Keshav Saraogi

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EDUCATION

Boston University	Master of Science in Computer Science	**SEP'23 - DEC'24**
Temple University	Bachelor of Science in Computer Science	**JAN'18 – DEC'22**

TECHNICAL SKILLS

Software Tools: Docker, Kubernetes, AWS Sagemaker, AWS S3, AWS EC2, Generative AI, Langchain, LLM, Azure Data Factory, Databricks, Azure Data Lake Storage, Azure DevOps, Apache Spark, GitHub, Linux, Power BI, Tableau, SQL, NoSQL,

Programming Languages: Python, JavaScript, TypeScript, R, Tableau, MySQL, MongoDB, Postgres, C, C++, HTML, CSS,

Frameworks: TensorFlow, Keras, NumPy, Pandas, PyTorch, Matplotlib, PyTest, REST APIs, MongoDB, SQL, Cloud Services

PROFESSIONAL EXPERIENCE

Software Development Intern | Patton Labs   **Jan 2023 – April 2023**

- **Collaborated in a team of 5** to design and implement a scalable **microservice architecture** using **Docker** containers orchestrated with **Kubernetes**, deploying multiple isolated services across a **Linux**-based environment to enhance modularity and deployment flexibility.
- **Reduced build times by 20%** by diagnosing delays in the deployment lifecycle and enhancing the **CI/CD pipeline** using **Docker-based builds**, **Kubernetes job automation**, and staged testing workflows, leading to faster feature releases and smoother integration.
- **Engineered RESTful APIs and asynchronous message passing** with RabbitMQ to resolve latency issues in service-to-service communication, resulting in a **17% improvement in microservice intercommunication speed** and improved system responsiveness.
- **Optimized relational and non-relational database operations** by redesigning schemas and writing advanced **SQL and NoSQL queries**, addressing backend performance bottlenecks and improving database read/write efficiency by **22%**.

Undergraduate Teaching Assistant | Temple University   **Aug 2021 – Dec 2021**

- Demonstrated lectures and organized assignments for 30+ students in **C** and **Linux**, showcasing leadership and technical skills.
- Collaborated with TAs to organize study sessions, leading to a 20% improvement in student grades and overall student involvement.

PROJECTS

Inventory Management

- Led the **end-to-end development and deployment** of a full stack **MERN-based** Inventory Management **Web Application**, architecting the backend with **JavaScript, Express, and MongoDB** and building modular **RESTful APIs** to handle user authentication, role-based access control, secure file uploads, and structured form data processing for shop registration workflows.
- Developed a **clean, responsive frontend** using **React and shadcn-ui**, integrating **client-side form validation**, and a **dynamic to-do checklist**; implemented **file upload functionality with preview and validation** to ensure atomic storage of documents and form data— achieving 100% data completeness, and utilized **Local Storage** to preserve in-progress form data, and preventing accidental data loss.
- Secured admin access using **session-based authentication**, enabling protected routes for managing submissions, while also integrating logging and **error-handling middleware** to monitor backend issues, reduce downtime, and streamline debugging.
- **Deployed the application to a Linux-based AWS EC2 instance**, configuring **NGINX** as a reverse proxy, **PM2** for process management, and environment variables for secure configuration to ensure 24/7 uptime and scalability; implemented an **automated CI/CD pipeline using Jenkins** to streamline builds, testing, and deployments, while tracking progress and tasks through Jenkins job history and pipeline logs to maintain an Agile development workflow.

Document Form Manager

- **Led the end-to-end design and development** of a MERN-based form submission manager, building a robust backend in **TypeScript** with **Express** and **MongoDB**; developed secure **RESTful APIs** and enforced business rules using **Mongoose** validation to handle user info, document uploads, and a dynamic checklist for tracking submission status.
- **Built a responsive frontend** using **React** and **shadcn-ui**, enhancing user experience with real-time form validation, drag-and-drop file uploads, and file previews; implemented secure session-based admin authentication with protected routes and a dashboard supporting pagination, search, document preview/download, and verify/delete functionality.
- **Integrated Firebase Storage** for seamless and scalable document handling, and improved backend data integrity by over 40% by implementing conditional rendering and server-side validation to reject incomplete submissions.
- **Deployed the full-stack application on a cloud-hosted Linux server**, using **PM2** and Nginx for process management and reverse proxy routing; containerized services with **Docker** and **Docker Compose**, and set up **CI/CD pipelines using Jenkins** to automate build, test, and deployment workflows, accelerating release cycles and improving delivery reliability.