

HEMANATHAN A S

AI FULL STACK DEVELOPER

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PROFESSIONAL SUMMARY

- 2.4 years of experience in full-stack development, building and shipping production-grade applications end-to-end — from architecture through deployment.
- Specialized in AI-powered EdTech platforms, delivering solutions across school management, AI tutoring, and enterprise SaaS use cases.
- Proficient in the MERN stack (MongoDB, Express, React, Node.js), along with Next.js, React Native, and Python/FastAPI, with hands-on integration of Google Gemini, Claude, and OpenAI APIs on cloud-deployed infrastructure.
- Delivered 5+ production web panels and a multilingual AI tutor for a live school platform, while engineering 15+ microservices powering real-time notifications, analytics, and scalable institution onboarding.

TECHNICAL SKILLS

Programming Languages	JavaScript (ES6+), TypeScript, Python
Frontend	HTML5, CSS3, React.js, Vite.js, Next.js, Three.js, React Native, Tailwind CSS, Redux, React Flow
Backend	Node.js, Express.js, FastAPI, REST API, Socket.IO, Microservices Architecture, JWT, RBAC, OAuth
Database	MongoDB, MySQL, PostgreSQL, Vector DB, Redis
AI Integrations	Google Gemini API, Claude API, OpenAI API, LangGraph, RAG (Retrieval-Augmented Generation)
Cloud & DevOps	AWS (EC2, S3), Docker, Nginx, GitLab CI/CD, GitHub Actions
Tools & Testing	Git, GitHub, GitLab, Figma, Postman, LiveKit, SendGrid, Jest

PROFESSIONAL EXPERIENCE

Data Spark AI Solutions (DSAIS)

AI Full Stack Developer

Chennai, Tamil Nadu

Jan 2025 – Sep 2026 · 1.9 Years

Data Spark AI Solutions builds AI-driven products for the EdTech sector, including a multi-panel school management ecosystem and an AI-powered tutoring platform serving students, faculty, and administrators.

KEY PROJECT — SCHOOL OF SASTHRA (SOS)

SOS is a K-12 school management and virtual classroom platform used by institutions to manage students, faculty, and academic operations.

- Multi-Tenant Role-Based Portal Architecture:** Engineered 5 scalable, role-based micro-frontend portals (Admin, Director, Classroom, Student, Parent) using React 19, Redux Toolkit, and React Router v7, with automated multi-tenant school onboarding workflows.
- Cross-Platform Mobile Access:** Developed React Native mobile applications extending the SOS Student, Parent, Faculty, Admin, and Director portals to mobile, with real-time notifications and AI-powered modules.
- Real-Time Alerts & AI Chatbot Integration:** Integrated a Firebase Cloud Messaging (FCM)-based push notification system alongside "Katral," a multilingual AI-powered chatbot built with Google Gemini APIs and LangGraph, for global and user-specific alerts and multimodal learning support.
- Analytics & Automated Assessment Engine:** Designed interactive analytics dashboards using Highcharts and React Flow (@xyflow) to visualize student performance, plus a gamified STEM + Academia Test Engine with automated grading and jsPDF/pptxgenjs report export.
- Real-Time Video Conferencing & Live Collaboration:** Integrated low-latency WebRTC video conferencing (LiveKit) into the Virtual Classroom panel, featuring multi-party audio/video streaming, real-time Socket.IO messaging, and interactive virtual lab sessions.
- AI-Powered Learning & Emotion Analytics:** Architected an AI-driven classroom panel integrating real-time facial emotion detection, AI tutoring bots (ClassroomBot, NotebookLLM), and interactive tools (EquationBalancerAI) for personalized learning recommendations.

KEY PROJECT — SASTHRA AI (SAI)

SAI is an AI-powered exam-preparation platform helping school and coaching-center students crack competitive exams.

- Frontend Architecture:** Built the entire frontend architecture using Vite.js and Redux Toolkit, with a fully dynamic, role-based structure supporting multiple user types across the platform.
- 3D Interactive Avatars & AI Educational Tools:** Built 3D avatar rendering components using Three.js/React Three Fiber with dynamic lighting and OrbitControls, and integrated an AI Voice Bot and Mission interface with animated avatar feedback.
- Student Performance Analysis Module:** Built a performance analysis module to track and evaluate student progress in exam preparation, surfacing test scores, trends, and performance insights to help students and coaching centers identify areas for improvement.
- Enterprise WebRTC Implementation with LiveKit & Picture-in-Picture:** Implemented a modern LiveKit WebRTC architecture powering online live classrooms for teaching, and built a custom usePictureInPicture React hook supporting the Chrome Document PiP API across 5 user roles.
- Student Engagement Telemetry System:** Built a telemetry system that tracks student app usage via Socket.IO, capturing time spent and page-level actions across modules, then feeding that behavioral data into an analytics and recommendation engine.

KEY PROJECT — INTERVU FRONTEND SUITE

IntervU is an enterprise-grade AI assessment and talent engineering micro-frontend platform comprising B2C mock interviews, B2B institutional portals, and B2E corporate mass hiring.

- **Micro-Frontend Suite Architecture:** Architected 3 dedicated Next.js 16 (App Router) & React 19 micro-frontends (B2C Candidate, B2B Institutional, B2E Enterprise Hiring) using TypeScript and Redux Toolkit, powering AI mock interviews, college placements, and high-volume corporate recruitment.
- **AI Voice Mock Interview Engine:** Engineered a low-latency AI voice interview module integrating real-time audio recording hooks (AudioRecorder.tsx) with Socket.IO WebSockets and dynamic AI note-taking thunks for immediate voice-to-text evaluation and question-answering loops.
- **In-Browser Monaco IDE & Dynamic Roadmaps:** Built an in-browser code editor using @monaco-editor/react featuring multi-language syntax highlighting and automated test execution, coupled with interactive graph roadmaps via React Flow (@xyflow/react) and Dagre automatic layout.
- **Enterprise Mass Hiring & Excel Pipeline:** Streamlined corporate recruitment drives in B2E UI by engineering a high-throughput bulk candidate ingestion pipeline with SheetJS (xlsx) capable of validating and parsing 1,000+ applicant rosters in seconds.
- **3-Tier Multi-Tenant Institutional Governance:** Designed a scalable RBAC system (Director Super-Admin, College Admin, Student) in B2B UI, enabling batch onboarding, custom assessment creation, and placement readiness telemetry via Recharts.
- **Resume Builder & Real-Time ATS Evaluator:** Engineered a multi-template resume showcase with real-time ATS match scoring and client-side document generation supporting both PDF (html2pdf.js) and Word (docx) downloads with live layout preview.

Git Branch Management & Release Ownership: Owned the complete dev branch workflow across SOS, SAI, and IntervU, merging feature branches into main and coordinating the promotion of builds through testing into production deployment.

RVS Educational Group

Full Stack Developer Intern

Coimbatore, Tamil Nadu
Jan 2024 – Aug 2024 · 8 Months

KEY PROJECT — TEACHING LEARNING EVALUATION (TLE)

- **Role-Based Architecture & Academic Management:** Built a dynamic, role-based architecture using React.js with Tailwind CSS on frontend and a monolithic Node.js (Express.js) backend.
- **Academic Operations Engine:** Delivered core modules including student and staff attendance tracking, automated lesson plan generation, leave management, timetable generation (faculty and classes), faculty allocation, and comprehensive automated report generation (daily, monthly, 6-month, and yearly).

KEY PROJECT — MATERIAL MANAGEMENT SERVICE (MMS)

- **Full-Cycle Asset & Inventory Lifecycle:** Built a MERN stack application managing the complete organizational asset lifecycle, covering store inventory stock, asset issuance, multi-department asset transfers, scrapping, and automated reorder management.
- **Multi-Tier Approval & Tracking Workflows:** Implemented approval-based workflows for material requests and purchases, along with gate pass and maintenance tracking, serving in live production across a chain of organizations with 500+ daily active users.

EDUCATION

Master of Computer Applications (MCA) RVS College of Arts and Science, Coimbatore CGPA: 9.0 / 10	2022 – 2024
Bachelor of Computer Applications (BCA) RVS College of Arts and Science, Coimbatore CGPA: 8.0 / 10	2019 – 2022