Randomized actions and set weekly/daily limits to prevent my accounts from being reported/banned from platforms*

Correlation Between Toponymy and Geography of French Municipalities
Implemented with R regression/classification models to predict longitudes/latitudes/regions of French cities using their toponymy

- *3 regions show impressive predictive components in their names with errors of region classification below 7%*

Skills

Programming : Python (Advanced, Numpy, Pandas, PyTorch), C++ (Basic), LaTeX
Leetcode : 425 Solved Problems, 255 Medium, 124 Easy, 46 Hard
Esport: Mobile Legends (100 million active players): Luo Yi Champion, 293 World Rank, Top 10 France, 1st Paris
Language: French (Mother tongue), English (Fluent), Persan (Intermediate), Spanish (Intermediate)