Ria Thazhe Punathil

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EDUCATION

Georgia State University Atlanta, GA
Master of Science - Computer Science; GPA: 3.53/4 *Aug. 2021 - Dec. 2022(Expected)*
Fr. Conceicao Rodrigues Institute of Technology Mumbai, India
Bachelor of Engineering - Information Technology; CGPA: 7.79/10 *Jul. 2014 - Jun. 2018*

SKILLS

Languages: Python, R, JavaScript, HTML/CSS, SQL, PHP, Bash, Java
Frameworks: Scikit, NLTK, SpaCy, TensorFlow, Keras, Flask, ReactJS
Tech Stack: Elastic Stack(Elastic Search, Logstash, Kibana and Beats), Linux, AWS(Glue, SageMaker, Lambda), Qlik Sense, Redmine, Tableau, GIT, Jenkins, PostgreSQL, MySQL, MongoDB, Oracle RDBMS, PhpMyAdmin, Jupyter Notebook, Microsoft Azure, VirtualBox, Grafana, RASA
Certifications: Elastic Certified Engineer & Analyst, PHP, R, Data Science, Deep Learning, Python, NSE Financial Market

EXPERIENCE

Apple Inc. Cupertino, California
Software Engineer Intern - GPU Compiler Analytics *May 2022 - Aug. 2022*
- Built interactive Tableau dashboards for the GPU Compiler team to track historic and real-time performance of the GPU compilers across latest iOS devices on metrics like compile time, execution time, and code optimization passes using various benchmarks.
- Achieved 10% improvement in GPU compiler performance report generation script by using optimization techniques like literals, dictionary comprehension and reading JSON input files in binary mode.

Georgia State University Atlanta, Georgia
Graduate Teaching Assistant *Aug. 2021 - Present*
- Grading assignments for the Principles of Computer Science and Software Engineering course, and helping students in troubleshooting Java programs through problem-solving sessions.

National Stock Exchange of India Information Technology Limited Mumbai, India
Associate System Analyst *Aug. 2018 - Jul. 2021*
- Worked closely with business clients, senior architects, BAs and development teams to deliver high availability solutions for mission-critical applications.
- Led the development team for the Anomaly Detection project and was responsible for designing, testing and deploying the end-to-end application. Also deployed the app on AWS using Glue, SageMaker and Lambda services.
- Built Elastic dashboards to monitor internal applications for companies like Bandhan Bank, Parkway Pantai, NSE and NSEIT.
- Developed automated proctoring features to detect and monitor any anomaly in candidate's behaviour during an exam.

Almoayyed International Group Manama, Bahrain
Web Development Intern *Jun. 2016 - Jul. 2016*
- Developed a responsive e-commerce UI with HTML5, CSS and JavaScript libraries. Used PHP and SQL as the backend technologies, along with Oracle RDBMS as the database.

PROJECTS

Viral Host Specification from Coronavirus Spike Sequences (Georgia State University Bioinformatics research):
- Comparing performance of Supervised Machine Learning models like SVM, Random Forest, Logistic Regression & Decision Trees to classify host specificity, when applied on feature vectors generated from different encoding techniques.
- Implemented different encoding techniques like One-hot encoding, generating K-mers & Minimizers of the sequences, and a new technique Position Weight Matrix to generate feature vectors for the models.

Anomaly Detection using Machine Learning for National Stock Exchange of India Limited:
- Built an application in Python to detect anomalous behavior in order/trade transactions of trading members registered in Algo and Non-Algo Trading using ML models. Worked on analysis of NSE Trading data with financial market domain experts to perform data selection and cleaning to generate features for the model.
- Designed feature attributes(aggregations) to boost model performance, followed by normalization of data & performed dimensional reduction using Principal Component Analysis, and lastly used unsupervised clustering algorithm DBScan for model training and prediction.
- The application could handle huge volume transaction data and detect non-algorithmic trading members executing burst order transactions within short periods of time which are not humanly possible. The performance of the surveillance in catching anomalous behavior improved by 40%.

Threat Intel Dashboards for Parkway Pantai:
- Integrating application logs into Elasticsearch using Logstash as the parser and the dashboards were built in Kibana.
- Designed dashboard displaying top 10 users who don't have their antivirus software updated, number of hosts infected, inbound & outbound traffic, and health of the machines such as memory and cores used, with information updating in near real-time(5 second delay).

Monitoring service requests of ServiceNow for National Stock Exchange of India(NSE):
- Integrated NSE ServiceNow employee ticket tracking system to monitor with Elasticsearch. Ingested the logs using Logstash.
- Designed dashboards to display the status of incidents raised by the employees, incidents having top priority, metrics for completed, pending and cancelled tasksd, with information updating in near real-time(5 second delay).

Government-issued Document Identification using PyTesseract:
- Designed an application to identify Indian government-issued documents and handle blurred and skewed document uploads.
- The application includes features such as handling noise in images, orientation of image and reading languages other than English. It could handle noise in images using libraries PyTesseract and OpenCV. The application could also identify the regional language 'Hindi'.

Monitoring hits on SoC application for NSEIT Limited(internal):
- Set up 3-node Elasticsearch cluster. Ingested application logs of the SoC application to monitor firewall events and machine logs with the help of interactive visualization built on Kibana and improve the IP lookup speed while tracking requests from malicious IPs.
- The lookup of malicious IPs, branch details, blacklisted URLs and device information was improvised with the help of Memcached which was integrated with Logstash in Python which increased the speed of the lookup process by 30%.

Leveraging AI in Auto-Proctoring for Exam Sessions:
- Designed features such as candidate facial recognition, object detection and tracking suspicious activities(Eye-Lip Movement) using Image preprocessing techniques. Tech Stack used: OpenCV, YOLO(RCNN model) to detect objects.
- Worked on creating logs of the activities of a candidate during their exam session.
- Added a new feature using Python computation capabilities to detect anomalous behaviour such as answering many questions within a short span of time from the logs generated.

PUBLICATIONS

- Ali, S.; Bello, B.; Chourasia, P.; Punathil, R.T.; Zhou, Y.; Patterson, M. PWM2Vec: An Efficient Embedding Approach for Viral Host Specification from Coronavirus Spike Sequences. Biology 2022, 11, 418. https://doi.org/10.3390/biology11030418
- L. M. Gadhikar, R. Kadolkar, R. Chandran, D. Bothello and R. Ranganath, "Parallelization of Steady Air-Flow Over Cars with Neural Network," 2018 3rd International Conference for Convergence in Technology (I2CT), 2018, pp. 1-4, doi: 10.1109/I2CT.2018.8529421.