Nitesh Saini

Technology & AI Lead · AI Systems Engineer
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Education

Indian Institute of Technology (IIT) Delhi **2019 – 2023**
B.Tech, Production & Industrial Engineering

Technical Skills

LLMs, Agents & Voice	RAG / GraphRAG / RAPTOR, LangGraph, LangChain, vLLM, Claude / OpenAI / Gemini APIs, Qwen2.5-VL, pgvector; Whisper, Sarvam STT/TTS, pyannote
Vision & DL	PyTorch, YOLOv8, SAM 2, Grounding DINO, Vision Transformers, Mask R-CNN, ResNet, EfficientNet, OpenCV
Geospatial & GNSS	Google Earth Engine, PostGIS, Sentinel-1/2, GeoServer, STAC / pgSTAC, GNSS/GPS processing, Kalman filtering, Leaflet, GeoJSON/KML/GPX
Data Engineering	Python, SQL, PostgreSQL, ETL pipelines, AWS Lambda, S3, GCS, data validation
Full-Stack & Mobile	React, Next.js, FastAPI, Flask, REST APIs, Android (Kotlin / Java, Room), React Native, offline-first sync, PWA, Firebase, JavaScript, D3.js
Infra & Deployment	AWS (EC2, RDS, ECS Fargate, Amplify), Docker, Ubuntu/Linux, NVIDIA GPU servers, self-hosted vLLM serving, FastAPI gateways, Git/GitHub, Vercel, Cloudflare Tunnel

Professional Experience

Bharti Institute of Public Policy, ISB — Lead, Technology & AI **Oct 2025 – Present**
Team & AI Infrastructure

- Lead a team of **8+** GIS, software and AI engineers, owning the stack from field capture to models and deployment
- Run self-hosted GPU servers (**vLLM on 2× A30**) for model training and on-premises Qwen2.5-VL 7B inference

Agentic AI & GraphRAG

- **Multi-Agent Governance Engine:** architected a **4-agent** system converting multilingual community testimony into structured governance metrics, using cascaded retrieval, drift monitoring and human-in-the-loop review
- **Human Development Analysis:** GraphRAG system over **6 volumes / 102 chapters** answering with page-level citations and drafting **9-section** policy briefs, with **2-tier** model routing and a reviewer agent validating each section

nCount — Geospatial Intelligence Platform

- Built an offline-first Android + web platform with **5K+ users**, collecting **500K+** field data points across **7+ states**
- Designed GPS boundary mapping with Kalman filtering, geofenced loop closure and crash-safe autocapture

Bharti Institute of Public Policy, ISB — AI Systems Engineer **Apr 2025 – Oct 2025**
Computer Vision, Agentic AI & Voice AI

- **MonoDBH:** tree diameter from a single RGB frame using YOLOv8s-seg at **0.953 mask mAP@0.5** with Grounding DINO + SAM 2 fallback; released a **5.2 GB** open dataset
- **Food System Visualization Engine:** shipped a LangGraph multi-agent system integrating **4** programme sectors into one platform with **4 AI assistants** for policy, conversational GIS, natural-language data queries and reports
- **Van Saathi:** multilingual voice pipeline (Whisper, Sarvam STT/TTS, pyannote diarization of up to **20 speakers**) turning gram sabha recordings and boundary maps into LLM-drafted forest plans for **548 villages**

Bharti Institute of Public Policy, ISB — Full Stack Developer **Jun 2023 – Apr 2025**

- **RatiFi:** built an offline-capable Forest Rights Act claim filing and tracking system, live as **JharFRA in Jharkhand**, field-trialled with **Andhra Pradesh's State FRA Cell**
- **ArthaSakhi:** built an Android app digitising forest-produce trade for women-led producer companies, with multi-step KYC, per-produce indents, blockchain-recorded transactions and QR-verified printed receipts (on Google Play)

Projects

- **Field Image Cleaning Pipeline:** two-phase pipeline for nCount field imagery: computer-vision deduplication followed by multi-LLM ensemble consensus to flag unusable images; benchmarked against manual review
- **LMS AI Studio:** offline-first learning platform (PWA) built for people where connectivity ends, pairing an AI learning guide with AI-assisted course authoring

Products

- **Tuliq** (tuliq.app): privacy-first in-browser tools for developers and GIS analysts, incl. local-AI OCR & transcription
- **Periakt** (periakt.app): animated web presentations from ideas, data and research, shaped by chat, with PDF/PPT export

Publications & Datasets

- **BarkVisionAI**: Dataset for rapid tree species identification (156K images, 13 species), *Nature Scientific Data*, 2026
- **MonoDBH**: Monocular Tree DBH Estimation Dataset, Zenodo, 2026
- **Smartphone GNSS Performance Spread**: 454-device, 53-platform raw GNSS capture, Zenodo, 2026