Thibaut Montes

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PROFESSIONAL EXPERIENCE

DESK STRAT | Deutsche Bank
Sep 2020 - Now | London, United-Kingdom

Working on the Synthetic Desk's (ETFs and Indices) migration to Kannon (New P&L and Risk tool used by trading). My main tasks were:

- Improve PV and Risk computations.
- Automatize and stabilize pcf file upload for ETFs/Indices from different sources.
- Code optimization.

RESEARCH ADVISOR | The Independent Calculation Agent (ICA)
Nov 2016 - Mar 2020 | Paris, France

As a PhD candidate, I worked in collaboration with ICA on the following projects:

- Optimization of the analytic library using Optimal Quantization (Pricing of Exotic Options in the interest rate world).
- Identifying and *killing* bias in xVA computation using Multilevel Monte-Carlo methods.

INTERN | The Independent Calculation Agent (ICA)
May 2016 – Oct 2016 | Paris, France

Optimization of financial products pricing and risk measures sensitivities computations.

INTERN | LPSM | Sorbonne University (former Paris VI)
Jun 2015 – Jul 2015 | Paris, France

Simulation of short rate models using trinomial trees. The project can be accessed at the following link: **Trinomial Trees**.

EDUCATION

PHD IN NUMERICAL PROBABILITY | LPSM | Sorbonne University (former Paris VI)
Mar 2017 – Jun 2020

I was under the direction of **Gilles Pagès** and **Vincent Lemaire** at the LPSM and the supervision of **Jean-Michel Fayolle** at ICA.

During my PhD, I made some contributions to the theoretical study and financial applications of **Optimal Quantization**, also known as K-means. I also had a keen interest for Multilevel Monte-Carlo methods and Stochastic Algorithms.

- First, I focused on the numerical optimization of the problem (fixed point search and gradient descent) in order to efficiently build such quantizers.
- Then, I applied this numerical method for the pricing of PRDC bermudan options or the study of a Stationary Heston model.

RESEARCH MASTER IN PROBABILITY AND FINANCE (with honors) | Sorbonne University (former Paris VI) in collaboration with École Polytechnique
Sep 2014 – Jun 2016

- Numerical Probability (Monte-Carlo, Sensitivities Computation, . . .).
- Stochastic Algorithms (Stochastic Gradient Descent, . . .).
- Machine Learning.
- Stochastic Calculus and Control.

BACHELOR DEGREE IN MATHEMATICS (with honors) | Aix-Marseille University
Sep 2011 – Jun 2014

Third year of the Bachelor on exchange with the ERASMUS program at Lund University's mathematics department, Lund, Sweden.

SCIENTIFIQUE BACCALAURÉAT (with honors) | Lycée Jules Viette, Montbéliard
Sep 2008 – Jun 2011

With Mathematics and Engineering speciality.

PUBLICATIONS

- With Vincent Lemaire and Gilles Pagès. Submitted to *Quantitative Finance*, 2020.
  Stationary Heston model: Calibration and Pricing of exotics using Product Recursive Quantization.
- With Jean-Michel Fayolle, Vincent Lemaire and Gilles Pagès. Submitted to *Journal of Computational Finance*, 2019.
  Quantization-based Bermudan option pricing in the FX world.
- With Vincent Lemaire and Gilles Pagès. Published in *Journal of Computational and Applied Mathematics*, 2019.
  New weak error bounds and expansions for optimal quantization.

SKILLS

PROGRAMMING

- **C++** (Library creation)
- **Python** (Binding of C++ libraries using Pybind11, Pandas, Pytorch)
- Basics: **Scala** ◇ **Kafka** ◇ **MongoDB**

LANGUAGES

- **French**: native
- **English**: fluent