Lucas RODRIGUEZ

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Penultimate-year French engineering student in **CS**, **Applied Mathematics**, **Quantitative** & **Computational Finance**. Deeply interested in high-performance/low-latency systems, stochastic mathematics, numerical analysis & deep-learning tailored to financial and intelligence industrial applications.

Currently looking for a **3-month internship**, in these areas, between **June and September 2022**.

WORK EXPERIENCES

IT Engineer – Intern **June – Aug. 2021**
French Joint Ministerial Classified Information Systems Operator (OSIIC) *Paris (Invalides), FR*
Studied, developed, enhanced and prepared the deployment of a large-scale secure document scanning software for government cloud infrastructure, daily used by 1200+ military personnel from the French General Secretary of Defense and National Security under the Prime Minister's office. *(Python, FastAPI, MySQL, PHP, JS)*

IT Developer – Junior-Enterprise Technical Contractor **Oct. – Nov. 2020**
Junior Enterprise Dièse *Paris, FR*
Designed, developed, tested and deployed a data-extraction software for a French real-estate agency. Application dedicated to convert raw PDF data into XLSX format using accurate OCR solutions implemented in Python, for advertising purposes.

EDUCATION

University of Bologna **2021 – Present**
Master in Quantitative Finance (double degree) *Bologna, IT*
Actuarial & Financial Mathematics, Econometrics, Risk Management, ML, Quantitative & Computational financial methods

Paris-Saclay University Worldwide Ranked #1 in Mathematics (2021 & 2020 Shanghai Ranking) **2021 – Present**
Master (M1) – Applied Mathematics *Paris, FR*
PDE analysis, Simulation & Statistics methods, Operations research, Stochastics calculus, Data analysis, Time series

National Engineering School of Computer Science for Business & Industry (ENSIIE) **2020 – Present**
MEng - Applied Mathematics & Computer Science *Paris, FR*
Top French "Grande Ecole" specialized in Computer Science applied to business and industry sectors
Numerical & Statistical analysis, Probability, Database & OS architecture, OOP, Economy & Finance, Functional analysis

Paris-Saclay University (with honours) **2020 – 2021**
BSc - Mathematics, Double degree in parallel with my engineering studies *Paris, FR*
Topology, Measure theory and Integral calculus, Fourier transform, Complex analysis

Notre-Dame de La Merci High school (MPSI/MP sections) **2018 – 2020**
Mathematics, Engineering, Physics & Chemistry Science, Philosophy *Montpellier, FR*
Two-year undergraduate intensive courses followed in preparation for competitive nationwide entrance examination to top engineering schools

MAIN SKILLS

- **Lang. English** (fluent) – **French** (native) – **Spanish** (intermediate)
- **Tech. Python** (FastAPI, sklearn, tensorflow, pandas, numpy, keras, opencv) – **C/C++** (Eigen, Boost, SDL) – **Web dev** (PHP, JS, JQuery, React, Bootstrap) – **R** – **SQL** – **VBA** – **OCaml** – **kdb+/q** – **Git** – **Docker** – **Apache/Nginx** – **UNIX** (shell scripts) – Notions in **Bloomberg Terminal** – **Agile** method – **Concurrent** & **Parallel** programming

MAIN PROJECTS & ACTIVITIES

Complete detailed portfolio: lcsrodriguez.github.io

Engineering school's data-science & AI student club
- **Vice-President** & **Head of IT systems** *(Main developer & Maintainer of the web application & communication platform)*
- Lecturer for 70+ attendees: *"Intro. To web scraping", "Intro to time series analysis", "Intro to computer vision"*

CFM's Data Challenge (ENS Paris) – Prediction of Bid-Ask spread values (currently working on it for June submission)

Financial market modeling - Study & Implementation of various European options pricing tools (Python & C++)
- Use of a discrete-time solution using the Cox-Ross-Rubinstein model
- Enhancement of the first solution using Black-Scholes formula with Monte-Carlo simulation and Closed Form
- Stochastic study of the convergence from the discrete time system to the continuous system
- Numerical determination using Finite Difference methods (Explicit, Implicit and Crank-Nicholson stencils) and the Black-Scholes PDE's formula & Implementation of a Smart DirectMedia Layer (SDL2) wrapper to handle graphic plotting (C++)

Numerical optimization of maritime flows - Algorithmic analysis & Cartographic software development
Studied, implemented & tested several operations research greedy-algorithms dedicated to solve an adapted Shortest Path Problem, to optimize a vessel route, using data collected from proprietary APIs and "basic environmental & HR constraints".