

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 and deep calibration of the rough Bergomi model", supervisor Paul Gassiat

Research projects:

- "Deep Calibration Of Rough Stochastic Volatility Models", Bayer, Stemper (2019)
- "Deep Learning (rough) Volatility", Horvath, Muguruza, Tomas (2019)
- "Multilevel Monte Carlo Path Simulation", Giles (2008)
- "Deep Hedging Under Rough Volatility", Horvath, Teichmann, Zuric (2021)
- "Hybrid scheme for Brownian semistationary processes", Bennedsen, Lunde, Pakkanen (2017)
- "Turbocharging Monte Carlo pricing for 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 and foreign exchange market: an exploration of the brexit impact on the sterling", supervisor Lianfeng Quan

RESEARCH PROJECTS

Web Scraping / Message Automation

2022

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 and saved information from contacts to allow follow ups
- Randomized actions and set weekly/daily limits to prevent my accounts from being reported/banned from platforms

Deep Calibration Of Rough Stochastic Volatility Models

2021

Implemented with python, neural network trained to learn the map from implied volatility surfaces to rough Bergomi parameters

- The model is precise with an average relative error of 1.15%
- Hybrid Scheme implemented to generate rough Bergomi paths

Deep Learning (rough) Volatility

2021

Implemented with python, neural network trained to learn the map from rough Bergomi parameters to implied volatility surfaces

- The model is precise with an average relative error of 0.5%
- Turbo Charging Monte Carlo implemented to allow faster simulation and more precise implied volatility surfaces

Multilevel Monte Carlo Path Simulation

2021

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 Hedging Under Rough Volatility

2021

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

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), Persian (Intermediate), Spanish (Intermediate)