Duc Hien VU

Actuary / Full-stack Developer

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From July 2023 — Solvencii

Founder @ Solvencii

- Develop ALM software through web-based solutions (SaaS)
- Provide actuarial consulting and training (with or without our SaaS).

SOLVENCII started as a side-project in early 2020, aiming to build Web Interface for existing ALM software. In 2023, we started building our own ALM models and algorithms (mostly in Python) and leveraging Cloud Computing & Web Assembly for deployment.

EDUCATION

Qualified actuary
Institut des Actuaires (France)
2016 - Present

Master of Engineering
ENSAE Paris
2013 - 2015

EXPERTISE

Finance & Actuarial science

- Life: ALM, Solvency II, IFRS17
- Non-Life: Reinsurance modeling, pricing, reserving
- Corporate finance & Financial Market
- Software: Prophet, Solveo, RiskIntegrity

Data Science

- Practical Data Science, AWS certificate, Sep 2021 (Analyze Datasets and Train ML Models using AutoML; build, train & deploy ML Pipelines; optimize ML Models and Deploy Human-in-the-Loop Pipelines
- ML (Tensorflow/Keras & Pytorch)
- NLP (with BERT, NLTK, SpaCy, Prodigy)

Computer Science

- Code: Python, R, C++, Excel/VBA, Java, Matlab
- Web: front-end (React, JQuery, Javascript), back-end (Flask, Django, FastAPI), Docker, AWS, webAssembly, Pyodide, PyScript, web scraping
- Database: SQL (PostgreSQL, mySQL, SQLite), NoSQL (MongoDB)

LANGUAGES

- Vietnamese, French, English, Chinese

PAST EXPERIENCE

May 2020 - July 2023 — Covéa

ALM actuary

- ORSA, Strategic Asset Allocation, efficient frontier, PRIIPs, Stress Tests (Life team leader)
- Economic Scenario Generators (risk neutral & real world) studies (mathematical model documentation, parameter calibration & sensitivity tests, scenario analysis & validation)
- Profit Sharing Policies & Investment Strategies (algorithm optimization in SII paradigm)
- Structured Product Analysis (retrospective & prospective risk-return analysis)
- Asset modeling in risk neutral world and in real world (supervise an intern)

Jan 2018 - Apr 2020 — Covéa

Life actuary

- Solvency II – Pillar I (quarterly & annual production, VA C2C)
- Economic Own Funds' analysis based on contracts' VIF, linking SII with MCEV, IFRS17
- Develop methodologies & processes, build applications (process optimization/automatization, controlling & analyzing SII results, generating and validating QRT)
- Coordinate with IT & project owners teams on fast-close and industrialization projects,
- Work with software editor on testing, integrating, and improving ALM software

Dec 2015 - Dec 2017 — EY

Junior then Senior actuarial consultant

- Consulting & audit missions @ insurance companies on various actuarial subjects (Solvency II, MVBS, IFRS, ALM modeling, Reinsurance, M&A, etc.)
- Develop tools for ALM modeling, analysis & back-testing
- Diverse studies (benchmark of SII European models, profit-sharing algorithms etc.)
- Participate in proposal preparations and client meetings

Jun 2014- Oct 2015 — AXA

Non-life actuarial trainee

- **Reserving actuary @ AXA Corporate Solutions** (May 2015 - Oct 2015)
  - Build an actuarial model for Major Loss Reserving
  - Develop a corresponding desktop application (with R and Shiny package)
- **Reinsurance actuary @ Axa Global P&C** (Oct 2014 - Apr 2015)
  - Improve & speed-up a CAT/Atypical modeling & reinsurance pricing tool (with R and C++, using Rcpp package)
- **Pricing actuary @ AXA Solutions Collectives** (Jun 2014 - Sep 2014)
  - Calibrate different dental claim distributions (with SAS) & deploy an application measuring the pricing impact of a dental cap (with Excel/VBA)
  - Measure the effect of retirement on health behaviors