

# T. Moudiki

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

## Work experience

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### 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, quarterly 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

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### Dev Bootcamp, New York, NY

August 2017 – October 2017

[https://en.wikipedia.org/wiki/Dev\\_Bootcamp](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

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### 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](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/CI2574E200674F5B/0/BF86AF7CEEAC1F6AC125786E00540B3D>

### MSc, Ecole Centrale de Lyon

October 2007 – October 2008

*Research in Actuarial and 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