

Sarang Patel

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PROFESSIONAL EXPERIENCE

Graduate Teaching Assistant | Boston, USA

Sep 2024 – Dec 2025

- Mentored 200+ students on MySQL, MongoDB, and the MERN stack, guiding them through database design, query optimization, and scalable full-stack application development.
- Conducted code reviews, design evaluations, and debugging sessions to enhance system performance, data integrity, and application scalability.

Web Developer Intern | Pune, India

Jun 2023 – Nov 2023

- Developed responsive, fast web UIs using React and vanilla JS/HTML/CSS that significantly improved usability and reduced page load times by 15% in core application user flows.
- Increased organic site traffic by 18% and boosted overall conversions by 10% through the successful implementation of new SEO, metadata, and third-party payment features.
- Collaborated with design, QA, and backend teams in bi-weekly Agile sprints to deliver over 10 major features, streamline release flows, and resolve 50+ critical production bugs.

SKILLS

- **Languages:** Python, Java, JavaScript, TypeScript, Rust, C++, Shell Scripting, HTML5, CSS3
- **Frameworks & Tools:** React, Redux, REST APIs, Figma, Next.js, Node.js, Express.js, GraphQL, Mocha, Jest, Cypress, Jenkins
- **Cloud & DevOps:** AWS, Docker, Kubernetes, Linux, Unix, Git, GitHub, CI/CD, Infrastructure as Code, Monitoring, Prometheus
- **Databases & Systems :** MySQL, MongoDB, Redis, Operating Systems, Concurrency, Multithreading, Distributed Systems

PROJECTS

Custom Unix Shell in Rust | Rust, Systems Programming, Concurrency 

- Engineered a high-performance, fully interactive shell supporting multi-stage pipelines, tab completion, and advanced I/O redirection while maintaining a modular, maintainable Rust architecture.
- Utilized low-level POSIX primitives and Rust concurrency guarantees to orchestrate processes safely, eliminate data races, and deliver predictable, scalable command execution under high-load scenarios.

Fault-Tolerant Distributed Key-Value Store | Java, Java RMI, Multithreading, Paxos 

- Developed a Java RMI-based distributed storage system supporting consistent GET/PUT/DELETE operations.
- Implemented Paxos consensus with proposer/acceptor/learner roles for reliable multi-node agreement.
- Added simulated node failures and timeouts to test protocol correctness and system resilience.
- Built thread-safe store with ConcurrentHashMap and executors enabling parallel and durable state updates.

Kambaz LMS | React.js, Express.js, Node.js, REST APIs, MongoDB, Jest/Cypress – [Live Demo](#) 

- Developed a full-stack LMS using MERN with secure JWT/bcrypt auth, enabling protected student and instructor workflows.
- Built and optimized RESTful APIs for course data using Express.js and MongoDB, improving performance and responsiveness.
- Wrote unit tests (Jest) and end-to-end tests (Cypress), significantly improving code reliability and reducing regressions.
- Implemented an interactive quiz module allowing instructors to create assessments and securely store student results.

MiniGit — Lightweight Version Control System | Python, CLI, SHA-1, File I/O 

- Implemented a Git-like version control system from scratch, supporting core commands including init, add, commit, log, status, and checkout.
- Designed internal data structures for staging, commit history, and object storage using SHA-1 hashing.
- Built a custom .minigitignore mechanism and JSON-based snapshot model to support version tracking through a CLI interface.

StoreIt — Cloud File Storage & Management Platform | Next.js, Appwrite, Cloud Computing, Netlify – [Live Demo](#) 

- Built a full-stack file management app using React, Next.js, and Tailwind CSS, supporting secure file upload, preview, and categorization across Documents, Images, Media, and Others.
- Integrated Appwrite Storage & Authentication, reducing back-end complexity by ~60% while ensuring secure, per-user file access and scalable cloud storage.

EDUCATION

M.S. Computer Science | Northeastern University

B.Tech Computer Science | MIT ADT University