Duc Hien VU

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Professional Experiences

Covéa – Responsible for statistical & Actuarial Studies

ALM Studies & Strategic Asset Allocation – DG Investments *(May 2020- Present)*

- ORSA (prospective & permanent), Strategic Asset Allocation, efficient frontier, PRIIPs, Stress Tests
- Economic Scenarios Generators (risk neutral & real world) studies (mathematical models documentation, parameters calibration & sensitivity tests, martingale tests, scenarios analysis)
- Profit Sharing Policies & Investment Strategies (algorithm optimization in SII paradigm)
- Structured Products Analysis (retrospective & prospective risk-return analysis)

Regulatory Monitoring for Life Activities – DG Investments *(Jan 2018- Apr 2020)*

- Solvency II – Pillar I (quarterly & annual) production, AoC on BE (VA C2C) for life entities
- Economic Own Funds' analysis based on the EPV of Future P&L generated by groups of contracts, linking SII own funds with MCEV, IFRS17 visions
- Develop the methodology & process, build applications for process optimization & automating, for controlling & analyzing SII results, for generating and validating QRT
- Coordinate with IT & project owners teams on fast-close projects and industrialization projects, coordinate with modeling software editor on testing, integrating and improving ALM software
- Lead technical studies for ACPR supervision and internal needs (analysis of economic own funds, PVFP, BE, SCR and SII ratios, product profitability analysis, cyclical lapses analysis, profit sharing policies, competitive rate modeling, etc.)

Coding skills/software: Excel/VBA, R, Python (Google Colab), Solvéo, Risk Integrity, Bloomberg

EY – Senior Actuarial Consultant *(Dec 2015 – Dec 2017)*

- Consulting & audit missions for insurance companies (Covéa, Générali, SCOR, MME, etc.) on various actuarial subjects such as Solvency II, MVBS, IFRS, ALM modeling, etc.
- Development of applications for ALM modeling, analysis & back-testing
- Diverse actuarial studies (benchmark of S2 European models, profit sharing policies, etc.)
- Participation in proposal preparation and clients' meetings

Coding skills/software: Excel/VBA, R, Prophet, Solvéo

AXA – Actuarial trainee at different AXA entities *(Jun 2014 – Oct 2015)*

AXA Corporate Solutions *(Reserving actuarial intern – 6 months)*

- Develop an actuarial model for major loss reserving (extreme value theory for threshold calibration, an individual method for IBNeR and a frequency-severity approach for IBNyR estimation)
- Build a corresponding desktop application with R, Shiny and Google Chrome (portable version)
- Determine quantitative indicators for allocating reserves among AXA CS branches

AXA Global P&C *(Reinsurance actuarial intern – 6 months)*

- Improve and speed-up a CAT/Atypical modeling et reinsurance pricing tool (R/C++, using Rcpp)
- Add functionalities, restructure the program, help integrating the R core into a web platform
- Measure the impacts of changing reinsurance structure

AXA Solutions Collectives *(pricing actuarial intern – 4 months)*

- Calibrate different dental claim distribution (SAS)
- Deploy a tool for measuring the pricing impact of dental cap (Excel/VBA)
- Conduct a research on behaviors of health insurance policyholders before retiring

Coding skills/software: Excel/VBA, R (apps built with Shiny & Portable Chrome), C++, SAS, ReMetrica

Paris-Dauphine University – Monitor at CRIO-Multimédia *(Mars 2013 – Mai 2014)*

- Develop Excel/VBA, update software in IT rooms
- Maintain PCs and printers

Side projects

Web App - Job market trend analysis with NLP *(From April 2021)*
Exploit open data (web scraping) to analyze (with NLP techniques) job market trends (by job and location)
FastAPI, React, PostgreSQL, Docker, Python libraries (BeautifulSoup, Pandas, plotly, SpaCy, BERT,etc.)

Varathon - Web App for ALM modeling *(Jan 2020 – Dec 2020)*
I ended the project after building the UI & database *(with React, Material UI, Flask, SQLite)* that can be integrated with existing modeling software. The modeling part was abandoned due to lack of market visibility
https://varathon.fr/

Activities/Associations

Diffusion Internationale de l'Actuariat Francophone (D.I.A.F.) *(2016 – Present)*
Member & WebMaster

LittleActuary *(2015 – Present)*
Personal blog for sharing knowledge/experience on Actuarial, Financial & IT subjects
http://littleactuary.github.io/

Actuarial Open Source Community *(2021- Present)*
Member (building & sharing open source libraries/applications on Github for actuarial purposes)
https://www.linkedin.com/groups/13937070/

Education

Institut des Actuaires *(2016 - present)*
Qualified Actuary

Society of Actuaries
Candidate (Exams passed: P, FM, IFM)

ENSAE Paris *(2012 - 2015)*
Master of Engineering – Meng, Statistics and Economics (Actuarial science major)
Integrated in 2nd year (2013) after obtaining a Master1 degree in Applied Math at Paris – Dauphine University

Paris-Dauphine University *(2009 – 2012)*
Bachelor of Applied Mathematics and Bachelor of Applied Economics
Integrated in the sophomore year (2010) of the Math/IT program after a freshman year at UPEC

Skills & Languages

IT
Software: ReMetrica, Prophet, Solvéo, Bloomberg, RiskIntegrity, EVIEWS, Stata, etc.
Coding languages: R, Python, SQL, VBA, SAS, Java, C/C++, Matlab/Scilab, ADA
Web: Python (Flask, Django, FastAPI), Javascript (React, JQuery), HTML/CSS (Bootstrap, Material UI), Database (PostgreSQL, SQLite, MySQL), Production (Docker)
A.I. & Data science: Data analysis and dataviz, (Pandas, Matplotlib, plotly, Seaborn), web scraping (BeautifulSoup, Selenium), NLP (Nltk, SpaCy, Prodigy, BERT), M.L. (TensorFlow)

Languages
Vietnamese (native proficiency), French and English (bilingual proficiency), Chinese (limited)

Interests

Music (fingerstyle guitar & music composition), long-distance running (from 10km to Marathon), Finance (Financial Market & Corporate Finance), IT (Web development)