

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 & Finite Difference Methods, Jump Processes, Mean Field Game Theory, Machine Learning**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), Persian (Intermediate), Spanish (Intermediate)