Bharat Ram Ammu

Head of Data Science at Complidata (Founding Team Member)
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SKILLS

DOMAINS OF EXPERTISE

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Machine Learning • Anti Money Laundering • Banking • Compliance • Artificial Intelligence
• Deep Learning • Financial Mathematics • Scrum Planning and Scrum Management
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TECHNOLOGIES

R | Python | SAS | SQL | Neo4j | HTML | JavaScript | Spark | Asana

LANGUAGES

English: Very Fluent

Dutch: basic

VALUES:

Skills, Intent, Transparency and accountability, belief in efficient teamwork, commitment to task completion.

PROJECTS

Client 1 French Tier 1 Bank

Project Objective: Optimization of Transaction List Screening (TLS) systems as part of KYC RegTech

Partner : IBM Interactive France

Key milestones:

- Optimized FPs generated in Transaction List Screening systems by more than 30%, with identification of 99% of true positives using an end-to-end machine learning pipeline.
- Trained explainable models on big data (17 million) alerts generated from TLS systems with state-of-the-art machine learning techniques.
- Provided additional feature engineering assistance to partner's built-in modules to provide enhanced features for model building.
- Provided high performing models like Random Forest and complemented well with easy to explain models like decision trees. Could also achieve decent performance for decision tree models with advanced hyperparameter tuning.

Client 2 US Bank based in China

Project Objective: Optimization of TLS systems and Scenario Tuning as part of KYC RegTech

Partner: BATES AML and FINANCIAL CRIMES

Key milestones:

- Optimized FPs generated in Transaction List Screening systems by more than 40%, with identification of 99% of true positives using an end-to-end machine learning pipeline.
- Devised Name distribution analysis using state-of-the-art deep learning model tuned as per client's requirement and deployed remotely using advanced containerization,
- Performed additional tasks like data profiling, scenario tuning using the combination of machine learning and domain expertise.

Client 3 Belgian Tier 1 Bank

Project Objective: Optimization of Customer Name Screening systems against PEPs as part of KYC RegTech

Key milestones:

- Optimized FPs generated in Customer Name Screening systems by more **89**% with identification of **99.9**% of true positives using an end-to-end machine learning pipeline.
- Provided automated narratives generated using explainable AI techniques to assist investigation teams.
- Exhaustively validated the intuitiveness of the model by checking high risk names part of screening before putting the model in production.
- Provided high performing models like Random Forest and complemented well with easy to explain models like decision trees. Could also achieve decent performance for decision tree models with advanced hyperparameter tuning.

Other POCs:

Transaction Monitoring Optimization (TMO) : International Bank Austria, German Bank, Chinese Bank via DXC International Hong Kong

Name Screening Optimization (PEPs and Sanctions): 2 Insurance Clients from France

Open-Source Intelligence (OSINT): 1 bank from Netherlands

EXPERIENCE

COMPLIDATA

Part of Founding Team – Head of Data Science (since April 2019)

- Part of Founding team at https://complidata.io/
- Provided explainable machine learning solutions to various bank clients all over the world for AML Transaction Monitoring, KYC sanctions name screening and Transaction List Screening (TLS).
- Instrumental in converting two top banks as clients from Belgium by providing explainable machine learning solutions for KYC PEP Name Screening and Transaction List Screening (TLS).
- Devised and implemented project to reduce false positives by 30-70% using statistically robust machine learning pipelines for above mentioned use cases.
- Initiated and completed research projects to explain blackbox models like Random Forests using advanced explainable AI techniques like LIME and SHAP.
- Using above explainable AI, successfully built an automated narrative generation tool for interactive explanations of machine learning output.
- Built a GUI for non-technical users to operate a machine learning pipeline to automatically preprocess, train and apply models with custom settings for any binary classification problem using Tkinter in Python.
- Scenario Tuning: Used d3.js (D3 Library in Javascript) to build a visually aided threshold tuning solution and enabled machine learning tuning to find the optimal threshold. Can try the tool here.
- OSINT: Automated investigation of alerts by webscraping using Selenium Python bindings. Sample demo of the work is shared for reference here (all rights reserved for reuse).
- Contributed to Complidata being the best AI startup of the year 2019 at DISummit.
- Contributed to Complidata being among the top 10 rising star startups of Belgium in Deloitte fast 50 competition.

Data Scientist (April 2017- April 2019)

- Worked extensively on unsupervised learning (clustering algorithms), Anomaly detection (Isolation Forest), sub-group discovery algorithm (PRIM) and binary classification (various machine learning algorithms) in both R and Python. Please find the project here.
- Published master's thesis in collaboration with Complidata on optimizing false positives for suspicious activity monitoring for AML compliance for banks using interpretable machine learning models tailored to AML investigators. Please find the thesis here.
- Built a shiny application in collaboration with my team on 'Rshiny' for the above optimization methodology and deployed it for the client's sandbox environment.
- Implemented a model to risk score and visualize networks for detecting money laundering via social network analytics using Neo4j and Python.

MJUNCTION SERVICES LTD.

Data Analyst – Long and Re-rollable Steel Products Division (June 2014- April 2015)

- Predicted prices of rerollable steel products using iron ingot prices and defect information using regression.

EDUCATION

KATHOLIEK UNIVERSITIET LEUVEN Belgium

Master in Statistics   2016-18

KATHOLIEK UNIVERSITIET LEUVEN Belgium

(Partial) Master's in Materials Engineering   2015-16

NATIONAL INSTITUTE OF TECHONOLOGY WARANGAL India

Bachelor's in Metallurgical & Materials Engineering   2010-14

================================ **ADDITIONAL INFORMATION** ================================

Externally certified Courses undertaken:
Building Dashboards with shiny dashboard Course, Natural Language Processing Fundamentals in Python Course, Intermediate Python for Data Science Course, Network Analysis in Python (Part 1) Course, Network Analysis in Python (Part 2) Course, Deep Learning in Python Course, Building Web Applications in R with Shiny Course, Intro to Python for Data Science, Scala and Spark for Big Data and Machine Learning: Learned Collaborative Flitering, Apache Spark for Big Data, The Complete Javscript Course 2019: Build real projects, Visualizations using D3.js