Perspectives on AI Adoption Strategy and Trends in Singapore

Singapore is the financial hub of South East Asia. Given the number of financial firms that have setup their operations in the country, one wonders how much the organizations there have adopted AI and data science.

I was in Singapore last month and spoke to various leaders in the financial industry there. Here's my interview with Johnson Poh, who has been a data scientist with experience spanning across the finance, consulting and government sectors for the past decade. His professional appointments include being Head Data Science/Practice Lead at DBS Bank, Chief Data Scientist, ASEAN at Booz Allen Hamilton as well as Principal Data Scientist at Ministry of Defence, Singapore respectively. He also serves as an adjunct faculty at SMU School of Information Systems and his focus areas include applied statistical computing, machine learning as well as big data tools and techniques.

Johnson completed his bachelor's degree at University of California, Berkeley, majoring in the subjects of Pure Mathematics, Statistics and Economics. He received his postgraduate degree in Statistics at Yale University.

Analytics India Magazine: How important is Data science & AI in the financial industry?

Johnson Poh: Financial institutions are taking a more data-driven approach with the adoption of modern computing stacks and the development of end-to-end big data pipelines. While the pace of progress varies across financial institutions, there are already a handful of organisations that have data analytics teams set up to work hand-in-hand with the business to apply machine learning and AI techniques across a variety of areas including acquisition, cost reduction and customer service. Within the financial industry, the restructuring of people, platforms and processes around a data driven mantra has harnessed data and accelerated the adoption of machine learning and AI implementation.

AIM: What are some use cases of data science or AI that you have worked on?

JP: Machine learning and AI techniques has been applied across the financial industry to deliver better customer service, reduce operating cost and detect fraud. For instance, reinforcement learning techniques have been applied in resource and logistics optimisation to lower downtime and reduce operating cost. Elsewhere in the business, machine learning techniques have been applied to customer service call centres in the area of forecasting so that manpower allocation can be made more flexible to the peaks and troughs of demand.

THERE HAS ALSO BEEN MORE FOCUS ON MAKING CONTINUED IMPROVEMENTS IN FRAUD DETECTION AND ANTI-MONEY LAUNDERING WITH THE USE OF A VARIETY OF DATA SOURCES AND THE APPLICATION OF SUPERVISED AND UNSUPERVISED LEARNING TECHNIQUES.

AIM: How do you see the analytics ecosystem flourishing especially in south east Asia region?

JP: Given the explosion of data sources, there is vast potential in the Southeast Asia region where machine learning and AI can be applied. Across the region, more banks are partnering e-commerce and telecommunication firms to leverage on data to support customer services. Cross industry data sharing will lead to significant improvements in customer background checks and credit underwriting, which will help serve a larger variety of customer segments.

Apart from the business-to-business partnerships, governments in the region are also strengthening government-verified personal data services. Singapore has been at the forefront of this effort, allowing banks to use government data services, via open-APIs. Customers, who seek loan financing, no longer have to prepare and submit thick stacks of documentation. With SingPass, a customer can give consent for a bank to authenticate and verify his ability to repay using government-verified personal data for loan underwriting.

AIM: What are some of the challenges that the industry in Singapore faces in terms of AI adoption?

JP: AI technology is ready for adoption. However, regulations and information security policies will need to catch on with the ever-changing technology landscape. Governments will need to provide the right regulatory environment for banks to operate and stay competitive, while protecting its citizens' personal data privacy. Organisations will need to review its information security policies to find the right balance between enabling business to implement AI-backed initiatives and implementing the necessary safeguards to ensure the security of customers' data. There is urgency to dedicate focus and attention on this challenge so that we can keep pace with the momentum of AI adoption and stay ahead of the game.

AIM: How can governments and citizen associations come together for a healthy discussion as well as implementation of AI?

JP: Governments have a pivotal role to play in pushing the boundaries of AI implementation for social good, as well as putting in place an adequate regulatory environment to prevent the abuse of data and AI initiative.

Having open dialogue on a range of machine learning and AI topics that concerns citizens and industry players is a good start. On one end of the spectrum, there is a need to discuss how machine learning and AI can be used to support social initiatives in areas including e-services, healthcare, tax reporting and law enforcement. On the other end of the spectrum, there is a need to take into account concerns over the extent to which data can and should be used by public and private sectors so that data privacy laws can adequate protect citizens and consumers.

AIM: Is AI talent an issue in Singapore? If yes, how can we resolve this?

JP: In recent years, the education system has pivoted towards an emphasis on fields such as mathematics, statistics, computer science and information technology. Business schools have also woven data science and AI elements into its curriculum. This is a positive trend that will expand our talent pool in the field of data science.

However, with the influx of data science graduates in the workforce, time is needed to build up the experience of our talent pool in applying machine learning and AI techniques across the public and private sectors in meaningful ways. Remember, data science is an applied subject. The sooner we

exercise the ability to implement, iterate and validate data science models in the business context, we faster we can achieve robustness in making data science and AI more useful and relevant.

MANY FINANCIAL INSTITUTIONS HAVE ALSO STARTED TO FOSTER A CONDUCIVE LEARNING ENVIRONMENT TO SUPPORT THEIR IN-HOUSE DATA SCIENTISTS BY OFFERING TRAINING PROGRAMMES AND DEVELOPMENT OPPORTUNITIES.

AIM: What is the biggest trend in data science/ AI that you look forward to in 2019?

JP: 2019 will be the year of data science operationalization and a demand for machine learning engineers. Many organisations over the past years, especially in the financial sector, have laid the architectural foundations for their own end-to-end data pipeline. In the years ahead, the focus will be on operationalizing data science models and deploying big data to training them.

Machine learning engineers hold a combination of software engineering skills as well as the appreciation for big data statistical modelling techniques. Their role is crucial to the in-production data pipeline as they will be responsible for overseeing data management and computational resources, as well as the maintenance of in-production systems. They must be familiar with agile methodologies in project management as well as the continuous deployment of software components in a modern data stack.

The operationalization of the modern data stack is something I look forward to, as this will shift the narrative from ideation to implementation of data science and AI, which will now bring impact and benefit to a variety of business cases.