Aryan Singh

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EDUCATION

University of Florida	Gainesville, FL
Master of Science in Computer Science	*Aug 2021 – July 2023*
Maulana Abul Kalam Azad University of Technology, Techno India	Kolkata, India
Bachelor of Technology in Computer Science and Engineering; GPA: 3.52 (8.81/10.0)	*Aug 2013 – July 2017*

EXPERIENCE

Tata Consultancy Services (Client: Nordea Bank)	Bengaluru, India
Software Engineer	*Aug 2017 – July 2021*

- **Fraud Detection Pipeline**: Worked in fraud detection and prevention team to integrate source payment and demographic system to the detection tool (FICO Falcon).
- **Day End Transaction Clearing**: Wrote MapReduce jobs in Java and used other big data ecosystem tools which transforms $\approx$ **45GB** batch data/daily into Falcon readable format to perform detection before clearing.
- **Realtime POS Fraud Detection**: Developed micro services in Spring Boot to take real-time POS data using REST API, transform it, connect to Falcon using Netty framework to send transformed data and finally respond with a decision to API under **100 msec** at a peak load of **200 transactions/sec**.
- **Two Factor Check**: Conceived an automated system to send SMS to the customer to check if a fraud detected payment is valid. If yes is received, the system changes the metrics in Falcon, which has decreased false positives by over **50%** which has saved fraud investigators time and labour.
- **Phishing Attack Prevention**: Built system to quarantine new mobile banking ids for some fixed time or until customer manually verifies, to crack down on phishing attacks, which cut down the mobile banking phishing attacks by over **50%**.
- **Streamlining Interfaces**: Merged multiple bank customer search interfaces into one, so as to build a coherent interface with all the required option to expedite the fraud investigation process by more than **30%** and reducing the labour on auxiliary tasks by more than **70%**.
- **Holding and Putting Human in Loop**: Added functionality to real-time fraud check pipeline to hold transactions for secondary human fraud check which marginally improved fraud detection by **15%**.

PERSONAL PROJECTS

- **Emotion Detector** | *Python, Keras, TensorFlow, OpenCV, Flask*: Web application that uses an ML model to detect the emotion in the uploaded image. The model was built using transfer learning and was trained on human and animated faces. The model predicts the probability of each emotion class.
- **Toxic Comment Classifier** | *Python, Keras, TensorFlow, Flask*: Web application that uses ML model to detect the toxicity class of an entered phrase. The model was built by creating embeddings using Glove and then using it in bidirectional LSTM network. The model predicts the probability of each toxicity class.
- **Ethereum Token Exchange** | *Solidity, Truffle, Mocha, Geth, Infura, JavaScript*: Exchange is built on ERC20 Token Standard, which allows admin to do initial token offering for ethers and allows buyers and sellers to trade tokens for ethers.
- **Variational Quantum Eigen Solver** | *Python, NumPy, Matplotlib*: Eigen solver to find minimum eigen value of 4x4 Hermitian Matrix by decomposing into Pauli Matrices, iteratively adjusting ansatz and measuring on Z basis. Such a system can be used to find ground state of a molecule.
- **Logo Interpreter** | *JavaScript, P5.JS, HTML*: An interpreter is made using p5.js in which the commands of logo language are parsed and executed by drawing on the canvas. Commands like forward, backward, left, right, pen up, pen down, repeat, clear screen, pen and screen colour is implemented.

TECHNICAL SKILLS

Languages: Java, Python, C, C++, Bourne Shell Scripting, Julia, Scala.
Frameworks & Web Services: Spring Boot, Hibernate, SOAP and RESTful Web Services.
Databases: Oracle (PL/SQL), MongoDB, Redis, Neo4j.
Big Data: MapReduce, Spark, Flink, Hive, HBase, Oozie, Sqoop, Kafka, Flume.
Web Technologies: HTML, CSS, Bootstrap, JavaScript, JQuery, PhP, NodeJS and Flask.
Devops: Git, JUnit, Mockito, Jenkins, Ansible, Maven, Gradle.
SDLC: Scaled Agile (SCRUM).

ACHIEVEMENTS

- **IBM Quantum Challenge**: Achieved Intermediate Badge at IBM Quantum Challenge, Fall 2020.
- **TCS Awards**: Awarded Technical Excellence and Outstanding Contribution Award at TCS in 2018 and 2019.