

MOHAMMAD ANZAR AKHTAR

AI/ML Engineer | Full-Stack Developer

Lucknow, India · +91 6393268624 · anzar0904@gmail.com · github.com/Anzar0904 · linkedin.com/in/mohammad-anzar-akhtar-b25397343

SUMMARY

B.Tech Computer Science student who ships full projects end-to-end: trained ML models and served them via REST APIs during a full-stack internship (Infosys), architected and security-hardened a 29-route full-stack campus platform, and independently ran a multi-modal deep learning segmentation project on the BraTS 2024 dataset. Comfortable moving between model training, backend/API design, and frontend delivery. Seeking AI Engineer, ML Engineer, or Full-Stack Engineer internship/new-grad roles.

TECHNICAL SKILLS

- **Languages:** Python, Java, JavaScript, TypeScript, SQL, HTML/CSS
- **AI / Machine Learning:** PyTorch, Scikit-learn, Random Forest, XGBoost, Attention U-Net, Qdrant (Vector DB), Model Evaluation (Dice, IoU, Sensitivity, Specificity), Feature Engineering
- **Frameworks & Libraries:** Next.js 15, React, React Three Fiber, GSAP, Flask, Tailwind CSS, Bootstrap
- **Data & Databases:** PostgreSQL, Supabase, Redis (Distributed Locks/Caching), MinIO (S3), MySQL, SQLite, Oracle SQL, PL/SQL, Pandas, NumPy
- **Tools & Practices:** Git/GitHub, REST API design, Row-Level Security, Human-in-the-Loop Guardrails, pytest (1,200+ tests), Ruff, Mypy, Bandit Security, TensorBoard, n8n

EXPERIENCE

Full Stack Development Intern — Infosys (Virtual)	Nov 2025 – Mar 2026
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- Shipped EcoPackAI, an AI-powered packaging recommendation engine scoring materials on cost, CO₂ emissions, strength, and recyclability — owned it from model training to deployed UI.
- Trained and compared Random Forest and XGBoost models on feature-engineered, outlier-treated data to drive predictive material scoring.
- Built RESTful APIs in Flask backed by MySQL to serve recommendations as structured JSON for the frontend.
- Delivered a responsive Bootstrap interface for comparing sustainability metrics and side-by-side material rankings.

PROJECTS

CampusConnect — Full-Stack Campus Platform — Next.js 15, TypeScript, Supabase, PostgreSQL, React Three Fiber, GSAP	Apr 2026 – Present
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- Architected and shipped a 29-route social and collaboration platform for college students — auth, real-time feed and DMs, marketplace, events, an AI assistant, and a coding arena — on Next.js 15 and Supabase/PostgreSQL.
- Led a security-hardening pass: college-scoped Row-Level Security policies, server-side OTP/email-domain validation via Edge Functions, MIME/magic-byte file-upload validation, DB-level rate limiting, and signed URLs for private storage — documented in a written security audit.
- Replaced an unsafe increment-based like counter with an atomic RPC to close a duplicate-vote race condition.
- Built an interactive, motion-driven UI layer with React Three Fiber and GSAP on top of a reusable component architecture.

CI-MRGS: Class-Imbalance-Aware Multi-Region Glioma Segmentation — Python, PyTorch, Attention U-Net	Dec 2025 – Present
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- Built a deep learning framework for multi-class brain tumor segmentation on BraTS 2024 using multi-modal MRI input (T1, T1c, T2, FLAIR).
- Engineered a production-style PyTorch training pipeline with automatic checkpointing, mixed-precision (AMP) training, EMA, TensorBoard logging, and resumable training for long GPU sessions on Kaggle.
- Designed a hybrid Focal Tversky + Boundary Loss and an augmentation strategy to counter severe tumor sub-region class imbalance; automated Dice/IoU/Sensitivity/Specificity tracking. Manuscript prepared in IEEE conference format.

AIOS — Personal AI Operating System & Agent Runtime — Python, Qdrant, Redis, MinIO, Next.js	Dec 2025 – Present
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- Architected a 4-layer unidirectional OS (Core → Integration → Skill → Interface) with a kernel state machine and heuristic intent router, executing system queries with 0 external LLM hops and 7.4 μs local dispatch latency.
- Engineered an episodic agent memory system pairing Qdrant vector search with automatic SQLite cosine-similarity fallback during network partitions and MinIO (S3) for durable checkpoint recovery.
- Implemented a two-phase action approval protocol (/v1/actions/propose → confirm) and an inference manager controlling reasoning token budgets across local Ollama models (Qwen 9B, DeepSeek R1) and cloud gateways.
- Built an SSE telemetry stream (/v1/events) with a companion Next.js command-center dashboard (Cmd+K); enforced 100% test pass rate across 1,200 unit and integration tests (pytest in 3.02s) and Bandit security verification.

EDUCATION

B.Tech, Computer Science & Engineering — IILM University, Greater Noida	2024 – 2028
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CERTIFICATIONS & TRAINING

- **Oracle DBMS Certified** — Oracle SQL, PL/SQL, normalization, transaction management
- **Infosys Springboard** — Data Science & Python Programming (EDA, Scikit-learn, feature engineering, OOP)