T. Moudiki

(+33) 6 50 05 43 29 • thierry.moudiki@pm.me
thierrymoudiki.github.io • thierrymoudiki

Engineer and actuary with experience in Life/Non Life insurance, and Data Science

Work experience

Self employed **October 2019 – October 2022**
Micro-entrepreneur

Open source tools created (see also `https://github.com/Techtonique` and `https://thierrymoudiki.github.io/blog/`)

- **nnetsauce**: Statistical/Machine Learning using Randomized and Quasi-Randomized (neural) networks (currently implemented in Python and R)
- **mlsauce**: Miscellaneous Statistical/Machine Learning tools (currently in Python and R)
- **the-teller**: Model-agnostic Statistical/Machine Learning explainability (currently in Python)
- **querier**: A query language for Python pandas Data Frames (currently in Python)
- **ahead**: Univariate and multivariate time series forecasting (currently in Python and R)

University Lyon I **October 2018 – October 2019**
Postdoctoral Research Fellow

- Survival analysis (analyzing the duration of time until an event occurs)
- Modeling of excess death rates associated to specific insured populations

Aviva France **July 2015 – July 2017**
Actuary

- Working on a Solvency II internal model
- Modeling Net Asset Value as a polynomial function of risk factors
- Simulation of risk factors
- Yearly, quaterly and monthly valuation of Life Solvency Capital Requirement

Allianz France IARD **April 2015 – July 2015**
Actuary

- Non Life Reserving

Optimind Winter **September 2011 – February 2015**
Actuary, consultant

- Non Life reserving of unpaid rentals insurance product
- Technical documentation of structured financial products in a Solvency II internal model. Business trip in Italy.
- Solvency II-based mission focusing on pillar 3. Along with the IT department: analysis, conception, implementation and tests of a reporting tool eventually leading to obtaining QRTs – Quantitative Reporting Templates.
- Descriptive notes for an Eurocroissance product. Eurocroissance was seen as a good replacement for ancient Life insurance products with low returns
- Construction of premiums triangles based on dates of occurrence. Business trip in Italy.

Premium Consulting **January 2010 – September 2011**
Actuary, consultant

- Pension/Employee benefits valuation
- Tool (Visual Basic Excel) containing references to all the Life insurance contracts of an insurer plus their characteristics

Allianz Investment Management **June 2008 – September 2009**
Internship

- Equity Solvency Capital Requirement modeling

Certifications and MOOCs

Dev Bootcamp, New York, NY **August 2017 – October 2017**
https://en.wikipedia.org/wiki/Dev_Bootcamp

- Ruby, Sinatra, Ruby on Rails
- HTML, CSS, Vanilla Javascript, React JS
- SQL
- Web applications with persistent data storage

edX verified certificate **2017**
Introduction to Python for Data Science

- Numpy
- Pandas

edX verified certificate **2015**
Introduction to Big Data with Apache Spark

- Python
- PySpark

Education

PhD, University Lyon I **February 2015 – July 2018**
Yield Curve interpolation, extrapolation and forecasting

- Statistical/Machine Learning, Multivariate time series forecasting
- **Published paper**: Multiple Time Series Forecasting Using Quasi-Randomized Functional Link Neural Networks; `https://www.mdpi.com/2227-9091/6/1/22`. Implemented in R and Python package **ahead**, available at: `https://github.com/Techtonique/ahead`
- **Working paper**: Swap curve construction for insurance pricing, based on no arbitrage short rate models; `https://www.researchgate.net/publication/344772713_Swap_curve_construction_for_insurance_pricing_based_on_no_arbitrage_short_rate_models`
- **Full text**: `https://tel.archives-ouvertes.fr/tel-01921512/document`

MSc, ISFA University Lyon I **October 2008 – October 2009**
Actuarial Science

- Actuary from the French Institute of actuaries since 2012
- **Thesis**: Approximation of Equity Solvency Capital Requirement in a Solvency II Internal Model; `http://www.ressources-actuarielles.net/C12574E200674F5B/0/BF86AF7CEEAC1F6AC125786E00540B3D`

MSc, Ecole Centrale de Lyon **October 2007 – October 2008**
Research in Actuarial and Financial Sciences

- Double degree with ENSIMAG and ISFA
- Stochastic calculus
- Derivatives' pricing
- Statistics
- Time series analysis
- Ruin theory
- Reinsurance

MSc, ENSIMAG Grenoble **October 2005 – October 2008**
Financial Engineering

- Mathematics/Statistics
- Finance
- Computer science