Pughalesh Lakshmanan

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Education

Sri Sairam Engineering College, Chennai, (Anna University), Aug 2020 - Apr 2024
Bachelor of Engineering, Computer Science and Engineering CGPA: 8.5/10 (3.4/4.0)
Computer Architecture, Data Structures, Operating Systems, OOP, Algorithms, Artificial Intelligence

Experience

Software Engineer - Full Stack, TCS (Tata Consultancy Services) Mar 2025 - Present

- Built features for CSMS, a service monitoring platform tracking vehicle service journeys, repair progress, and parts availability, using Angular, Node.js/Express, and MySQL, improving response times by 25% with 99% uptime on AWS (EC2, S3, RDS).
- Worked on DSDI, a dealer data integration platform processing repair orders, service appointments, parts sales, and inventory data; built AWS Glue/PySpark integration pipelines and Python services including User Management.
- Resolved an incident where a bulk database load exhausted another application's compute while our AI ticket-resolution agent marked it successful: traced web, AWS Lambda, and database activity, stopped the query, added a dedicated bulk-load connection path, resized EC2, and reran the load, restoring service and cutting AWS costs. Added shared-dependency monitoring and safeguards and refactored SQL, improving query performance by 30%.
- Designed modular RESTful services within a service-oriented architecture (SOA) and cut production UI defects by 30%; automated CI/CD with GitHub Actions and enforced RBAC and secure coding standards to maintain SLAs during production support.

Founding Software Engineer, EBIV Mar 2024 - Feb 2025

- Built an e-commerce platform for 1,000+ daily active users with React.js, Material UI, and Node.js/Express, researching and comparing design choices; improved page load performance by 35%.
- Addressed service-layer bottlenecks to reduce average API latency by 20%, improving responsiveness for customers browsing and making purchases.
- Created a shared Storybook component library with React hooks, reducing component build time by 40% and keeping the interface consistent across teams.
- Conducted code reviews, coordinated development efforts, mentored team members, and guided developers through unfamiliar codebases; refactored legacy code to React hooks.

Frontend Engineer Intern, Sri Sairam Techno Incubator Foundation Feb 2023 - Jul 2023

- Led a team of interns to build a full-stack e-commerce platform, driving a 40% increase in online sales and a 25% reduction in cart abandonment.
- Built and scaled a web platform using React, Redux, Node.js, GraphQL, MySQL, and Redis, contributing to a microservices-based architecture migration.
- Implemented secure role-based access and auth flows (OAuth, SSO), improving sprint delivery efficiency by 35% through SDLC practices; optimized rendering with SSR and caching and improved accessibility (ARIA, WCAG).

Technical Skills

Frontend: React.js, Next.js, Angular, TypeScript, JavaScript (ES6+), React Hooks, Material UI, Tailwind CSS, Storybook, Accessible UI Design
Backend: Node.js, Express.js, Python, RESTful APIs, GraphQL, Microservices/SOA, JWT, OAuth, SSO, RBAC
Data & Cloud: PostgreSQL (Supabase), MySQL, MongoDB, Redis, SQL Optimization, AWS (EC2, S3, RDS, Glue), PySpark, CI/CD (GitHub Actions)
AI & Testing: Multi-LLM Integration (OpenRouter, Gemini, GPT-4o), Schema Validation, Fallback & Human-in-the-Loop Design, Git/GitHub, Agile/Scrum, Jest, PyTest

Projects

Priorly AI | *Next.js, TypeScript, PostgreSQL (Supabase), Gemini, GPT-4o*

- Built a pluggable AI agent that uses service dependencies to assess a ticket's impact beyond its assigned component, assigning priorities, tracking deadlines, and generating executive briefs; motivated by an incident task-level alerting missed.
- Orchestrated a multi-LLM pipeline (OpenRouter, Gemini, GPT-4o) with schema validation, API-failure fallbacks, and human-review checkpoints for low-confidence outputs; secured with JWT auth and hierarchical RBAC across six roles.
- In a startup pilot, the team adopted its briefs for weekly planning, and automated reminders (Vercel cron, Resend) reduced manual checks.

AeroEncrypt | *FlutterFlow, Firebase, Python, AES, RSA, SSH*

- Built an offline password manager using hybrid AES–RSA encryption to protect locally stored credentials, with SSH-based cross-device synchronization.
- Implemented **4 core security workflows**: credential encryption, decryption, local storage, and secure synchronization.
- Evaluated encryption and decryption across **50 test cases** to assess functional correctness and secure credential handling.
- Won the **Project of the Year award** at the departmental expo; resulted in an IEEE publication.