

DIVYAANK TIWARI

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EDUCATION

Stony Brook University, Stony Brook, NY, USA

August 2023 - December 2024

Master of Science in Computer Science

GPA - 3.95/4

Courses: Adv. Algorithms, Adv. Operating Systems, Distributed Data Management, Data Science Fundamentals

Sardar Patel Institute of Technology, Mumbai, MH, India

August 2016 - June 2020

Bachelor of Engineering in Computer Engineering

GPA - 9.22/10

Courses: Distributed Systems, Operating Systems, Computer Architecture, Computer Networks, Algorithms

SKILLS

- **Languages:** Scala, Java, Python, C, C++, bash, Golang, SQL, JavaScript, HTML, CSS3, Promela
- **Databases:** Oracle, SQL Server
- **Frameworks:** Apache Ignite, gRPC, Spring, ReactJS, Spin
- **Tools:** Git, Docker, Kubernetes, Azure DevOps & App Insights, VisualVM, JFR, Akamai, Splunk, OpenAPI

PROFESSIONAL EXPERIENCE

Stony Brook University

Stony Brook, NY, USA

Graduate Research Assistant at Prof. Erez Zadok's File systems and Storage Lab

August 2023 - Present

- Optimized Metis' record-and-replay based Replayer for reproduction of non-deterministic Linux kernel bugs.
- Submitted patches [1, 2] to the Linux kernel for kernel hang bug in the Journaled File System (JFS).

MSCI Inc.

Mumbai, MH, India

Associate Quantitative Developer (Backend Engineering, SDE - II)

September 2022 - August 2023

- Improved average response time for Exposure API by a staggering 400% by implementing a gRPC interface.
- Implemented a Recursive Descent Parser to transform gRPC objects to custom domain objects.
- Developed a batch-processing utility that compares two XML files (1-10 GB), and generates comparison reports.
- Implemented an Apache Ignite-based cache for the Exposure API that backs the in-memory, Caffeine cache.
- Performed extensive performance engineering to optimize Ignite cache operations and reduce memory-footprints.
- Responsible for 5-fold and 60-fold decrease in API response time for Fixed Income and Equity Assets respectively.
- Added Exposure computation support for Contract for Difference and Equity Index Derivatives.

MSCI Inc.

Mumbai, MH, India

Associate Site Reliability Engineer (SDE - II)

January 2022 - August 2022

Analyst Site Reliability Engineer (SDE - I)

June 2020 - December 2021

- Promoted from an Analyst to an Associate, an year before the traditional duration!
- Entrusted with the stability of Index applications and infrastructure as the Lead SRE for Asia-Pacific shift.
- Developed an application for aggregation of performance metrics from the distributed Index calculation service.
- Developed an 'EU Benchmark Regulations' compliance portal for tracking all Index Applications and Databases.
- Created Splunk dashboards by using data from Index calculation service logs for detecting database bottlenecks.

Siemens

Pune, MH, India

Data Science Intern

January 2020 - June 2020

- Developed a Time Series model (Mean Absolute Percentage Error: 7.17%) for product sales prediction.
- Assisted in the migration of SCM Team's reporting platform to ThoughtSpot by designing database schemas.
- Modelled Product-delivery data present in SAP HANA as a Knowledge Graph using Amazon Neptune.

PROJECTS

Metis : Model Checking File Systems | C, C++, Promela, Spin, bash, Model Checking, Kernel Debugging

- Used Metis to identify bugs in the Journaled File System (JFS) by leveraging ext4 as the reference file system.
- Investigated kernel hang bugs in JFS using debugging techniques like logging, assertions, function tracing.

Programming Language Interpreter | Golang

- Designed an interpreter for a toy programming language, which supports Closures, Macros and REPL.
- Implemented the language parser using Pratt Parsing, a modification of Recursive Descent Algorithm.