

Mannem Raju

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Full Stack Automation Engineer with 2+ years of experience architecting, shipping, and scaling production grade AI native cloud applications. Specialized in designing production grade RAG systems, LLM integrations, distributed APIs and high performance web platforms with a strong focus on scalability, security, observability, and cost optimization. Experienced in building cloud infrastructure using AWS, GCP, Docker, Kubernetes, Helm, and Terraform, Argocd, supported by automated CI/CD pipelines and production monitoring. Hands on expertise with LangChain, LangGraph, OpenAI APIs, Hugging Face, n8n, Airtop, and modern full stack technologies to develop intelligent automation, agentic workflows, and business critical applications.

Passionate about transforming complex business challenges into secure, reliable products. Committed to continuous learning, delivering high quality results within timelines, and working both independently and collaboratively in dynamic fast paced environments.

Specialized in solving real world business challenges:

- Scaling distributed systems under high traffic on Servers and Serverless infrastructure with low cost management.
- Integrating third party APIs, payment gateways, and enterprise SaaS platforms.
- Improving SEO, Core Web Vitals, accessibility, and overall user experience.
- API integration and llm model orchestration for fast paced environments and customer support.
- Leading production troubleshooting, incident response, observability, and root cause analysis.

EXPERIENCE

Full Stack Developer

Zeus Systems Inc (Remote)

Feb 2024 - Present

Project: AI native CRM and customer success platform

Project Description:

The client struggled with fragmented customer data, manual customer support, disconnected omnichannel campaigns (Facebook, Instagram, WhatsApp, LinkedIn), and limited visibility into customer journeys. Existing CRM workflows lacked agentic automation, contextual knowledge retrieval, personalized engagement, and real time business insights, leading to inconsistent data quality, delayed responses, inefficient sales execution, and significant manual effort for validation, reporting, and customer lifecycle management.

System Architecture and Responsibilities:

- Designed LLM system with with LangChain, LangGraph, and Hugging Face for model orchestration, prompt orchestration.
- Built low latency Python Fastapi, Node.js, Express services with OpenAPI/Swagger specifications.
- Designed Postgresql, MongoDB data models and implemented Redis caching and streaming for data management and queuing.
- Enforced enterprise grade API security using JWE, RBAC, and Zod validation.
- Designed reusable Next.js components and delivered production scale frontend applications for agentic workflows.
- Integrated Meta Business APIs to automate omnichannel campaigns and AI customer support.
- Designed autonomous agentic AI workflows using n8n, Airtop, and event orchestration.
- Automated AWS infrastructure provisioning with Terraform across serverless and edge services.
- Optimized deployments using CI/CD pipelines GitHub Actions, Docker and Gitops for staging, testing and production environments.
- Implemented observability stack (CloudWatch, Prometheus, Grafana).

Metrics:

- Reduced customer response time by 70%+ with Agentic ai automation.
- Increased campaign execution efficiency and lead generation by 80%+ via workflow automation.
- Reduced manual CRM operations by 90-95%.
- Increased customer engagement through personalized AI recommendations.
- Improved data consistency by automating validation and structured extraction.

Freelance (Remote)

June 2025 – May 2026

Project - Campuslogics CMS – LMS

Project Description:

The client relied on a youtube with limited content management capabilities, lacking online assessments, payment processing, learner notifications, and scalable content distribution. Performance bottlenecks, no SEO, and inefficient content publishing impacted learner engagement.

System Architecture and Responsibilities:

- Developed reusable Next.js (SSR/ISR) components with TypeScript, Tip tap and Tailwind CSS for dashboard interface.

- Designed normalized PostgreSQL models with Prisma ORM.
- Built scalable GraphQL APIs with Apollo Server, GraphQL Yoga, caching, and optimized resolvers.
- Implemented enterprise authentication using JWT, OAuth, NextAuth, and SSO integrations.
- Integrated Razorpay payment gateway for subscriptions and course purchases.
- Designed secure digital asset delivery using Amazon S3, CloudFront, and ImageKit with DRM content access.
- Built notification workflows for enrollments, assignments, and course updates.
- Automated CI/CD using GitHub Actions and Gitops.
- Deployed containerized services on AWS Lambda, App Runner, Amplify, and GCP Cloud Run.
- Managed production releases, monitoring, and incident response.

Metrics:

- Improved page load performance by 45%.
- Optimized GraphQL resolvers to reduce over fetching.
- Reduced database query time by 35%.
- Increased Lighthouse SEO score from 87- 92.
- Improved user engagement by 39%.

TECHNICAL SKILLS

Backend	: Python, Fastapi, Granian, Uvicorn, Nodejs, Express, TypeScript, JavaScript (ES6), Swagger, Openapi
Frontend	: React, Nextjs, Redux, Tailwind CSS, Motion, HTML5, CSS3
AI	: RAG, LangChain, LangGraph, Hugging Face, Prompt Engineering, Embeddings, AI Agents
Databases	: PostgreSQL, MongoDB, Mysql, GraphQL, Apollo Server, GraphQL yoga, Prisma, Redis
Cloud	: AWS (Lambda, EC2, ECS, S3, CloudFront, IAM, CloudWatch, Amplify, App Runner), Render, Vercel, GCP Cloud run, Cloud build, Cloud storage, Firebase hosting, Storage bucket
DevOps	: Docker, Kubernetes, Helm, NGINX, Ingress, Load Balancers, Terraform, GitHub Actions, GitOps, Linux, Ubuntu
Tools	: Clickup, Jira, n8n, Airtop, Git, Gitlab, Argocd, UV, Vite, ESLint, Figma, Canva, ngrok
Monitoring	: CloudWatch, Lighthouse, Prometheus, Grafana

FUNCTIONAL STRENGTHS

- AI Systems, RAG Architecture & Agentic Workflow Design
- Distributed Systems, API Architecture & Microservices
- Production System Design, Scalability & High Availability
- Performance Engineering, Latency & Cost Optimization
- Cloud-Native & Serverless Architecture (AWS/GCP)
- Authentication, Authorization & Application Security
- CI/CD, Infrastructure as Code & DevOps Automation
- Kubernetes, Helm, Ingress & Container Orchestration
- Observability, Production Troubleshooting & Incident Response
- LLM Integration, Prompt Engineering & AI Orchestration
- Database Design, Query Optimization & Caching
- SEO, Core Web Vitals & Web Performance Optimization

Sample work

Campuslogics	: https://www.campuslogics.org/
Meeting action planner	: https://meeting-assistant-v0.vercel.app/
Marriage Bureau	: https://krishnaveni-marriagebureau.vercel.app/
Domain Assistant	: https://conversational-bot-ai8yxpnx36ijpywawvjz9p.streamlit.app/

EDUCATION

Master of Computer Applications

Acharya Nagarjuna University (2023 - 2025)

Bachelor of Science

Acharya Nagarjuna University (2020 - 2023)

Certifications

- Full Stack Web Development – Angela Yu
- 100xDevs certified Web development, Devops, Blockchain
- IBM Fundamentals of AI
- Microsoft AI Skills Challenge