AURÉLIEN VERMYLEN

Engineer in Applied Mathematics

Specialization: Information and Signal Processing

website: reverservices.eu

skills:

Financial Modelling ↗↗↗   Statistical Modelling ↗↗↗   Data Analysis ↗↗↗

Machine Learning ↗↗   Numpy/Pandas ↗↗↗   Python ↗↗↗   Big Data ↗

Linux ↗↗↗   DevOps/Scalability ↗   Javascript ↗↗   C# ↗   SQL Databases ↗↗   C/C++ ↗

CAREER TRACK RECORD & INTERESTS

After years of experience in statistical and mathematical modelling in large financial institutions and a quite a few startup projects, never shying away from actually solving and tackling the hard problems, I've developed quite a sharp skill in the full business chain of analyzing and modelling a part of reality that is relevant for certain business needs, and delivering systems that make it possible to get predictions or other insights in real time. I can add significant value and competitive advantage to your business if it relies on a technical solution that must be tackled with advanced technology or models.

I'm currently in the phase of "scaling" myself, as there is too much work for me alone, so typically I like missions where I can come in with a more junior profile and train him on-site, so that he can become productive and I can free up my own precious time once the project is going well.

RELEVANT EXPERIENCE

REVERServices: *June 2017 until present*

<u>Manager</u>:

Selling consultancy services in (software) engineering, modelling and analytics. Working on many IT / technical topics, amongst others: financial market services (pricing, forcasting or risking), numerical algebra and algorithms design, statistical modelling and (mathematical) optimization, geospatial data transformation and visualization solutions, some embedded devices ("IoT" stuff). I am usually working with one of these four "stacks": the python (numpy-based) stack, R (to a smaller extent), Matlab and MS Excel.

- IT Quant (Engie): Mission objectives are cleaning code, setting up and automatizing computations of custom python projects that are dependent on legacy binaries. Introducing proper development practices (testing, source control) and "DevOps" practices regarding scientific environment setups and dependency management. Exposing services through APIs. Some support on quantitative aspects.

ClearRoad Inc.: *March 2017 until March 2018*

Position of <u>CTO</u>:

Helping ClearRoad showcase how it can greatly simplify road infrastructure owners' and road service providers' revenue generation with the help of new, cheap technologies.
 - Make a POC application on ClearRoad's existing transaction processor in python, with the use of crossbar (crossbar.io), python and Flask.
 - Implement ClearRoad's data collection services using vendor IOT devices that are plugged in the diagnostics port of cars (OBDII) and transform geospatial data into billable miles clearly identified on a specific road. Use of ERP5 (www.erp5.com), SlapOS (slapos.nexedi.com) the python scientific stack for the geospatial treatment and jIO (jio.nexedi.com) for synchronization between services and hosted a private openstreetmap database (openstreetmap.org).

BNP Paribas: *April 2015 until February 2017*

In the Independent Review (Validation) team for the group-wide trading book risks. Responsibilities included:
- Review of the IMM Counterparty Risk methodologies (focus on IR and FX):
Periodic Reviews: working on Interest Rate/FX risk factor models and Commodities risk factor models. Closure of regulatory recommendations: IR and FX option pricer reviews (American, CMS, Range Accrual …), back-testing, collateral modelling... Review of methodology changes: e.g. use of expert models, Negative Interest Rates.
- Market Risk methodologies, Proxy Credit Spread methodologies.
- Frequent interactions with other risk and front-office teams for research topics like SABR variants under negative rates, new bilateral initial margin requirements, coherent pricing and discounting under different collateral setups, CVA and XVA topics.
- Use and implementation of a variety of statistical and applied mathematics techniques: regression, optimization, maximum likelihood, symbolic mathematics software, linear algebra... Always ensuring efficient implementation in the team's C++ library or in ad-hoc python scripts.

Dexia/Belfius Bank: *June 2011 until April 2015*

Position of <u>Quantitative Developer</u> at the group level Risk Management team. Team focus was non-market VaRs (mostly Credit). Responsibilities included:

- Ecap Value-at-Risk (VaR) modeling: Statistical modeling for calibration of various credit VaR parameters.

- Analytical Ecap approximation: Calibrating analytical formula to estimate a position's capital consumption based on its credit VaR.

- Stress Testing modelling: Development of macro-economic "elasticity" models to forecast default rates under given scenarios.

EDUCATION

Master in Financial Management (2009-2010), *Vlerick Leuven Gent Management School.*

Training in Corporate Finance, Capital Budgeting, Valuation, Strategic Management, Cost Accounting, Financial Accounting.

MScEngineer in Applied Mathematics (2007-2009), *Catholic University of Louvain.*

Fields: Signal Processing, Financial Mathematics, Optimization, Numerical Analysis, Discrete Mathematics, some Neural Networks.

Thesis: Global Optimization Methods for Model Order Reduction.

Graduated cum laude (ECTS: B, UK: Upper Second Class, US: B+)

Erasmus (2009), *RWTH Aachen University, Germany.*

Training mostly in Digital Speech & Image Processing.

BSc Engineering in Applied Mathematics (2004-2007), *Catholic University of Louvain.*

Minor in Mechanical Engineering. Graduated cum laude.

OTHER INFORMATION

Languages: French & Dutch (native), English (fluent), German (basic).

Hobbies: Badminton (B2), piano.