

NEERAJ PATEL

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Education

Indian Institute of Technology, Bombay

MS in Computer Science

July 2025 – Present

CGPA: 8.5

Parul University, Vadodara

Btech in Computer Science

September 2020 – May 2024

CGPA: 8.14

Research Area

- Computer Architecture

Experience

Slash Mark IT Startup

Jan 2024 – April 2024

Frontend Engineer Intern

Vadodara, Gujarat

- During my internship, I Led the end-to-end frontend development of a modern real-time chat application using React.js, designing reusable components and implementing a clean, scalable component architecture to ensure maintainability and future feature expansion.
- Utilized React Hooks for efficient state management and dynamic UI rendering, ensuring smooth user interactions, optimized performance, and seamless data flow throughout the application.
- Designed and styled responsive user interfaces using Tailwind CSS and CSS3, prioritizing intuitive navigation, accessibility, and cross-device compatibility for an enhanced user experience.

Academic Projects

Implementation and Calculation of Cache Pollution | C++, ChampSim

Aug 2025 - Nov 2025

Prof. Biswabandan Panda, Computer Science and Engineering, IIT Bombay

- Designed and implemented custom instrumentation in ChampSim to quantify cache pollution at L1, L2, and LLC.
- Added an auxiliary tracking queue to store evicted cache lines and monitor their potential future reuse.

Key-Value Store with Multi-Threaded Load Generator | C++, SQL

Aug 2025 - Nov 2025

- Designed and implemented a Key-Value Store in C++ supporting REST-based GET, POST, and DELETE operations and integrated an in-memory LRU cache to optimize read performance and reduce database access latency.
- Connected the system to MySQL for persistent storage and data durability.
- Developed a multi-threaded load generator to simulate concurrent workloads including GET-heavy, write-heavy, mixed, and hot-key access patterns.
- Measured and analyzed system performance metrics such as throughput (requests/sec) and average response time under varying thread counts.

Relevant Coursework

Computer System: Operating System, Design and Engineering of Computer Systems, Advanced Computer Architecture, Code Optimization for Object-Oriented Languages, Computer Networks, DBMS

Additional Course: Theory of Computation, Software engineering

Technical Skills

Languages: C, C++, Python, HTML/CSS, JavaScript, SQL, Bash

Simulator: ChampSim

Developer Tools: VS Code, Git, Docker, Google Colab,

Leadership / Extracurricular

National Service Scheme

August 2022 - Feb 2024

Institute Coordinator

Parul University

- Organized and supervised a Blood Donation Camp, coordinating with hospitals and volunteers for smooth execution.
- Directed a Swachh Abhiyan rally to promote public cleanliness awareness and community participation.

Projection

Feb 2023

Coordinator

Parul University

- Led planning and execution of the annual college fest with participation of 25,000+ students.
- Managed cross-functional teams of 30+ volunteers across logistics, sponsorship, publicity, and events.