




# Mayank Jain

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## Education

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### University of California, San Diego

San Diego, USA

MS in Computer Science. GPA: 4.0

Sep '23 - Mar '25

Coursework: Database Systems Implementation, Graduate Operating Systems, Graduate Networked Systems, Virtualization and Cloud Computing, Algorithm Design and Analysis

Teaching Assistant: Computer Architecture (Software Perspective) Lab

### College of Engineering, Pune (COEP)

Pune, India

Gold Medalist - Ranked 1<sup>st</sup> in B. Tech (Honors) Computer Engineering. CGPA: 9.82/10

Jul '17 - Jun '21

Coursework: Operating Systems, Distributed Systems, Advanced Unix Programming, Computer Networks, Compilers

## Work Experience

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### D. E. Shaw & Co.

Hyderabad, India

Member Technical, Systems

Jul '21 - Jul '23

- Implemented an **Authentication adapter** for ADFS in C#, supporting multiple authentication methods and enabling custom MFA workflows, serving as the primary authentication method within the firm.
- Revamped the **On-call management and scheduling system** by implementing a Django based responsive web-app secured by OIDC and deployed on K8s, and a typer based CLI packaged with Nix.
- Developed a C# based **Web proxy** and corresponding Binary PowerShell Cmdlets, providing fine-grained authorization to HYPR APIs and streamlining user/device management workflows for the Helpdesk team.
- Benchmarked** and documented the **performance** of on-prem **Kubernetes** cluster for comparison with the in-house cluster management system using tools like wrk2 & oha. Helped established a post-release verification framework for the cluster.
- Developed a PowerShell **Module for Active Directory object attribute validations** with alerting, and automatic remediation capabilities, enabled through declarative configuration.
- Built an **ETL pipeline** in Python which processes 0.5 million records daily to monitor EULA compliance of installed softwares.

### NVIDIA

Pune, India

Software Intern, Autonomous Vehicles

Jan '21 - Jun '21

- Addressed **performance anomalies** observed in Roadrunner (NVIDIA's Autonomous Driving application) during driving which affects safety and in-car driving experience by identifying, tracking, and addressing end-to-end latency spikes.

### D. E. Shaw & Co.

Hyderabad, India

Systems Intern

Apr '20 - Jun '20

- Designed and developed a **highly scalable, centralized notification service of distributed nature** from scratch, which abstracted all notification channels (like Email, Slack), helping teams get rid of the overhead of implementing notification modules and allowing users to set per-application personal preferences. Used by 100+ teams, and more than 1 million notifications have been sent till date. Used React, Redux for frontend; Java, SpringBoot and JUnit5 for backend, and Apache Kafka as middleware.

### Hexagon Capability Center India

Hyderabad, India

Software Developer Intern

May '19 - Jul '19

- Developed **two microservices in C++** for OEM interfaces for reading sensor data from mining equipment and creating actionable alerts, improving efficiency and minimizing equipment downtime by up to 50%.

## Selected Projects

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### Query Engine for XML Databases - Databases

- Command line tool to evaluate XQuery expressions on XML files using join optimizations for a subset of the XML specification. Implements a query re-writer module to automatically improve performance of user defined queries.

### User Level Multithreading Library - Operating Systems

- Lightweight C library based on one-one and many-one threading models, with support for synchronization primitives like spinlocks, mutexes and semaphores. Provides the abstractions for control, synchronization, attribute and signal handling between threads.

### Shell Interpreter - Operating Systems

- Command interpreter / job control shell for Unix. Allows piping multiple tasks, redirection of standard input/output, job control commands and various shell built-ins.

### Command line sorting utility in Linux - Data Structures and Algorithms

- Unix sort command that can sort and/or merge user input or files of *arbitrary* size, using an external sort algorithm written in C.

## Specialized Skills

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- Languages:** Python, C/C++, Java, C#, Bash, PowerShell, JS/CSS/HTML, SQL,  $\LaTeX$
- Technologies:** Kubernetes, Docker/Podman, Apache Kafka, Django, Vue, React, Spring Boot, OAuth/OIDC
- Tools:** Git, Nix, Nginx, Valgrind, GDB, Build tools, Linux utilities