







Adrien Carrel

Quantitative Researcher, MSc, MEng, experienced in machine learning, research, programming and mathematics.

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EXPERIENCE

Blockchain.com — Quantitative Researcher

August 2024 - now

London, United Kingdom

- Developed a high-frequency cryptocurrency trading infrastructure in Rust that can handle signal-based and trade-based strategies, trade sub-1s, send custom orders, and integrate risk management.
- Created market-neutral mid-frequency signals with Sharpe ratios ranging from 1 to 2.
- Designed high-frequency trading signals for Market Making.

Schonfeld - Farringdon Capital — Quantitative Researcher

October 2023 - August 2024

London, United Kingdom

- Developed 15 mid-freq signals on US and EU equities with Sharpe ratios ranging from 1 to 3, using statistics and NLP.
- Co-responsible of a book $\approx 150M\$$ AUM.
- Devised, implemented and monitored intraday arbitrage strategies across multiple assets.
- Created monitoring and risk management tools for the team.

Massachusetts Institute of Technology (MIT) — Research Intern

March 2022 - September 2022

Cambridge, United States

- Analyzed the relationship between social vulnerabilities, political leaning and mortality (all-causes, COVID-19, excess mortality) across U.S. counties (Python, R, PyTorch).
- Mentoring of 8 students for HST.936: Leveraging Data Science in Global Health. Design of 4 assignments for HST.936 & HST.953: Clinical Data Learning, Visualization, and Deployments.

Harvard T.H. Chan School of Public Health — Teaching Fellow

July 2022 & 2023

Boston, United States

Mentoring of 15 students for three different Machine Learning in Healthcare courses.

Melanion Capital — Crypto Research Analyst Intern

August 2021 - November 2021

Paris, France

- Implemented the back-end algorithms behind the Melanion BTC Equities Universe UCITS ETF: AUM: 2.4 million €.
- Conducted quantitative research on how to replicate a volatile index (whitepaper written: *Maximum Benchmark Exposure*).
- Enhanced ML models to predict up and down surprises on futures on dividends (balanced accuracy increased by 5%).

Lycée Hoche & CentraleSupélec — Teaching in Maths, Physics, Computer Science

2020 & 2021

Versailles & Paris, France

- Assisted Professor during the "Coding Weeks": a 2-week intensive programming bootcamp. Mentored and graded 6 projects teams (31 students) about the use of TensorFlow and Open-cv Python libraries.
- Assessing 33 MP* and MPSI (STEM) students' Mathematics & Physics skills and preparedness for taking the entrance examinations for the most selective French engineering "Grandes Écoles".

LCsys — Machine Learning Engineering Intern

July 2020

Longjumeau, France

Improved Google's Tesseract OCR algorithm to detect printing defaults on French identity cards using deep learning and machine learning (accuracy evaluated on 12000 id cards increased from 96% to 99.6%).

EDUCATION

Imperial College London — MSc Advanced Computing

October 2022 - October 2023

London, United Kingdom

- Grade: Distinction
- Thesis: Combinatorial Complex Score-based Diffusion Modelling through Stochastic Differential Equations.
- Relevant courses: Deep Learning, Probabilistic Inference, Computer Vision, Reinforcement Learning, NLP, Computational Finance, Mathematics for Machine Learning.

CentraleSupélec — MEng (Diplôme d'ingénieur)

September 2019 - Expected October 2023

Paris, France

- GPA: 3.91/4. First Class Honours. Course representative.
- Relevant courses: Machine Learning, Advanced probabilities, Algebra and cryptology, Advanced statistics, Algorithmics & Complexity, Optimization, Partial Differential Equations.

Lycée Hoche, Lycée Corneille, UVSQ — Classes Préparatoires - MPSI/MP*

September 2016 - July 2019

Versailles & Rouen, France

- GPA: 4/4. Mathematics and Physics (Option: Computer Science). Student representative for 39 classmates.
- *BSc in Applied Mathematics* obtained at UVSQ in June 2019 while also attending Classes Préparatoires.

SKILLS

- Python, Rust, C++, R, SQL, OCaml, Javascript, MATLAB, Julia, Java, HTML, CSS, Git, LaTeX, React, Kdb+.
- Numpy, Pandas, Scipy, Scikit-Learn, Jax, TensorFlow, PyTorch, Numba, Research, Modelling, Data Analysis
- French (native), English (IELTS: 7.5), Japanese (B1, eq. N3), Spanish (A2/B1)

ACTIVITIES

- UK Ballroom Dancing Champion (Intermediate, 2024)
- President of the Imperial College Dance Club (2023) & HipHop CentraleSupélec Club (2020-2021)

PROJECTS

Vulpes | *Personal project*

Created an AutoML Python package (alpha version). github.com/AdrienC21/vulpes

Algorithmic Trading & Machine Learning | *Personal project*

February 2021 - November 2021

- Devised a cryptocurrency trading bot using deep learning, parallel processing, and financial analysis.
- Deployed liquidation bots on Solana in TypeScript (earned $\approx 1000\text{€}$).

NeurAI | *Research project*

September 2020 - November 2021

Creation of a pipeline to automate the processing of EEG and MRI data and the training of ML models.

Optimal Transport for image processing | *Research project*

September 2018 - June 2019

Applications of optimal transport in computer graphics and study of the impact of the given distance on the result.

Epitaxial Growth of Nanowires | *Lab-based Research project*

January 2017 - June 2018

Optimized the growth speed of self-catalyzed GaAs nanowires during hydride vapor phase epitaxy.

ARTICLE, PREPRINT, REVIEW, TALK, AWARD

*: co-first authors

Article

Going beyond the means: Exploring the role of bias from digital determinants of health in technologies.

Marie-Laure Charpignon*, [Adrien Carrel*](#), & al.

Preprint

Neural Laplace for learning Stochastic Differential Equations.

[Adrien Carrel*](#). December 2022.

NeurML : From an automated EEG preprocessing pipeline with source reconstruction to ML models predicting gender and brain age.

Thomas Segré*, [Adrien Carrel*](#), Ugo Muhieddine. June 2021.

Whitepaper & Technical Supporting File

Maximum Benchmark Exposure

[Adrien Carrel](#), Jérémie Besson, Ghali Laraqui. September 2021.

Exposure to a benchmark and its replication with traditional assets

[Adrien Carrel](#), Jérémie Besson, Ghali Laraqui. October 2021.

Review

KDD 2022 & 2024 Workshop epiDAMIK

Talk

3rd Tokyo Health Datathon & MIT Health Datathon & Critical Care Data Analysis Summit and Tarragona Datathon & Eitri Medical Datathon & Make Health Colombia

Award

Erasmus+ Grant & Merit Scholarship - Ministry of Higher Education, Research and Innovation & Baccalauréat S (Scientific) with highest honors (June 2016)