

HARSHA K

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PROFESSIONAL SUMMARY

Motivated and hands-on Software Engineer with 3+ years of experience in full-stack development, microservices, and AI-integrated systems. Skilled in building scalable web applications using React.js, Node.js, Spring Boot, and Firebase. Experienced in designing RESTful APIs, implementing secure authentication, and optimizing backend performance. Familiar with cloud-native tools like AWS, Docker, and PostgreSQL. Proficient in leveraging AI frameworks such as Hugging Face Transformers, LangChain, and OpenAI APIs to build intelligent systems. Proven ability to contribute in Agile teams across public-sector, legal, and fintech platforms. Committed to writing clean code, learning continuously, and delivering user-focused digital solutions.

Master of Science in Computer Science | Saint Louis University, USA

Aug 2023 – May 2025

Coursework: Algorithms, Applied Machine Learning (TensorFlow, Hugging Face), Predictive Modeling, Database Management Systems, Principles of Software Development, Kubernetes, Web Development, Computer Networks, Cloud-Native Application Development

Bachelor of Technology | Vellore Institute of Technology, India

Aug 2019 – May 2023

TECHNICAL SKILLS

Programming Languages	: Python, C++, Java , JavaScript, TypeScript
Web & Backend Frameworks	: ReactJS, Node.js, Express.js, Spring Boot, JSP, Servlet, RESTful & Fast API
Cloud & DevOps	: AWS (S3, SQS, SNS), Docker, Kubernetes, Git, Postman
Databases	: MySQL, MongoDB, PostgreSQL
Data & AI Libraries	: NumPy, Pandas, TensorFlow, Matplotlib, NLTK, Open AI APIs, Lang Chain
Tools & Platforms	: Linux/Unix, Windows, macOS, Visual Studio Code, Shell Scripting
Core Concepts	: OOPs, Design Patterns, Debugging, Agile, SDLC, Prompt Engineering, Agentic Workflow Design

PROFESSIONAL EXPERIENCE

Software Engineer - AI & Data | Metis Analytics | United States

Feb 2025 – June 2025

- **Tools4Logistics** : Developed a distributed logistics platform with a responsive React.js frontend and Firebase backend, integrating a Groq LLM-based chatbot using LangChain for real-time user interaction and reinforcement learning-driven route optimization. Engineered secure features such as Google/email authentication, live data feeds, and role-based access portals.
- Achieved 85% faster decision-making, 93% prediction accuracy, and 75% fewer supply chain issues by optimizing the Software Development Life Cycle (SDLC) through Agile practices, CI/CD pipelines, and real-time system monitoring.
- **Preppr AI** : Developed a cloud-native disaster response platform from scratch using React.js for dynamic front-end interfaces, RESTful APIs for service communication, Stripe for secure payment processing, and Docker for deployment. Integrated OpenAI APIs and LLM-based prompt tuning for context-aware task recommendations and intelligent chatbot orchestration.
- Reduced various departmental preparation time by 85% and improved response accuracy by 93% through AI-powered workflow automation. Implemented a lightweight vector database (FAISS) for real-time similarity search and action mapping.
- Built full-stack infrastructure leveraging AWS EC2, S3, PostgreSQL, and Stripe APIs, with Prisma ORM for database handling, Grafana for real-time monitoring, and Tailwind CSS for dynamic UI updates. Ensured deployment stability via CI/CD pipelines.
- **Founders Lounge** : Developed a stateless backend for a membership platform using Firebase Authentication, Firestore, and Stripe Webhooks. Enabled tiered membership management, automated billing, and real-time user access control for gated content. Integrated Google/email login for seamless onboarding and secure access.
- Implemented an LLM-powered assistant (via OpenAI APIs) to onboard new users and answer member queries using context-driven prompts. Fine-tuned conversational flows to align with tier-specific access and support.
- Used Firebase emulators for local testing of authentication, Firestore, and functions, boosting debugging efficiency. Leveraged PostgreSQL alongside Firestore to handle complex relational data requirements.

Web Developer|Global Grad| Saint Louis University| United States

Aug 2024 - Dec 2024

- Developed and deployed a scalable, responsive web platform using React, JavaScript, HTML/CSS, and Firebase to help new graduates navigate campus buildings, dorms, and student facilities, enhancing onboarding experience and accessibility.
- Integrated interactive maps, searchable directories, and real-time updates via RESTful APIs and Firebase backend, resulting in a 60% boost in student engagement and a 45% drop in support requests.
- Assisted in debugging, unit testing, and documentation, ensuring code reliability and maintainability while gaining hands-on experience with agile collaboration tools like Git, Jira, and Slack.
- Participated in frontend styling and layout refinement using CSS and Tailwind, contributing to mobile responsiveness and cross-browser compatibility across key campus pages.

Junior Software Engineer | Excelerate | United States

Aug 2023 – Sept 2023

- Designed and developed a full MVP web application using JavaScript, React, and Node.js, enabling healthcare operations teams to manage internal workflows and data with improved speed and usability.
- Implemented RESTful APIs, interactive UI components, and backend logic, contributing to a functional prototype aligned with SDLC best practices and suitable for future HIPAA-compliant scaling.
- Contributed to end-to-end feature development and integrated MongoDB for dynamic data storage, improving backend performance and supporting scalable data management for healthcare use cases.
- Actively contributed to feature development, wrote reusable code, fixed UI/backend bugs, and participated in code reviews to support the successful launch of the MVP healthcare.

Associate Software Engineer - Data & AI | Attorney Office | India

Apr 2021- July 2023

- Supported development of scalable backend systems by writing modular code in Python and structuring SQL databases to handle large volumes of legal and criminal records, ensuring system scalability and maintainability in a government setting.
- Assisted in designing and integrating RESTful APIs, enabling secure and seamless communication between legal portals and multiple law enforcement databases, improving the speed and accuracy of data retrieval for case processing.
- Contributed to performance tuning and backend optimization by analyzing slow-running queries, applying indexing strategies, and streamlining data pipelines to ensure efficient data access with minimal latency under high-load conditions.
- Gained practical experience in public-sector application development, working in a secure environment focused on compliance, audit readiness, and data privacy, while understanding legal workflows and justice system constraints.
- Collaborated with a cross-functional development team, including legal analysts and senior engineers, to document requirements, resolve integration issues, conduct API testing, and deliver reliable backend features within release timelines.
- Assisted in preparing structured datasets for internal use cases involving basic AI models, including data cleaning and feature extraction tasks to support classification and pattern recognition in legal records.

Academic Projects

CentrX – Student & Club Engagement Platform | Node.js | MongoDB | JavaScript | SLU SSO | GitHub

- Led backend development by designing and building RESTful APIs using Node.js and Express.js, enabling students to RSVP for events, track sessions, and receive live updates on upcoming club activities. Focused on code structure and scalability to support future enhancements.
- Integrated SLU Single Sign-On (SSO) for authentication and authorization, implementing secure OAuth2-based login with session handling and JWT tokens. Built a custom role-based access control system to manage permissions for students, club leaders, and campus administrators.
- Designed and optimized MongoDB schemas to handle dynamic data such as attendance logs, session metadata, and real-time leaderboard scores. Applied aggregation pipelines to generate efficient reports and user rankings while maintaining data integrity.
- Collaborated in a 4-member student development team using GitHub for source control and Agile-based task distribution. Conducted code reviews, managed feature branches, and ensured clean, well-documented code ready for deployment..

Personal Finance Management Application| HTML/CSS| JavaScript| Node.js| MongoDB| Postman| GitHub

- Designed a responsive front-end with HTML, CSS, and vanilla JavaScript to display categorized spending data, recent activity, and budget summaries in an intuitive dashboard layout.
- Developed a full-stack web application using Node.js, Express.js, MongoDB, and JavaScript that allows users to securely track daily transactions, manage multiple accounts, and visualize spending patterns. Integrated user authentication, form validation, and session control to ensure a secure and responsive experience with real-time dashboard updates.
- Integrated and tested RESTful APIs for core functionalities like account creation, balance tracking, and transaction history retrieval. Used Postman to verify endpoint performance and PyTest for automated test coverage on key routes, validating edge cases and ensuring system stability before deployment.

Enterprise Financial Transaction Platform| Spring Boot |Node.js| PostgreSQL| Docker| React| Firebase Auth

- Developed a secure full-stack financial application enabling real-time transactions, fraud detection, and double-entry accounting using Spring Boot (backend) and React (frontend), with Firebase Authentication for user login and role management.
- Implemented a microservices architecture using Docker and Apache Kafka for asynchronous communication between services, supporting modular development and high-volume transaction processing.
- Optimized PostgreSQL for financial integrity, using ACID-compliant transactions, indexing, and concurrent load testing (10,000+ simulated users), ensuring data consistency and system performance under stress.

LEADERSHIP SKILLS & CERTIFICATIONS

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| • Served as the Core Committee member of IEEE – SPS, VIT University | Aug 2021 |
| • Worked as Vice – President of LEO Club ,VIT University | Sept 2022 |
| • <u>AWS Certified Cloud Practitioner</u> | Feb 2025 |
| • <u>Agent force Specialist</u> | May 2025 |