Thomas **Lucas**

FINANCIAL SOFTWARE ENGINEER

46, Claverton Street - SW1V 3AU, London, UNITED KINGDOM

(+44) (0)7716 089942 | thomas.lucas88@gmail.com | th-lucas.github.io | th-lucas | thomas-lucas

Looking for opportunities in Data Science

Experience

Partners Capital — *London, United Kingdom*

ASSOCIATE FINANCIAL SOFTWARE DEVELOPER — *July 2014 - PRESENT*

- Development of the in house software for front office and operations including the creation of dashboards and dynamic visualizations.
  [PHP - Javascript - jQuery - D3.js - MySQL - AngularJS - HTML - CSS - Bootsrap]
- Development of several Microsoft Office add-ins for the investment and operations teams e.g. automation of the production of PowerPoint slides pulling data from the database, calculating quarterly performances and producing a line chart of the performance variation from inception which saves around 3 hours of work per analyst per week.
  [C# - PHP - MySQL]
- All the development tasks are done using Agile software development and SVN as version control software.
  [Team of 8 people: 6 in London, 1 in Hong-Kong and 1 in Boston]

La Banque Postale Structured Asset Management — *Paris, France*

FINANCIAL ENGINEERING INTERN - STRUCTURING AND FUND MANAGEMENT TEAM — *June 2013 - November 2013*

- Improvement of 40 existing pricers (pricing model choice - correlation study - stability tests) leading to a reduction of the gap between counterparty prices and our prices of 1% in average and a better stability.
- Conception from scratch of 6 pricers dedicated to new products (formula funds, structured swaps)
- Creation and integration of a backtesting unit on the internal C# .NET structuration platform to improve and replace the old backtesting tool made with Excel spreadsheets: 51 option payoffs available.
- Structuring Assistant: Involvement in funds creation and learning of current regulations
  [VBA - Excel - C# .NET - WPF - Numerix - Bloomberg - SQL - Two-person team]

AUBAY — *Boulogne-Billancourt, France*

SOFTWARE DEVELOPER INTERN — *June 2012 - September 2012*

Conception and development of a monitoring and reporting Web tool in a service center to improve the old Excel tools and follow the expansion of the company.

- Study of needs, specifications and mockups of the application
- Development, tests and deployment of the application
- Presentation of the application in front of project directors, head of quality and potential users (around fifteen people)
  [Java - Play! Framework - PostgreSQL - HTML5 - CSS3 - Javascript - Three-person team]

Education

M.Sc. Financial Engineering and Computer Science - *Honours* — *Grenoble, France*

ENSIMAG - GRENOBLE INSTITUTE OF TECHNOLOGY — *2009 - 2013*

Major in Information Engineering and Financial Mathematics

Master's degree in Quantitative Finance - *Honours* — *Grenoble, France*

PIERRE-MENDES-FRANCE UNIVERSITY, IAE — *2012 - 2013*

French Grandes Ecoles Preparatory Class — *La Rochelle, France*

LYCEE JEAN DAUTET, LA ROCHELLE — *2006 - 2009*

Preparing for the national competitive exam for entry to engineering schools - Physics, Mathematics & Engineering Sciences

Skills

Programming	Python (Pandas, NumPy, scikit-learn) - D3.js - C# - Javascript - SQL - Java - Shell Script - jQuery - PHP
Software	R - IPython Notebook - Git - SVN - LaTeX - Unix / Linux
Mathematics & Finance	Inferential and Multidimensional Statistics - Machine Learning (supervised and unsupervised learning) Introduction to Information Retrieval - Monte-Carlo Methods - Financial Markets
Project Management	Agile Methods
Languages	French [Native] - English [Full professional proficiency - TOEIC 960/990] - Spanish [Limited working proficiency]

Workshop

Data Science Intensive Workshop
Online

SPRINGBOARD — *November 2015 - PRESENT*

Online Data Science intensive program mentored by an experienced data scientist from the Bay Area with focus on:
- Data Wrangling, Analysis and Visualization (Python - Pandas - Numpy - SQL - D3.js - Matplotlib)
- Data Story
- Inferential Statistics
- Machine Learning (supervised and unsupervised learning with scikit-learn)

For the **Capstone Project**, I am currently working on analyzing the characteristics of popular music based on the Billboard Hot 100 year-end ranking from 1960 to 2015. This project involves data wrangling to collect and clean the data, data visualizations, statistical analysis and machine learning to try to find patterns and make predictions. The code is available on GitHub and I am currently writing an article presenting what I am doing on my blog.

[Used technologies: Python (SciPy, Pandas, NumPy, scikit-learn) - D3.js - HTML - CSS - BeautifulSoup - GitHub]

Academic Projects

Evaluation of structured products

CONCEPTION OF A WEB TOOL DESIGNED FOR FUND MANAGERS MANAGING THE STRUCTURED PRODUCT BARCLAYS V10 — *2013*

The tool includes:
- Pricing of the product
- Periodic delta-hedging with personalized instants of portfolio rebalancing
- Performance monitoring
- Forward test and Backtesting

[Realized with .NET v4 platform - written in C#, C++, Javascript, Open MP - 5-student team]

Study of the profitability ratio of the BNP stock between 01/01/1993 - 31/12/2012

STATISTICAL STUDY OF DAILY, WEEKLY AND MONTHLY FINANCIAL DATA AND TIME SERIES MODELING — *2013*

- Statistical study of the profitability ratio distributions (descriptive statistics, hypothesis testing, probability plots)
- Time-series modeling: firstly using linear models (ARMA) and then using heteroscedastic models (ARCH and GARCH)

[Written in R - 3-student team]

Multidimensional Statistics Analysis Projects

THREE CONSECUTIVE PROJECTS COMBINING GENETIC, MEDICAL AND GEOGRAPHICAL DATA — *2012*

- Analysis of correlations between measures and blood rate of particular prostatic antigen
- Use of genetic markers to predict geographical origin of American Indians
- Use of genetic markers to predict continental location of American Indians

[Written in R - Algorithms used: linear regressions / PCA / classification methods (LDA, k-nearest neighbors) / cross-validation / split validation - 2-student team]

Study of pricing methods of convertible bonds with call protection

STUDY OF NUMERICAL PRICING METHODS DESCRIBED IN THE SCIENTIFIC ARTICLE "PRICING CONVERTIBLE BONDS WITH CALL PROTECTION" WRITTEN BY S. CREPEY AND A. RAHAL, AND CONCEPTION AND COMPUTER DESIGN OF A PRICER DEDICATED TO THESE TYPES OF FINANCIAL PRODUCTS — *2012*

- Numerical pricing methods used: Monte-Carlo forward / Monte-Carlo backward / Longstaff-Schwartz algorithm
- Protections studied: No Call protection, Vanilla protection, Intermittent Vanilla Protection, 'l last protection ', 'l out of the last d protection'

[Written in C++ - GUI designed with Qt - 2-student team]

Interests and Other Skills

Sports Bodyboarding - Surfing - Climbing - Tennis (ranked player) - Athletics - Hiking - Mountaineering

Travelling USA - Canada -Thailand - Canary Islands - Greece - Italy - Spain - Austria - Switzerland - Netherlands