Loïc **Maréchal**

PH.D. IN FINANCE

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Passionate about all aspects of finance, I am keen on applying traditional and new methods based on interdisciplinary research at the intersection of machine learning, natural language processing, or network analysis.

Work experience

University of Lausanne - Cyber-Defence Campus, armasuisse S+T — *Lausanne*

POSTDOCTORAL RESEARCHER — *2022 - Present*

- Design of financially optimal portfolios in the cybersecurity sector
- Technology monitoring with quantitative methods in the field of cybersecurity
- Treatment of alternative data such as scientific articles, web-based attention, patents, capital raised, or firms' valuations
- Application of financial models to extract the cost of cyberattacks and the performance of cybersecurity firms

ESSEC — Les Roches — University of Geneva — *Paris — Crans-Montana — Geneva*

VISITING LECTURER — *2020 - 2023*

- ESSEC Business school (M.Sc., 4th in the FT M.Sc. in Finance ranking 2020–2021): "Portfolio theory and investments analysis"
- Les Roches (MBA): "Asset management" — "Valuation and performance" — "Financial life cycle". Best MBA lecturer 2020–2021
- Lecturer for the LL.M. TAX, 2019, 2021, and 2023

University of Neuchâtel — *Neuchâtel*

SCIENTIFIC COLLABORATOR AND TEACHING ASSISTANT — *2015 - 2020*

- Teaching: (M.Sc.) "Asset pricing" — "Research in financial analysis" — "Portfolio management" — (B.Sc.) "Principles of finance"
- Lecture design and teaching: "Introduction to web scraping and NLP in Java" — "The role of mathematics in economics"
- Database management for the Institute of Financial Analysis

Cargill — *Geneva*

SENIOR COMMODITY MARKET ANALYST — *2014 - 2015*

- Supply and demand models development — Management of 30+ traders in EU, Russia and Ukraine for local data acquisition
- Systematic price forecasts based on fundamental data, order flows, and co-integrated markets
- 3D visualizations of backtests and geographical inventories based on in-house data — Automation of data acquisition

S&P Global — Platts — *Lausanne*

COMMODITY MARKET ANALYST — *2011 - 2013*

- Futures and spot prices modeling and forecasts based on supply and demand, meteorological, agronomic, and macroeconomic data
- Development and backtests of trading strategies based on supply and demand (LFT) or market microstructure (HFT) data
- Automation of data collection: web scraping, NLP, and financial data feed integration

Own account — *Paris — Lausanne*

ALGORITHMIC TRADING AND PORTFOLIO MANAGEMENT — *2010 - Present*

- Quantitative analyses — Non-random patterns detection for systematic trading strategies
- High-frequency market data recording and management
- Latency arbitrage between OTC and centralized markets — Triangular arbitrage — Market making — Portfolio management in crypto-assets

Bunge Mathematical Institute — *Warsaw*

QUANTITATIVE ANALYST — *2009*

- Systematic trading strategies based on filtering of fundamental data — Statistical arbitrage in futures and option markets

Education

University of Neuchâtel — *Neuchâtel*

PH.D. IN FINANCE — *2016 - 2021*

- "Three essays on commodity markets" — Studies of commodity markets (asset pricing, risk management, and portfolio management)
- Dissertation committee: Profs. Michel Dubois (supervisor), Tim Kroencke, Florian Weigert, Amit Goyal, Sofia Ramos, and Zeno Adams

University of Paris X — Warsaw School of Economics (SGH) — *Nanterre — Warsaw*

M.SC. IN BANKING AND FINANCE — *2007 - 2010*

University of Versailles-Saint-Quentin-en-Yvelines *Saint-Quentin-en-Yvelines*

B.Sc. in economics (2006) and Maîtrise in management sciences (2007) *2003 - 2007*

Skills

Programming Advanced: *Java, C#* — Basic: C

Data analysis Advanced: *R* — Intermediate: Python — Basic: *Matlab*

Typesetting Advanced: *LaTeX* — Intermediate: *Markdown*

DevOps Basic: *Google Cloud Platform*

Tools Advanced: *Office* — Intermediate: *Tableau*

Languages Native: *French* — Fluent: *English*

Research activity

Research

Peer-reviewed publications

- The new risk and return of venture capital (with F. Burguet and A. Mermoud). Journal of Portfolio Management, forthcoming
- TechRank (with A. Mezzetti et al.). Journal of Alternative Investments, 2024
- A tale of two premiums revisited. Journal of Futures Markets, 2023
- Commodity premiums under financialization. Commodity Insights Digest, 2023
- Measuring security development in information technologies: A scientometric framework using arXiv e-prints. Technological Forecasting and Social Change (with D. Percia David et al.), 2023
- Forecasting labor needs for digitization: A bi-partite graph machine learning approach (with D. Percia David et al.). World Patent Information, 2023
- MultibreakeR: A multivariate test and detection algorithm for structural change points in R. The Comprehensive R Archive Network, 2023
- Do economic variables forecast commodity futures volatility? Journal of Futures Markets, 2021

Book chapters

- The flow of investment in the LLM space. In: Large Language Models in Cybersecurity (Springer Nature), 2024
- Insurance outlook for LLM-induced risk (with D. Celeny). In: Large Language Models in Cybersecurity (Springer Nature), 2024
- A novel algorithm for informed investment in cybersecurity companies and technologies (with D. Percia David et al.). In: Cyberdefense – The Next Generation (Springer Nature), 2023
- Identification of future cyberdefense technology by text mining (with D. Percia David et al.). In: Cyberdefense – The Next Generation (Springer Nature), 2023

Working papers

- The valuation effects of index investment in commodity futures (with M. Dubois)
- The performance of cybersecurity investments (with D. Percia David et al.)
- Fundamentals of generative large language models and perspectives in cyber-defense (with A. Kucharavy et al.)
- MultibreakeR: A multivariate test and detection algorithm for structural change points in R
- Cyber risk and the cross-section of stock returns (with D. Celeny)
- The determinants of cyberattack costs: An event study (with D. Celeny et al.)
- Disentangling cyber risks for asset pricing (with N. Monnet)

Conference talks

IAF research day 2019, Neuchâtel — Derivative Markets Conference 2019, Queenstown — ESSEC Workshop on Nonstandard Investment Choice 2019, Paris — Volatility and Big Data Analysis in Financial Markets 2019, Kaohsiung — New Zealand Finance Meeting 2019, Auckland — Hedge Fund Research conference 2020, Paris, AFFI conference 2021, Nantes — CEMA conference 2021, Madrid — J.P. Morgan Center for Commodities (JPMCC) international symposium 2021, Denver — IAF research day 2021, Neuchâtel — Derivative Markets Conference 2021, Auckland — JFA-PBFJ Special Issue Conference, Japan — CICF Conference 2022, Shanghai — J.P. Morgan Center for Commodities (JPMCC) international symposium 2022, Denver — Cyber-Alp Retreat 2022, 2023, and 2024, Sachseln — Workshop on the Economics of Information Security 2023, Geneva — Société Générale Quantitative Finance and Volatility Seminar 2024, La Clusaz — Workshop on the Economics of Information Security 2024, Dallas

Reviewing activity

Journal of Futures Markets, Quantitative Finance, Journal of Commodity Markets, Financial Markets and Portfolio Management, Applied Finance Letters

Public outreach

Applied Machine Learning Days (EPFL), 2024

Organization and chair of the track: "Navigating the Crossroads of the Digital Age: Cyber Crime in the Modern Data Economy"

Les marchés de matières premières sont-ils un nouvel Eldorado?

"Ma thèse en 180 secondes", University of Neuchâtel and TV interview, 2021

Market efficiency: from low to high frequencies

Newcastle University, NUIS 2021

Extracurricular activities

ASECO *Neuchâtel*

Member of the "Association du corps intermédiaire de la faculté des sciences économiques" *2016–2018*

Ichtus, sailing association *Saint-Blaise*

Member and volunteer *2021–2022*

Misc. *World*

Ski, kitesurf, wingfoil, trail running, and hiking *Until now*

Additional information

Misc. French and Swiss citizen, driving license