

KARRI NAGENDRA SAI JAYA RAMI REDDY

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PROFESSIONAL SUMMARY

Full-Stack Software Engineer and AI/ML Engineer with production software development internship experience, a B.Tech (Hons) in Computer Science from Andhra University, dual degree from IIT Madras, and Minor in AI from IIT Ropar. Delivered production applications across AI/ML, full-stack web apps, blockchain, and distributed systems, and published 2 research papers at IAC 2025 (Sydney). Experienced with Python, JavaScript, React.js, Node.js, Django, FastAPI, SQL, Docker, AWS, and GCP. Strong knowledge of data structures and algorithms, system design, Agile development, communication, teamwork, leadership, analytical problem-solving, and familiarity with scalable delivery.

EDUCATION

Bachelor's Degree in Computer Science Engineering (B.Tech Hons) - Andhra University Aug 2022 - Expected May 2026

Coursework: Data Structures & Algorithms, Object-Oriented Programming, Database Management Systems, Operating Systems, Computer Networks, Software Engineering, AI/ML

BS in Data Science & Applications (Diploma) - IIT Madras

Aug 2022 - Expected May 2026

Minor Degree in Artificial Intelligence - IIT Ropar

Jan 2024 - Dec 2025

TECHNICAL SKILLS

Core Full-Stack: Python, JavaScript, React.js, Node.js, Django, FastAPI, REST API endpoints, WebSockets, SQL, MySQL, PostgreSQL

Languages & Frontend: Java, C, C++, HTML5, CSS3, Next.js, UNEL (custom language)

AI / ML: Machine Learning, Deep Learning, Convolutional Neural Networks (CNNs), Computer Vision, Generative AI, Retrieval-Augmented Generation (RAG), Natural Language Processing (NLP), Model Training & Evaluation

Web & Backend: Flask, Three.js, REST API, RESTful APIs, API Development, Debugging, Server-Sent Events (SSE), MongoDB

DevOps & Tools: Git, GitHub, Docker, Linux, Continuous Integration/Continuous Deployment (CI/CD), Agile, Cloud Deployment, Vercel, Amazon Web Services (AWS), Google Cloud Platform (GCP)

Concepts: System Design, Distributed Systems, Object-Oriented Programming (OOP), Data Structures & Algorithms (DSA), Graphs, Merkle Trees, Database Management Systems (DBMS), Compiler Design, Blockchain, Software Development Lifecycle (SDLC)

Soft Skills: Communication, Teamwork, Leadership, Problem-Solving, Analytical Thinking, Cross-Functional Collaboration, Project Management, Time Management

PROFESSIONAL EXPERIENCE

Full-Stack Software Developer Intern (Python) - I&T Labs

Dec 2023 - Dec 2025

Internship

Visakhapatnam, AP

- Collaborated with developers to architect and deploy 5+ production full-stack applications using Python, Django, FastAPI, REST API endpoints, and SQL databases.
- Optimized backend logic, database queries, and API response workflows, achieving 90% performance improvement across 3 critical modules.
- Debugged, refactored, and deployed 20+ production features in real-world codebases, reducing bug resolution time by 40%.

Full-Stack Web Developer Intern - Robocoupler (R&B)

May 2024 - Jul 2024

Internship

Visakhapatnam, AP

- Collaborated with engineering teams to create 10+ frontend and backend components, improving end-to-end data flow efficiency by 35%.
- Implemented responsive HTML/CSS UI and RESTful backend APIs using React.js and Node.js, reducing page load time by 45% through code optimization.

Cyber Security Intern (Virtual) - Slash Mark IT

May 2024 - Jun 2024

Virtual Internship

New Delhi

- Conducted vulnerability assessments, security testing, and digital forensics analysis across 5+ simulated enterprise environments, strengthening security posture.

Web Developer Intern (Django) - APSSDC, Govt. of Andhra Pradesh

May 2025 - Jun 2025

Government Internship

Andhra Pradesh

- Developed 3+ Django web applications implementing authentication, routing, and database-driven features using MVT architecture.
- Designed scalable backend services handling 500+ concurrent user requests with PostgreSQL integration and session management.

RESEARCH & INTERNATIONAL PUBLICATIONS

Selected Presenter & Co-Author - International Astronautical Congress (IAC) 2025

Sydney, Australia

International Astronautical Federation (IAF)

- Analyzed ISS data for "**Olfactory Odyssey: Cognitive Consequences in Zero-G**", identifying 15-25% cognitive degradation across 50+ astronaut case studies of microgravity-induced olfactory dysfunction.
- Developed a TRL roadmap for "**Microgravity-Driven 3D Bioprinting for Vascular Tissue Engineering**", advancing from TRL 4 to TRL 8 through analysis of 10+ ISS BioFabrication experiments.

PROJECTS

UNEL - Custom Programming Language with Dual Execution Engine

Live Playground

Tech: Python, Compiler Design, Bytecode VM, AST, Lexer, Parser, Static Analysis, Flask

- Designed and built a complete programming language from scratch with natural English syntax, featuring a hand-written lexer, 3 dialect parsers, 55-node AST, and 16 standard library modules with zero external dependencies.
- Implemented dual execution engines: a tree-walking interpreter for REPL development and a stack-based bytecode virtual machine (46 opcodes) mirroring CPython's architecture.
- Launched a bytecode compiler with scope-aware variable resolution and concurrent task system; deployed Flask web playground on Vercel handling 10,000+ evaluations.

J-Chain - Custom Layer-1 Blockchain

Live Demo

Tech: Python, JavaScript, React.js, Node.js, P2P Networking, Cryptography

- Designed and deployed a production-grade Layer-1 blockchain with real Proof-of-Work mining, processing 1,000+ transactions with 100% immutability.
- Built EVM-compatible smart contract execution engine, P2P networking layer, and Merkle-tree data structure algorithms handling 50+ concurrent nodes.
- Managed full-stack delivery for wallet, block explorer, and DeFi UI deployed on GCP Compute Engine cloud infrastructure, processing 1,000+ transactions.

Emotion-Driven AI Music Player - Real-Time Computer Vision System

2025

Tech: Python, FastAPI, WebSockets, CNN, OpenCV, Next.js, Three.js

- Engineered a real-time emotion-aware music recommendation engine using continuous facial emotion detection with 97-98% CNN accuracy.
- Built a sub-100ms latency WebSocket pipeline processing 30 FPS video streams with privacy-first in-memory-only architecture.
- Developed an interactive 3D UI (Three.js) visualizing 7 emotional states in real-time with dynamic music synchronization.

All Rise - Spatial Agentic AI Platform

2025

Tech: Python, FastAPI, React.js, RAG, SSE, Multi-Agent Orchestration

- Architected a multi-agent AI platform orchestrating 4+ parallel expert reasoning agents with Retrieval-Augmented Generation (RAG).
- Implemented async REST API services and real-time streaming via Server-Sent Events (SSE), reducing response latency by 60%.

LEADERSHIP AND ACTIVITIES

Led Career Catalyst Forum as Vice President, Andhra University, Feb 2025 - Present | Coordinated technical outreach and peer-learning sessions for AVASYA, IIT Madras, Jul 2023 - Jul 2025

Established Pixels N Panels Society as Founding Secretary, IIT Madras (Sep 2024 - Aug 2025) | HPAIR - Selected participant, University of Tokyo

CERTIFICATIONS AND TRAINING

WSAI - AI and Entrepreneurship II, IIT Madras | Tech Gyan - AI and GenAI, IIT Madras Research Park | AI and ML Bootcamp, Udemy | Complete Web Development, Udemy

ACHIEVEMENTS AND AWARDS

Selected Presenter at International Astronautical Congress (IAC) 2025, Sydney | HPAIR 2025, University of Tokyo | Vice President, Career Catalyst Forum

LANGUAGES

English (Professional Proficiency) | Telugu (Native) | Hindi (Professional Proficiency)