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

Tools: Docker, Kubernetes, AWS, Langchain, Spark, Airflow, Git, GitHub, Linux, Postgres, MongoDB, Lang Smith, Jenkins

Languages: Python, JavaScript, TypeScript, HTML, CSS, Bash, SQL, NoSQL

Libraries and Frameworks: Express, React, Fast API, OpenAI, Pandas, NumPy, PyTorch

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.
- **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%**.

Information Technology Intern - Indorama Ventures, Bangkok   **April 2025 – August 2025**

- Built an enterprise-grade **RAG** system using **LangChain**, **OpenAI Embeddings**, and **FastAPI**, with data stored in **Pinecone VectorDB**, enabling real-time semantic search and grounded LLM responses across **10GB+ SAP ERP and Excel data**.
- Designed scalable, production-ready **ETL** pipelines with **Apache Airflow**, integrating SAP connectors and Excel sources, and transforming datasets using Python libraries including **Pandas**, **OpenPyXL**, reducing data preparation time by 70%.
- Fine-tuned **OpenAI LLM** models with domain-specific procurement data using advanced **Prompt Engineering** and **Few-Shot Learning** with Langchain; implemented dynamic **Prompt Templates** and role-based conditioning to adapt responses for users with **Python**, significantly improving consistency and task relevance in internal QA benchmarks with **LangSmith**.
- Orchestrated a multi-agent system using **LangChain's AgentExecutor**, combining **SQL** and **Pandas Agents**, insight-generation tools to **handle structured and unstructured queries**; utilised Langchain to prevent hallucinations.

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,

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 rules using **Mongoose** validation to handle user info,
- **Built a responsive frontend** using **React** and **shadcn-ui**, enhancing user experience with real-time form validation, drag-and-drop uploads, and file previews and 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.