Louis **DOUGE**

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Experience

AXA Research, Engineering & Vision (REV)
Singapore

DATA SCIENTIST — *Mar. 2019 - Present*
- Leveraged cross-selling opportunities in the Philippines market, using:
  - Propensity models, built with Neural Networks and XGBoost models on large customer datasets (Python Dask+tensorflow.keras)
  - Interactive visualisations to help business interpret model outputs (Flask+DC.js, see Github Repo)
- Image Forgery Detection using Deep Learning (Constrained R-CNN architecture).
  - custom data annotation jobs using SageMaker GroundTruth and Lambda functions
  - divided previous algorithm's query time by 6, Continuous Deployment (CD) feature using Step Functions on AWS
  - containerized application deployed as a SageMaker endpoint
- End-to-end OCR pipeline to automate the parsing of Motor Handwritten claims
  - Business interactions, Data collection and distributed annotation
  - Detection (Faster R-CNN, avg 0.85 mAP), Transcription (C-RNN, avg 0.10 CER)
  - Containerized deployment as a Flask server using SageMaker endpoint
- AXA's representative to the Singapore Veritas project with the Monetary Authority of Singapore (Fairness in AI)

Architas Solutions - Member of AXA Group
Singapore

HEDGING ANALYST - APAC TEAM — *Mar. 2018 - Mar. 2019*
- Performed dynamic hedging activities for Variable Annuities (VA) products
- Demonstrated operational excellence in Asset and Liability Management (ALM), derivatives valuation, VA pricing. SLA outperformance: 10/12m
- Daily collaboration with Australian (AMP) and Hong Kong clients (AXA Life Europe)
- Developed and enhanced technical tools in C++ (Asset pricer), C# and VBA (Trading Tool) as well as SQL (Inforce Analysis Tool) with both Europe and Asia teams.

Covalent Capital - Fintech Startup
Singapore

PART-TIME INTERN - WWW.COVACAP.COM — *Jul. 2017 - Dec.2017*
- Developed an Online Roadshow Planner for automatic meeting planning (Python: Flask+MySQL)
- Worked on optimal assignment problems, applied to bond issuance
- Developed various visualisations: website's animations (Javascript), analytical dashboard (VBA)

Ignyta Inc. - Precision oncology company
San Diego, USA

SUMMER INTERN — *Jul. 2015 - Aug. 2015*
- Coded promotional movies dedicated to investors (PyMOL Python Library for molecular visualization).
- Assisted a scientist for data collection from a synchrotron, and protein purification

Education

National University of Singapore - French Double Degree Program (FDDP)
Singapore

MASTER OF ENGINEERING (MASTER BY RESEARCH) - INDUSTRIAL & SYSTEMS ENGINEERING — *Aug. 2016 - Jul. 2018*
- Master thesis on Last-mile delivery: Online vehicle routing under stochastic demands using Approximate Dynamic Programming.
  Tutors: As.Pr. Lee Loo Hay & Chew Ek Peng. PDF available at this link
- Advanced Probability course (Markov Chains and Decision Processes), Neural Networks course (MLP, RBF, SOM)

ENSTA ParisTech (Engineering Master's degree) - "Grande École"
Paris, France

"DIPLÔME D'INGÉNIEUR" CURRICULUM - APPLIED MATHEMATICS — *Sept. 2014 - May 2016*
- Stochastic Calculus (applied to Quantitative Finance), Statistical Modeling (using R), and Time Series (ARMA, ARIMA, etc.)
- Differentiable Optimisation, Systems Control, PDE Analysis and Discretisation, Relational Databases Design course
- Minor in Economics (Macro & Micro)
- Vice-President of Forum Trium (www.forum-trium.com) - Budget: €200k - 150 companies - Managing 8 people
- Research Scholar at NYU under the supervision of Dr. Mishra. Word2vec, Self-Organizing Map, Language Evolution

Lycée Sainte-Geneviève - Preparatory classes
Versailles, France

"CLASSES PRÉPARATOIRES" — *Sept. 2012 - Jul. 2014*
- Highly selective undergraduate program leading to the competitive nationwide entrance examinations to French engineering schools
- Major in Mathematics, minor in Physics

Technical Skills

Languages

- French: Native
- English: Full Professional Proficiency
- Spanish: Intermediate

Computer Skills

- OS: Unix (Mac OSX, Ubuntu), Windows
- **AWS SAA-C02 Certified**, SageMaker
- Git: see Github Repo
- Docker (doulou74 on Dockerhub)
- Latex, Microsoft Suite, InDesign

Programming Skills

- Python: Numpy, Pandas, Matplotlib, Seaborn, Scikit-Learn, Dask, Tensorflow (Keras), PyTorch, etc.
- C++ for scientific computing
- Front-End: Javascript (D3.js,Crossfilter.js,DC.js)
- Others: bash scripting, SQL, VBA, Matlab, R