

# DIVYAANK TIWARI

(On F1 Visa)

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## EDUCATION

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**Stony Brook University, Stony Brook, NY, USA** August 2023 - December 2024  
*Master of Science in Computer Science* GPA - 3.95/4  
*Courses:* Distributed Systems, Decentralized Data Management, Adv. Operating Systems, Analysis of Algorithms

**Sardar Patel Institute of Technology, Mumbai, MH, India** August 2016 - June 2020  
*Bachelor of Engineering in Computer Engineering* GPA - 9.22/10  
*Courses:* Computer Architecture, Computer Networks, Compiler Design, Data Structures & Algorithms

## TECHNICAL SKILLS

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<b>Languages</b>	Java (3 years), Python (3 years), SQL (3 years), Shell Scripting (bash/ksh) (3 years), C (2 years), JavaScript (2 years), HTML5 (2 years), CSS3 (1 year), Scala (1 year), C++ (6 months), Go (6 months), Promela (6 months)
<b>OS</b>	Linux (Oracle Enterprise Linux and Ubuntu) (5 years)
<b>Databases</b>	Oracle (12c/19c) (2 years), SQL Server 2019 (1 year)
<b>Frameworks</b>	Apache Ignite (1 year), Caffeine (1 year), Spring Boot (1 year), Spin (1 year), gRPC (6 months), ReactJS (6 months)
<b>DevOps</b>	Docker (3 years), Kubernetes (AKS) (1 year), CI/CD (1 year), Azure Application Insights (1 year), Azure DevOps (1 year)
<b>Developer Tools</b>	Git (5 years), Splunk (2 years), VisualVM (1 year), JFR (1 year), Akamai (1 year), Oracle Enterprise Manager (1 year)
<b>Miscellaneous</b>	Distributed Systems (3 years), Microservices (3 years), REST APIs (3 years), Distributed Caching (1 year), Model Checking (1 year)

## RESEARCH EXPERIENCE

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**File systems and Storage Lab** **Stony Brook, NY, USA**  
*Research Assistant at Prof. Erez Zadok's File systems and Storage Lab* August 2023 - Present

- Compressed Metis' Replayer to a single file, achieving a 60% decrease in code size.
- Implemented Containerized Swarm Verification (aka Distributed Model Checking) support for Metis.

## PROFESSIONAL EXPERIENCE

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**MSCI Inc.** **Mumbai, MH, India**  
*Associate Quantitative Developer (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.**

*Associate Site Reliability Engineer (SDE - II)*

*Analyst Site Reliability Engineer (SDE - I)*

**Mumbai, MH, India**

*January 2022 - August 2022*

*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**

*Data Science Intern*

**Pune, MH, India**

*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**

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

- Investigated a non-deterministic kernel oops bug in the Journaled File System (JFS) using Metis.
- Submitted 2 patches [1, 2] to the Linux kernel for the aforementioned bug.

**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.

### **EXTRA-CURRICULAR ACTIVITIES**

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- Teaching Assistant for CSE 306: Operating Systems at Stony Brook University, 2024.
- Teaching Assistant for ES11: Structured Programming Approach at Sardar Patel Institute of Technology, 2019.
- Conducted 5 workshops titled, 'Python Fundamentals for Data Science' for the Semester-III course, 'MA203: Probability and Statistics' (2022) at Sardar Patel Institute of Technology.