THIERRY MOUDIKI PhD

Machine Learning ● Actuarial Science ● Quantitative Finance

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Actuary with 10 years of experience and senior Data Scientist. Founder of **Techtonique LLC** (selected by **Microsoft for Startups in 2024**). PhD from Université Lyon 1. Creator of open-source R/Python packages with **over 1M downloads**. Reviewer for NeurIPS, ICLR workshops.

PROFESSIONAL EXPERIENCE

Founder and Analytics Consultant Sept. 2019 – Present
Techtonique LLC

R&D in statistical Machine Learning, simulation and optimisation. Techtonique web application for decision support (forecasting, tabular machine learning, economic scenarios, reserving). Open-source packages with 1M+ downloads. Selected for the **Microsoft for Startups** program in 2024. See https://github.com/Techtonique

Actuary – Economic Capital Jul. 2015 – Jul. 2017
Aviva

Economic capital valuation in life insurance.

Actuary – Non-Life Reserving Apr. 2015 – Jul. 2015
Allianz

Calculation and validation of technical provisions in non-life insurance.

Actuarial Consultant Sept. 2011 – Feb. 2015
Optimind Winter

Actuarial consulting across Life and Non-Life insurance and finance. Key clients: Allianz France (QRT Pillar 3 Solvency II tool) and BNP Paribas Cardif (Structured products documentation, Internal Model Solvency II).

Actuarial Consultant Jan. 2010 – Sept. 2011
Premium Consulting

IAS 19 actuarial valuations of employee benefit obligations + Risk mapping of retirement savings schemes at AXA France Vie.

Risk Capital Modelling Apr. 2008 – Sept. 2009
Allianz Investment Management

Risk capital modelling. See https://thierrymoudiki.github.io/blog/2025/09/16/r/python/revisiting-equity-scr

RESEARCH & TEACHING

Tutor Sept. 2023 – Jun. 2024
Université Paris Dauphine – PSL

Supervision of an actuarial Master's dissertation on the use of Random Vector Functional Link networks as Economic Scenario Generators (awarded by the Institut des actuaires).

Lecturer – Data Analysis Sept. 2023 – Dec. 2023
ICN Business School

Statistical methods for Grande École Master's students (Paris region).

Lecturer – Numerical Simulation Sept. 2022 – Sept. 2023
Université Paris-Dauphine | Tunis

Monte Carlo methods, stochastic processes, computational techniques in finance and insurance.

Postdoctoral Researcher Sept. 2018 – Sept. 2019
Université Claude Bernard Lyon 1

Research on excess mortality in insured populations; survival analysis.

EDUCATION

PhD – Actuarial Science 2015 – 2018
ISFA, Université Lyon 1

Interest rates modelling for insurance: interpolation, extrapolation and forecasting

Master – Actuarial Science, Fellow Institut des Actuaires 2008 – 2009
ISFA, Université Lyon 1

Research Master – Actuarial and Financial Sciences
2007 – 2008
École Centrale de Lyon

Engineering Degree – Financial Engineering 2005 – 2008
ENSIMAG, Grenoble

SKILLS

Languages & tools: Python, R, SQL, VBA, Excel, Apache Spark

Expertise: Machine Learning ● Time Series Forecasting ● Actuarial Science ● Quantitative Finance ● Financial Risk ● Climate Risk ● Numerical Optimisation

AWARDS & AFFILIATIONS

★ **Reviewer** – NeurIPS Workshop 2025, ICLR Workshop 2026

★ **Microsoft for Startups** – Techtonique LLC selected, 2024

★ Associate Member – Institut des actuaires (2012–2017, 2021)

★ Member – Société Française de Statistique (2019 and 2020)

SELECTED PUBLICATIONS & PRESENTATIONS

· **Conformal Predictive Simulations for Univariate Time Series** – *PMLR 266*, 2025

· **Multiple time series forecasting using quasi-randomized Functional Link Neural Networks** – *Risks 6(1)*, 2018

· **Economic scenario generators** – *Modelling in Life Insurance*, Springer, 2016

· **Sensitivity of a life annuity to interest rate curve extrapolation** – *Bull. Français d'actuariat 14(27)*, 2014

· See my Google Scholar profile

· Presented at International Symposium on Forecasting 2024, 18th Financial Risks International Forum 2025 at Institut Louis Bachelier, and Risk 2026 organised by the R consortium

· See my presentations

CERTIFICATIONS

Deep Learning Specialisation (3 courses) – Coursera, 2023

Dev Bootcamp Wall Street NYC (full-stack web development + SQL) – 2017

Introduction to Python for Data Science – edX, 2017

Introduction to Big Data with Apache Spark – edX, 2015