
Matthias Wyss

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## Summary


Master's student in Data Science at EPFL (Minor in Financial Engineering) specializing in quantitative modeling and algorithmic trading. Proficient in developing high-performance backtesting engines (Python, Polars) and applying Machine Learning to market-neutral strategies. Seeking a 6-month internship in Quantitative Research or Risk Analytics.


## Education

**École Polytechnique Fédérale de Lausanne (EPFL)** *2024 – Now*

Master of Science in Data Science with a Minor in Financial Engineering

- Relevant coursework: Machine Learning, Investment Theory, Financial Derivatives, Quantitative Risk Management, Natural Language Processing (NLP), Blockchain Technologies, Big Data, Databases

**École Polytechnique Fédérale de Lausanne (EPFL)** *2020 – 2024*

Bachelor of Science in Communication Systems

- Relevant coursework: Probability and Stochastic Processes, Mathematical Analysis, Programming, Machine Learning, Algorithms, Communication Network Architectures, Signal Processing, and Information Theory.

## Experience

**Poseidon IT Department, EPFL** *Sep. 2024 – Now*

Student Technical Assistant (Part-time)

- Provide Level 1 & 2 technical support, diagnosing and resolving complex hardware/software issues for students and staff.
- Train and mentor of new Helpdesk Assistants.

**Adequasys** *Jul. 2024 – Aug. 2024*

Artificial Intelligence Intern

- Developed an AI-driven chatbot using Azure OpenAI and RAG for internal data management.
- Implementation of a secure authentication system via JWT and Microsoft Entra ID.

**EPFL Artificial Intelligence Laboratory (LIA)** *Feb. 2024 – Jun. 2024*

Teaching Assistant - Artificial Intelligence (Part-time)

- Mentored 100+ students on core AI concepts, focusing on optimization, neural networks, and algorithmic logic.

## Projects

**OCP Statistical Arbitrage on S&P 100** *Autumn 2025*

- Implemented an advanced statistical arbitrage framework using the Optimal Causal Path (OCP) algorithm to detect non-linear "Leader-Follower" relationships in high-frequency data.
- Processed a 55GB raw BBO dataset using Python and Polars for efficiency.
- Designed a market-neutral strategy (Long Follower / Short SPY) with a gross Sharpe Ratio of 1.73 and a 34.5% total return.

**Informed Trading Intensity & SEC 8-K Filings** *Autumn 2025*

- Conducted a large-scale event study on 99,384 US corporate 8-K filings (2001–2024) to analyze the relationship between Informed Trading Intensity (ITI) and asset prices.
- Calculated Cumulative Returns (CAR) via Fama-French 5-factor + Momentum, identifying volatility spikes around report dates.
- Discovered that ITI significantly increases prior to material events (e.g., M&A, financial results), validating information leakage and informed trading hypotheses.
- Performed robust statistical validation using placebo tests to confirm the significance of volatility and ITI signals.

**International Tactical Asset Allocation & Alpha Overlays** *Spring 2025*

- Developed a multi-factor tactical engine combining international equity indices and currency exposures, achieving a backtested Gross Sharpe Ratio of 4.18.
- Synthesized dynamic long-short overlays (Momentum, Carry, Reversal, Dollar) using Risk-Parity and Mean-Variance optimization to enhance a currency-hedged baseline.
- Conducted performance attribution via Fama-French 5-factor regression, proving a significant monthly alpha ($\alpha = 5.51\%$) and statistically insignificant market beta.

## Skills

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|---|---|
| **Machine Learning** | Linear & logistic regression \| Decision trees \| SVMs \| Deep-learning \| Feed-forward neural networks \| RNNs \| Transformers \| LLMs \| RAG \| Time-series forecasting \| Feature engineering |
| **Quantitative** | Derivatives pricing \| Stochastic calculus \| Asset allocation \| Monte Carlo simulation \| Volatility modeling \| Portfolio optimization \| Statistical arbitrage \| Quantitative risk management |
| **Programming** | Python (NumPy, Pandas, Polars, matplotlib, scikit-learn, PyTorch) \| SQL \| Java \| Scala \| C \| C++ \| Git \| LaTeX |
| **Languages** | French (native) \| English (professional working proficiency) \| Italian (basics) |

## Interests

- Hackathons - 4th place, blockchain-focused events (3x participation)
- Organized student well-being events, including book exchanges and exam-period breakfasts.
- Rubik's Cube, Swimming