

# PAUL TRASSAERT

Leuville-sur-Orge, France

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*Engineering Student seeking a 5-month Internship in Quant Trading, Front Office Development, Research, Risk & Data Science (April 2026 – August 2026)*

## Education

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### IMT Atlantique

Brest, France

*MSc in Engineering - Applied Mathematics & Quantitative Finance*

2024 – 2027

- **Core Curriculum:** Introduction to Machine Learning, Stochastic Modelling & Analysis, Numerical Methods.
- **Finance Track:** Market Finance, Empirical Finance, Stochastic Dynamic Models.
- **Advanced Skills:** Portfolio Management, Trading Algorithms, Advanced C++ Programming.

### Lycée de l'Essouriau

Les Ulis, France

*Preparatory Class for French Engineering Schools (CPGE)*

2022 – 2024

- Intensive program in advanced mathematics, physics, and computer science.

### Institution du Sacré-Cœur

La Ville-du-Bois, France

*French Baccalaureate - Specialized in Mathematics, Physics, and Computer Science*

2019 – 2022

- Focused on advanced scientific curriculum and foundations of programming.

## Selected Projects

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### Option Pricing & Risk Dashboard | *Python, SciPy, Streamlit, Monte Carlo*

2025

- Engineered a multi-model valuation engine for American options using PDE (Crank-Nicolson), Trinomial and Binomial Trees (CRR), Monte Carlo (Longstaff-Schwartz/LSM) and Bjerksund-Stensland (2002).
- Implemented real-time risk analytics including Implied Volatility calibration (Newton-Raphson), 3D Volatility Surfaces (Greeks), Value-at-Risk (VaR), and dynamic Delta-Hedging strategies.
- Optimized numerical solvers using NumPy vectorization and validated mathematical convergence against Black-Scholes-Merton benchmarks via a rigorous test suite.

### High-Performance Hyperspectral Unmixing | *Julia, Distributed Computing, Optimization*

2025

- Developed a BSS solver using Projected Gradient Descent to decompose hyperspectral data under physical constraints (non-negativity/sum-to-one).
- Achieved a speedup by implementing Julia distributed computing (`pmap`) to parallelize pixel-wise abundance updates.

### Coastal Cliff Erosion Modelling (BD MOMA Project) | *Python, R, QGIS, Statistics*

2025 – 2026

- Collaborated with LETG Laboratory to develop database and mathematical models for erosion prediction.
- Designed statistical and stochastic models linking geological, meteorological, and marine variables.
- Developed and deployed machine learning algorithms for coastal cliff erosion forecasting.

### Modular Machine Learning Pipeline | *Python, Scikit-learn, Pandas*

2025

- Engineered a modular classification pipeline automating data preprocessing, feature selection, and performance evaluation for binary classification. Evaluated and compared Random Forest, SVM, Gradient Boosting models...
- Validated model robustness across balanced and highly unbalanced datasets using specialized sampling techniques.

## Experience

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### Complétude

Brest, France

*Tutor - Mathematics and Physics*

2024 – 2026

- Provided individualized tutoring for high school students at the final year level.

### Calamongo

Monthléry, France

*Sales and Operations Assistant*

June 2025 – July 2025

- Managed inventory reception, order tracking, and stock organization.

## Skills, Languages & Activities

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**Technical Skills:** Python, R, Julia, C++, SQL, PyTorch, LaTeX, GCP (BigQuery), VS Code, QGIS

**Specializations:** Stochastic Modeling, Machine Learning, Numerical Analysis, Financial Markets

**Languages:** French (Native), English (B2), Japanese (A2)

**Activities:** President of the Table Tennis Club, Member of Finance Consulting Atlantic, Chess, Strength Training