VENKATA SAI PREETHAM LEVAKU

Co-Founder & CTO | **Software Architecture** | **AI Systems** | **Backend & Edge Computing**

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Executive Summary

Software Engineer and Chief Technology Officer architecting production backend services, AI-enabled workflows, cross-platform applications, and computer-vision systems. Hands-on technical leader at OCCULO driving end-to-end engineering across spatial intelligence, edge inference, distributed APIs, and cloud deployment, complemented by proven delivery across satellite imagery analysis, enterprise document intelligence, local-first agentic systems, and real-time media communication.

Technical Skills

Languages: Python, C++, JavaScript, SQL, Bash, PowerShell

Backend & Systems: FastAPI, Flask, REST APIs, Webhooks, WebRTC, Socket.IO, Linux

AI & Computer Vision: LLM Applications, RAG, Embeddings, Semantic Search, PyTorch, ConvLSTM, U-Net, OpenCV, MediaPipe, ONNX Runtime

Data & Platforms: PostgreSQL, pgvector, SQLite, Firebase, Supabase, Pandas, OpenPyXL

Cloud & Delivery: AWS, Google Cloud, Docker, Kubernetes, Git, CI/CD, n8n, Ollama, Gemini API, Cloudflare

Edge Devices & Apps: Raspberry Pi, Edge Inference, RTSP Video Workflows, Flutter, Google Drive API

Engineering Experience

OCCULO Private Limited — Mar 2026 – Present

Co-Founder & Chief Technology Officer — *Hyderabad, India*

- Architect and deliver core software for spatial-intelligence products spanning computer-vision pipelines, backend APIs, edge-device workflows, real-time telemetry, and cloud-connected services.
- Integrate live camera and video streams with edge-inference components, systematically benchmarking how model latency, hardware resource constraints, and video pipeline design impact field reliability.
- Engineer backend microservices and operational dashboard capabilities surfacing live device status, spatial occupancy telemetry, and automated alerts while resolving application, network, and deployment bottlenecks.
- Direct containerization, cloud infrastructure, secure connectivity, and local model-runtime orchestration to scale alongside evolving product specifications.

Volvo Group — Apr 2026 – May 2026

Data Analyst Intern — *Bengaluru, India*

- Engineered MARS, an internal document-intelligence and search platform for technical and regulatory material, built on Python, FastAPI, Ollama, PostgreSQL, and pgvector.
- Built automated multi-format ingestion pipelines for PDF, Excel, and Word documents encompassing text extraction, structural chunking, metadata indexing, and dense vector embedding generation.
- Implemented hybrid retrieval combining semantic vector search with lexical keyword fallback to surface high-precision engineering passages across REACH and RoHS compliance mandates.
- Preserved granular source context alongside retrieved passages so engineers could deterministically verify outputs against underlying regulatory records.

ISRO – SDSC SHAR (Satish Dhawan Space Centre) — Sep 2025 – Oct 2025

Cybersecurity Intern — *Sriharikota, India*

- Developed automated Python and Bash parsing utilities to normalize and aggregate enterprise mail, VPN, and authentication logs, reducing manual analyst triage effort by **45%**.
- Engineered multi-source event-correlation workflows to surface anomalous login sequences and unauthorized access patterns, improving operational threat visibility by **60%**.
- Partnered with Network Operations Center (NOC) engineers on continuous telemetry monitoring, security-event investigation, system troubleshooting, and structured technical reporting.

Selected Engineering Projects

SPADES – Spatial Intelligence System — 2026

Computer Vision • Video Analytics • Edge AI

- Architecting OCCULO's core spatial-intelligence platform to process overhead and drone video streams, estimate real-time spatial occupancy, and identify high-density crowd zones.
- Optimizing end-to-end video ingestion, computer-vision inference, and edge-deployment constraints to sustain consistent performance under real-world capture conditions.

B.L.I.N.K. – Spatiotemporal Satellite Nowcasting — 2026

Python • PyTorch • Optical Flow • ConvLSTM • U-Net • Geospatial Data

- Developing a spatiotemporal deep-learning workflow to model cloud-pattern evolution in satellite imagery and synthesize intermediate frames for short-term weather-monitoring research.
- Coupling optical-flow motion features with ConvLSTM and U-Net architectures alongside geospatial indexing and cloud-optimized raster access for targeted data retrieval.

E.D.I.T.H. – Local-First Agentic Assistant 2026

Python • FastAPI • Ollama • SQLite • Tool Execution • Voice I/O

- Engineering a local-first assistant that bridges locally hosted language models with structured tool execution and multi-step automation workflows.
- Orchestrating backend services for local file operations and external API integrations while tuning voice input/output pipelines and local model-runtime configurations.

SAGE – Offline-Capable Academic Workflow Application 2026

SQLite • Firebase • Gemini API • Function Calling

- Built an academic workflow application managing attendance, timetables, task queues, notifications, and leave requests, pairing local SQLite persistence with Firebase synchronization for intermittent connectivity.
- Leveraged Gemini function calling to translate natural-language queries into structured tool invocations enforced by deterministic application-side state validation.

NetStream – Real-Time Video Conferencing Platform 2025

Python • Flask • JavaScript • WebRTC • Socket.IO

- Engineered a browser-based real-time audio and video conferencing platform utilizing WebRTC for peer-to-peer media transport and Flask/Socket.IO for low-latency signaling and room coordination.
- Designed concurrent room-state management and connection-negotiation flows to seamlessly coordinate participants dynamically joining and leaving active calls.

EcoThread – AI Sustainability Verification Workflow 2025

Google Vision API • Gemini API • n8n • Webhooks

- Developed an AI-assisted product verification pipeline combining visual and textual extraction with automated n8n webhook processing to evaluate sustainability credentials and certifications.
- Won **1st Place at the India Sustainability Startathon 2025** and earned international selection for technical showcase at **SWITCH 2025 in Singapore**.

AIDE – Enterprise Invoice Processing Automation 2026

Python • Pandas • OpenPyXL • Excel Automation

- Automated the ingestion and normalization of multi-vendor invoice files from Zepto, BigBasket, and Blinkit into standardized accounting spreadsheet outputs.
- Engineered automated summary report generation, dynamic pivot-table construction, and validation checklist updates across production workflows.

Computer Vision & Embedded IoT Systems 2024 – 2025

Python • OpenCV • MediaPipe • Raspberry Pi • Firebase

- **Smart Elevator Management:** Built camera-based cabin occupancy detection and dispatch optimization on Raspberry Pi; awarded **1st Runner-Up at HackNocturne 2025**.
- **Sign Language Interpreter:** Engineered real-time gesture-recognition workflows combining MediaPipe landmark extraction with machine-learning classification components.
- **Biometric Attendance System:** Developed an automated attendance application integrated with Firebase cloud persistence and real-time notification workflows.

MirageSync – Google Drive Synchronization CLI 2025

Python • PyDrive2 • Click • Google Drive API

- Built a command-line synchronization utility in Python using Click and PyDrive2 to automate OAuth authentication and configurable local-to-Drive file operations.

Education

CMR University **2022 – 2026**

Bachelor of Technology in Information Technology *Bengaluru, India*

- **Relevant Coursework:** Data Structures & Algorithms, Operating Systems, Computer Networks, Database Management Systems, Distributed Systems, Artificial Intelligence.

Honors & Leadership Recognition

- **India Sustainability Startathon 2025:** 1st Place National Winner (*EcoThread*) | **SWITCH 2025:** Selected for international showcase in Singapore.
- **HackNocturne 2025:** 1st Runner-Up | **Cisco thingQbator:** Selected among the Top 20 innovation cohort.
- **ASEAN–China–India Youth Leadership Summit 2025:** Represented India in Singapore | **NCC (9 Karnataka Battalion):** Junior Under Officer.

Certifications

AWS Certified Solutions Architect – Associate (Dec 2025) | **AWS Certified Cloud Practitioner** (Jul 2025)

Oracle Cloud Infrastructure Generative AI Professional (Sep 2024) | **Agile Project Management – HP** (Apr 2025)

Google Data Analytics Professional Certificate – Coursera (Mar 2023)