

KARTHIK NAIR

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SUMMARY

Software engineering undergraduate specializing in full-stack and cloud-native systems. Builds and ships production-style SaaS platforms end-to-end — API design, database architecture, authentication, and containerized deployment — with hands-on experience integrating AI/LLM pipelines, payment infrastructure, and multi-tenant access control. Two-time international hackathon finalist.

EXPERIENCE

Backend Developer (Part-Time) | *Quantum Scripts*

Nov 2025 – Jan 2026

- Migrated core data layer from Supabase to MongoDB to give the payments and credits system transactional control it previously lacked, removing a source of data-consistency risk in production.
- Engineered REST APIs handling large video uploads end-to-end — ingestion, async processing pipeline, and retrieval — for an AI-driven subtitle-generation SaaS product.
- Owned Docker containerization of backend services, including container lifecycle management on remote cloud instances via SSH, to standardize deployment across environments.
- Integrated AWS S3 for large media file storage and built backend logic to persist Razorpay payment transactions and usage credits reliably.
- Debugged and supported live deployments on GCP, working directly in production to resolve issues affecting active users.

Frontend Developer, Industrial Training | *Integral Coach Factory (ICF), Ministry of Railways*

Jun 2025 – Jul 2025

- Developed a complaint management portal using Next.js, React, and Tailwind CSS during a 15-day industrial training program at the ICF IT Centre.
- Built responsive user interfaces and implemented routing workflows aligned with organizational requirements for internal complaint handling.

Technical Member | *Codekrafters*

Nov 2024 – Present

- Collaborated on full-stack and blockchain application prototypes, contributing to hackathon projects involving frontend development, wallet integration, and smart contract interactions.
- Engaged in peer reviews, debugging, workshops, and community-led technical initiatives while expanding practical experience in software engineering and Web3 development.

PROJECTS

ProjectForge — AI-Powered Proof-of-Work & Accountability Platform

Next.js • Firebase • MongoDB • Vercel

- Architected a full-stack AI-powered accountability platform for goal tracking and milestone verification, built around tamper-evident proof management using SHA-256 file hashing, append-only audit trails, and secure multi-format uploads to ensure evidence cannot be silently altered after submission.
- Integrated AI-powered evidence analysis to generate verification summaries and confidence scores while keeping the final verification decision under human control through a human-in-the-loop workflow.
- Implemented Firebase Authentication with role-based access control (RBAC) to enforce multi-user data isolation and administrative oversight, deployed globally on Vercel with MongoDB-backed persistence.
- USAII® Global AI Hackathon 2026 Finalist recognition.

SmartSpend — AI-Powered Personal Finance Platform

Next.js • TypeScript • MySQL (TiDB Cloud) • Gemini API

- Built a full-stack fintech platform for expense tracking, budgeting, and multi-currency financial planning, with secure auth via NextAuth.
- Designed an OCR-based receipt and bank-statement pipeline that extracts, validates, and reconciles transactions automatically, feeding a real-time reporting dashboard.
- Combined the Gemini API with rule-based logic to auto-categorize spending and surface personalized financial insights.
- IEEE YESIST12 2026 International Finalist — selected from 2,000+ submissions in the Maker Fair track.
- Co-authored and presented the research paper “SmartSpend: A Goal-Based Personal Financial Planning Platform for Awareness-Driven Savings”, published in the proceedings of ICGMRFT 2026.

SentinelRoute — Operational Logistics Intelligence Platform

Next.js • TypeScript • MongoDB • Firebase • Socket.IO

- Built a multi-tenant operational intelligence platform featuring server-authoritative tenant isolation, secure company onboarding, role-based access control, audit trails, and hardened WebSocket authentication for enterprise-grade logistics operations.
- Engineered a real-time event-driven architecture using Socket.IO, centralized event dispatching, shared state management, and live synchronization to power operational dashboards, command centers, shipment collaboration, and intelligent decision workflows.
- Developed an AI-assisted intelligence engine for shipment risk analysis, disruption prediction, operational recommendations, and collaborative command-center decision support with live operational feeds and real-time workflow tracking.

TECHNICAL SKILLS

Languages: JavaScript, TypeScript, Python, SQL, HTML/CSS, C, C++

Frontend: React, Next.js, Tailwind CSS, Firebase Authentication

Backend: Node.js, Express.js, REST APIs, Authentication & RBAC, JWT, NextAuth.js, Socket.io, File Upload Pipelines, Payment Integrations

Databases: MongoDB, MySQL, PostgreSQL, Supabase, Firebase

Cloud & Infrastructure: Docker, Google Cloud Platform (GCP), AWS S3, Linux, SSH, Nginx, Vercel

AI & Automation: Gemini API, Prompt Engineering, OCR Pipelines, OpenCV

Web3: Solidity, Smart Contracts, Web3.js, Ethers.js, Hardhat

Developer Tools: Git, GitHub, Postman, VS Code, FFmpeg, Figma
Core CS: Data Structures & Algorithms, Operating Systems, Computer Networks, Object-Oriented Programming (OOP), System Design

EDUCATION

B.Tech, Computer Science and Engineering Aug 2023 – May 2027
SRM Institute of Science and Technology, Ramapuram — CGPA: 9.59/10

LANGUAGES

English (Full Professional) • Tamil (Limited Working) • Malayalam (Native)