

Karthikan S

Data Scientist - Aviva Asia

Singapore

- Email me on Indeed: <http://www.indeed.com/r/Karthikan-S/aca489d1df8bf529>

Work Experience

Data Scientist

Aviva Asia - Singapore

December 2018 to Present

Designed and developed a smart AI-powered solution to automate and enhance the Life insurance underwriting process. Solution involved 3 main components: OCR, NLP and a cognitive reasoning engine (knowledge graph) able to read medical reports and application forms, understand and contextualize the information to make an accurate underwriting decision.

- Led the design and development of an agent attrition prevention/intervention solution to tackle a firm-wide attrition crisis. Solution involved building a neural-network based deep model that is trained on agent demographic, psychometric, sales and team leadership data to predict short-term attrition. Potential benefits realization of 30% reduction in short-term attrition.
- Key contributor/leader in the design and development of an agent recruitment solution that sought to improve recruitment of high performing agents while eliminating human/unethical biases in the recruitment process.
- Designed, developed and deployed a rating engine for the GI Travel insurance book that improved risk selection and pricing by 9%.
- Actively involved in ideation and scoping of Data Science initiatives and a key player championing Data Literacy and DevOps initiatives within Aviva.

Senior Member

Data Analytics Committee - Singapore Actuarial Society

January 2017 to Present

Taught/conducted multiple courses on Machine Learning and Artificial Intelligence for actuaries from the Singapore Actuarial Society. Topics covered include business use cases, data pre-processing, feature engineering, machine learning models and model evaluation using Python programming.

- Gave a talk titled "Introduction to Data Science in Python" at a Speakers & Influencers Afternoon Forum with participants who were senior Actuaries and notable Actuarial Professors from local Universities.
- Wrote predictive models using xgboost and sklearn in Python to explain road incidents by combining real-time road incidents streams through LTA DataMall API merged with external datasets.

- Actively contributed to many advanced analytics workstreams and projects to improve, develop and advance the Actuarial practice in Singapore.

Artillery Officer - Lieutenant

Singapore Armed Forces

January 2013 to Present

- Ensured operational efficiency of the Battalion by providing logistical support, allocating manpower and planning.
- Managed over 40 men directly by ensuring their operational readiness including logistical and soldiering competency.

DATA SCIENCE/SKILLS/TOOLS, LANGUAGES AND INTERESTS

- Data Science:
 - Kaggle, Asia Actuarial Analytics Challenge 2017 - Top 39% on Public Leader board Demonstrated data cleaning, exploration, visualization skills and basic knowledge of Machine Learning algorithms. Predicted the purchase of a term-deposit product sold through a telemarketing campaign with an accuracy of 78.99%
 - Kaggle, Jigsaw, Toxic Comment Classification Challenge - Top 52% on Public Leader board. Wrote a blend of multiple deep neural network architectures (CNN, GRUs, and LSTM) and incorporating multiple word embedding (GloVe, FastText) to accurately classify comments on forums according to their degree of toxicity. Displayed thorough understanding of Natural Language Processing (NLP) methods for machine classification of text. Achieved Area under ROC score of 0.9805.
 - Kaggle, Home Credit Group, Home Credit Default Risk - Area under ROC score of 0.743 on Public Leader board Predicted the default risk of Home Credit Loan applicants through using a blend of machine learning models and neural networks.

Consultant

PwC Southeast Asia Consulting - Singapore

March 2018 to December 2018

- Designed and improved price index forecasting for a major multinational commodity mining company using a blend of seasonal ARIMA models and machine learning methods in Python. Designed back-testing mechanisms on short to mid-term trading strategies for validation.
- Reshaped volume allocation strategy for the Manganese Ore book by generating business insights via diagnostic dashboards and optimisation methods for a leading global mining client.
 - Designed, developed and deployed performance dashboards for a leading mining client to better enable better analytics and decision making to drive business value.
 - Wrote Python scripts to enable web scraping of public sector tenders for an internal client to allow and perform advanced analytics to give PwC a competitive edge in winning public sector business.
 - Built a location tracking web application hosted on Google Cloud Platform as a Proof-of-Concept for a leading global car

manufacturing client

- Actively worked on business development work by designing Machine Learning solutions to move the needle and generate value for PwC clients' businesses.

Actuarial Intern

Data Analytics Committee - Singapore Actuarial Society - Singapore
May 2017 to August 2017

- Performed data exploration and pricing analytics for the regional launch of motor insurance Telematics support using Python.
- Performed one-way and two-way pricing analysis for a Motor product in a major South East Asian market using excel VBA and Tableau.
- Created Tableau dashboards for profitability analysis for the Regional Chief Actuary which was then communicated to local entity CEOs.
- Gained exposure to Generalized Linear Models (GLM) based pricing methods and basic Stochastic Reserving methods.
- Coded Python scripts to automate web scraping and data cleaning to prepare premium and claims dataset prior to modelling.
- Worked and learned under the tutelage of the Regional Chief Actuary.

Actuarial Pricing Intern

PartnerRe - Singapore
September 2016 to December 2016

Supported the front office in South Europe and Asia (Pricing Actuaries and Underwriters) to analyse client submission, perform

Data cleaning and Exploration, compute data in pricing tools, underline potential issues and summarize most relevant changes of exposure and experience for the 2017 renewals.

- Worked and learned under the tutelage of the Head of Pricing and Analytics, APAC.

Actuarial Pricing Intern

Munich Re - Singapore
May 2016 to July 2016

Performed portfolio analysis and monitoring for major client portfolios and presented the reports in PowerPoint slides which were presented to the clients.

- Learned and employed actuarial concepts and reinsurance fundamentals such as IBNR methods, loss ratio and burning cost

analysis to perform profitability analysis.

NATIONAL SERVICE/LEADERSHIP EXPERIENCE

Education

Bachelor of Business in Actuarial Science

Nanyang Business School, Nanyang Technological University
August 2014 to December 2017

Skills

PYTHON (3 years), APACHE HADOOP IMPALA (Less than 1 year), Hive (Less than 1 year), IMPALA (Less than 1 year), MS SQL SERVER (Less than 1 year)

Links

<https://sg.linkedin.com/in/karthikanselvaraj>

Additional Information

- Skills/Tools:

Python - Advanced proficiency acquired through work experience, self-initiated projects, Kaggle competitions and internship projects.

SQL (Hive, Impala, PostgreSQL, MS SQL Server) - Intermediate proficiency acquired through work experience and online courses.

Tableau - Advanced proficiency acquired through work experience and internship projects.

Qlik sense - Intermediate proficiency acquired through work experience.

DataRobot - Advanced proficiency acquired through work experience and in-person courses.

Dataiku DSS - Advanced proficiency acquired through work experience and in-person courses.

VBA - Intermediate/Advanced proficiency acquired through work experience, internship projects and learning through online courses.

Cloud Computing (Amazon Web Services, Google Cloud Platform, IBM Watson) - Intermediate proficiency acquired through work experience and online courses