DIVYAANK TIWARI

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EDUCATION

Sardar Patel Institute of Technology, Mumbai, India **August 2016 - June 2020**
Bachelor of Engineering in Computer Engineering with *Distinction* **CGPA - 9.22/10**

PROFESSIONAL EXPERIENCE

MSCI Inc, Mumbai, India **June 2020 - Present**
Associate Quantitative Developer - Analytics Engineering Department *September 2022 - Present*
The Analytics Engineering Department constructs Indexes and Risk-Models for Factor Investing.

- Implemented an Apache Ignite-based, Level-2 cache for Factor Exposure API, that augments the Level-1 Caffeine cache; making the API more performant by reducing frequent RMI calls to the database.
- Conducted extensive performance/load testing for fine-tuning Garbage Collection and Cache-level configurations for the Azure Kubernetes Service based Ignite cluster.
- Reduced API response time by 3-5 times for Fixed Income Assets and by 60 times for Equity Assets.

Associate Site Reliability Engineer - Index Engineering Department *January 2022 - August 2022*
Analyst Site Reliability Engineer - Index Engineering Department *June 2020 - December 2021*
The Index Engineering Department constructs market cap-based Indexes and generates circa 75% of MSCI's revenue.

- Appointed as the Lead SRE for APAC (Asia-Pacific) shift, entrusted with the stability of Index applications and infrastructure across Test and Production environments.
- Monitored Index Calculation/Distribution batch jobs for Australia and China Markets to prevent Service-Level-Agreements (SLAs) breaches caused by infrastructure bottlenecks or application regression.
- Onboarded database read/write logs of Index Calculation Service production instances onto Splunk and created dashboards to help the application team detect database bottlenecks and regressions.
- Appointed as the SRE point-of-contact for fixing Akamai Content Delivery Network and Web Application Firewall-related issues for all Index applications.
- Wrote shell scripts for the routine archival of Gigabytes of application logs across Test/Production servers to prevent OutOfMemory errors in applications.
- Promoted to an Associate SRE an year before the traditional duration.

Siemens Technology and Services Private Limited, Pune, India **January 2020 - June 2020**
Data Science Intern - Analytics Lab India, SOP IT APD

- Created a Proof-of-Concept Time Series model for predicting sales of 50 products for the next year. The 15 best model predictions had a Mean Absolute Percentage Error of 7.17%.
- Assisted Supply-Chain Team in the migration of their reporting platform from Excel to ThoughtSpot. Responsible primarily for schema modelling.
- Modelled Product-delivery data from SAP HANA datasource, as an Amazon Neptune-based Knowledge Graph. Responsible for preparing, normalizing, and loading the node-edges CSV data into S3 storage.

PROJECTS

application-infra-stats

- Built a Python utility to collect, process and infrastructure-level metrics for 20 Index Calculation Service production instances, during the daily execution of the pivotal, US Market End-of-Day Index Calculation batch job.
- Implemented logic to hop across all 10 production servers and parse OSWatcher logs to gather process-level statistics such as Virtual Memory usage, CPU/Memory usage (in Percentage) and server-level statistics such as load-average and logical number of CPUs.
- Collaborated with the development team to construct custom database queries for fetching Index-level insights such as the number and type of indexes calculated across all production servers.
- Designed interactive Power BI visualizations from collected data to enable greater observability for the development team and other stakeholders.

- Technologies Used - Python, Bash Scripting.

Index EUBMR Portal

- Constructed a portal to maintain an inventory of all Index Applications, Databases, and File Paths and track their compliance in accordance with the EU Benchmark Regulations (EUBMR).
- Participated in all phases of software development from requirements gathering to implementing new features across all layers of the MVC-based application.
- Automated the labyrinthine Excel-based workflow of tracking changes by onboarding all Excel sheets and their business-logic onto the platform.
- Technologies Used - ASP.NET Framework, SQL Server, Azure App Service.

Personality Trait Classification Model

- As part of my undergraduate thesis, 'Artificial Intelligence-based Interview Assessment' created an NLP model to infer Big-5 personality traits (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism) during behavioral interviews from synthesized textual responses.
- Developed Paragraph Embeddings for inference, using the Gensim module's implementation of the Doc2Vec algorithm on the Essays Dataset.
- Reached within 2% accuracy of the State-of-the-Art model for Extraversion, Agreeableness and Conscientiousness traits using Support Vector Classifier, Logistic Regression and Ridge Classifier respectively on the embeddings.
- Technologies used - Python and its libraries like Genism, SciKit-learn, XGBoost, NLTK

Monkey Interpreter

- Worked through Thorsten Ball's, 'Writing an Interpreter in Go' book and designed an interpreter for the Monkey language that supports Closures, Macros and REPL.
- Implemented the parser using Pratt Parsing and Recursive Descent Algorithm.
- Technologies used - Go

TECHNICAL SKILLS

Languages	Scala, Java, Python, Shell Scripting (bash/ksh), SQL, C#, C, Go
Operating System	Linux (OEL and Ubuntu)
Databases	Oracle (12c/19c), SQL Server 2019
Web Technologies	HTML, CSS, JavaScript, ReactJS, ASP.NET Framework
Cloud/DevOps	Azure, Docker, Kubernetes (AKS), Application Insights
Tools	JConsole, VisualVM, Akamai (CDN & WAF), Splunk, Oracle Enterprise Manager

EXTRA-CURRICULAR ACTIVITIES

- Teaching Assistant for the Semester-I course, 'ES11: Structured Programming Approach' (2019) and conducted 5 workshops titled, 'Python Fundamentals for Data Science' for the Semester-III course, 'MA203: Probability and Statistics' for Computer Engineering students (2022).
- Secured 72% ('B' Grade) in the NPTEL MOOC, 'Social Networks' conducted by IIT Ropar (2019) and 94% ('A+' Grade) in the SCOPE (Skill Certification for Outcome-based Professional Education) course, 'Fundamentals of Big Data Analytics' conducted by Sardar Patel Institute of Technology (2017).
- Obtained certification in the Coursera MOOCs, 'Algorithms for DNA Sequencing' conducted by Johns Hopkins University and 'Concurrent Programming in Java', and 'Parallel Programming in Java' conducted by Rice University (2020).
- Class Representative throughout four years of undergrad for the Computer Engineering Department.
- Training and Placement Coordinator for Computer Engineering Department. Helped conduct placement drives and interview training sessions for batchmates and served as a liaison between the Department and the Training and Placement Office (2019).
- Volunteered for SEVA (Social Education through Various Activities). Devoted over 30 hours to Mr. Afroz Shah's weekly Versova Beach and Mithi River cleanup activity, the largest of its kind globally (2018-19).
- Technical Lead for Industry Relations (IR) Cell, worked as a Frontend Engineer on the Laravel-based IR-Cell Website (2018-19).