MRIGANKO SHEKHAR DUTTA

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msd-3.github.io | linkedin.com/in/msd117 | github.com/MSD-3

Education

Indian Institute of Technology Bombay — Mumbai, India
MS(R) in Computer Science and Engineering **CGPA: 8.57** — July 2024 – Present

Techno India University — Kolkata, India
B. Tech in Computer Science and Engineering **CGPA: 9.28(Silver Medalist)** — October 2020 – July 2024

South Point High School — Kolkata, India
AISSCE PCMC **Percentage: 81.6%** — April 2018 - July 2020

South Point High School — Kolkata, India
AISSE **Percentage: 92.2%** — April 2016 - May 2018

Test Scores

GATE CS 2024 **Score – 734 AIR – 645** GATE DA 2024 **Score – 592 AIR -951**

Skills

Programming Languages:	C++, Bash, Java, SQL, HTML, CSS
Libraries/ Framework:	STL, Spring Framework, Hibernate Framework
Tools/ Platforms:	ChampSim, Microsoft Azure, VS SEIM tools (Suricata), Network Packet Analyser(tcpdump), Autocad.
Databases:	MySQL
Operating Systems:	Linux, Windows

Projects

Microarchitecture-conscious Matrix Multiplication **C++**

A project focused on optimizing matrix multiplication code for better performance by leveraging the microarchitectural components like caches, and prefetchers in our CPU without asymptotically changing the algorithm. In our experiment, we obtained a geomean speedup of **91.5%** over baseline code.

Implementation of different prefetchers in ChampSim CPU Simulator **C++, Bash**

In this project, we implemented different stride prefetchers for TLB as well as the data cache of our CPU in the ChampSim simulator. For TLB we implemented the Arbitrary Stride Prefetcher while for data cache we implemented IP Stride and Complex Stride Prefetchers.

Distributed Key-Value Store server **C++, Bash**

A consistent and scalable distributed key-value store server. Each node comprises a thread pool that handles the requests parallelly. A caching mechanism is also implemented to optimise performance ensuring data coherence. A user can connect to any of the nodes using an IP address and port number and perform CRUD operations.

Legal Lens **Python, LangChain, Hugging Face, LanceDB, Gemini**

An AI-powered solution to simplify working with legal documents by uploading multiple documents to the application and asking questions about it in a chat-based environment. Legal lens can also help the user draft documents according to their requirements.

Sentiment Analysis of Product Reviews **Python, Vader, HTML, CSS**

An end-to-end project that accepts an Amazon product link and generates a score based on the product reviews. It shows the degree of positive, negative, and neutral comments in the reviews.

Certifications

- Google Cybersecurity Specialisation – Coursera
- INTRODUCTION TO SAP S/4HANA DEVELOPMENT - SAP University Alliances
- Microsoft Certified: Power Platform Fundamentals - Microsoft
- Microsoft Certified: Azure Fundamentals - Microsoft
- Java Certificate - HackerRank
- Web Application Development with Java EE - Aptech