

Xiaochuan Yang, Ph.D.

Location: London, UK | **Email:** xiaochuan.j.yang@gmail.com | [LinkedIn](#) | [GitHub](#) | [Blog](#) | [YouTube](#) | [Publications](#)

Summary

Highly motivated Research-Oriented Data Scientist with a Ph.D. in Mathematics and current Data Science Lecturer. Adept in monitoring and applying the latest trends in AI and data science. Published 21 papers focusing on probability theory, stochastic processes, and machine learning. Passionate about leveraging data insights to drive strategic decision-making in finance and technology.

Work Experience

- **Researcher and Lecturer in Data Science** (2021-Present) Brunel University, London, UK
 - Conducted technology watch to stay abreast of the latest advancements in Python programming, machine learning, deep learning, and incorporated them into course curriculum and research
 - Supervising a Ph.D. student on event arrival modelling with Hawkes processes directly relevant in insurance industry
 - Published cutting-edge research in stochastic modelling, actively tracking and analyzing trends to inform academic and industrial applications
 - Organising industrial mathematics research seminars
 - Secured funding for research in the area of quantitative risk management
 - **EPSRC Postdoctoral Researcher** (2020-2021) University of Bath, UK
 - Published papers in the area of extreme value theory and central limit theorems
 - Conducted probability tail estimates for risk metrics such as VaR and shortfalls
 - **FNR Luxembourg-Singapore bilateral researcher** (2018-2020)
 - Published papers fundamental to risk modelling: high frequency statistics of Gaussian processes, point processes, extreme value theory, central limit theorems
 - Taught Partial Differential Equations (Master's course, University of Luxembourg), crucial for financial instruments pricing
 - **Assistant Professor** (2016-2018) Michigan State University, East Lansing, USA
 - Taught actuarial science fundamentals: probability and statistics
 - Published papers in statistics of Gaussian processes, Levy processes, and jump diffusions
-

Professional Skills

- **Quantitative Risk Management Know-how:**
 - Stochastic Models: GARCH, EWMA, EVT, Point Processes, diffusions, factor model...
 - Dependency Modelling: Variance-Covariance, Mixture, Copula, Self-Excitement
 - Statistical Estimation of VaR, ES, EL, PD, LGD
 - Monte Carlo, Historical Simulation
 - Pricing: Stochastic Calculus, Semimartingales, PDE, QuantLib
 - Regulatory Approach: EBA guidelines, CRR, Basel III pillars, IFRS 9, IPEV guidelines

- **Technical Skills:**

- Advanced Python Programming; Git version control
- Proficient in R, SAS, Excel, SQL
- Mastery of Computing Libraries: `numpy`, `numba`, `scipy`, `jax`
- Analytics and Machine Learning: `pandas`, `scikit-learn`, `PyTorch`, `XGBoost`, `SHAP`, `matplotlib`, `seaborn`

- **Research Skills**

- Acquired a robust analytical mindset through 10 years of research in quantitative fields
 - Critical evaluation of existing methodologies and development of original ideas for new challenges
 - Ability to quickly learn *any* new field
-

Consulting Experience

- **Defence Data Research Centre & Alan Turing Institute** (2023) Exeter, UK

- Topic: toxin diagnosis by cellular morphology; challenge posed by Defence Science and Technology Lab
- Managed the entire pipeline from data processing to model validation, using tools like `pandas`, `sklearn`, `XGBoost`, `PyTorch`; Explained model decision with `SHAP`

- **NHS Rheumatology** (2021) Bath, UK

- Topic: Machine Learning for damage detection in Psoriatic Arthritis
 - Proposed physiological-based networks and clustering framework; clustered patients with similar diseases using vectorized data representation; investigated disease progression over time
-

Education

- **Ph.D. in Mathematics** (2016) Université Paris-Est, Paris, France

- Thesis: “Dimensional properties of regularities of jump diffusion processes”
- Received a PhD thesis prize of \$6000 (one of 13 recipients in France that year)
- Funded by the DIM Scholarship from the Île-de-France region
- Jump diffusions widely used in modelling risk factors and emerging generative AI

- **Master in Applied Mathematics** (2013) Université Paris-Est, Paris, France

- Courses: stochastic calculus, PDE, interest rate models, Levy processes, non-parametric statistics, limit theorems, stochastic models, signal and image processing with wavelets, Python
- Bezout Scholarship recipient

- **Bachelor in Applied Mathematics** (2009) Jilin University, China (top 6 in mathematics)

- Courses: statistics, algorithms, differential equations, numerical analysis, C programming

- **French Language Training** (2011) Caen, France. DALF Level C1.

Languages

- **Bilingual:** English, Chinese
 - **Level C1:** French
-