

MOHAMMAD MAHABOOB ASHRAF

Software & AI Engineer

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I build LLM systems where deterministic code owns money, safety, and correctness. Two AI research internships during undergrad; open-source contributor to Agenta (merged), Pydantic Logfire, and DSPy.

EDUCATION

Osmania University, Hyderabad

Expected Aug 2028

B.E. Computer Science Engineering | **CGPA: 8.9/10**

EXPERIENCE

Drugparadigm | AI Research Intern, Hyderabad

Oct 2025 - Present

- Built antibody heavy/light-chain pairing models on protein-sequence embeddings over **1.3M+ heavy-chain sequences**, including preprocessing, leakage-detection, and training-data validation pipelines.
- Outperformed ImmunoMatch on the same held-out benchmark: **ROC-AUC 0.798 vs 0.750** on kappa light chains and **0.823 vs 0.783** on lambda. Benchmark analysis also exposed shortcuts in synthetic negative-pair construction.

iHub-Data, IIIT Hyderabad | AI Research Intern

Aug 2025 - Oct 2025

- Fine-tuned **YOLOv8m** on 1,350+ annotated UAV images, reaching **96.7% mAP@50, 94.7% precision, and 93.2% recall** through targeted augmentation and AdamW tuning.

PROJECTS

Amana - Agentic Commerce Gateway | [GitHub](#) / [Live](#)

Java, Spring Boot, Next.js, React, TypeScript, PostgreSQL/pgvector, Gemini, Razorpay

- Shopping agent that turns text and image requests into **paid orders**. Gemini interprets intent and plans; deterministic Spring Boot services own authorization, Razorpay payment execution, reconciliation, and refunds.
- Raised valid-product **Recall@5 from 55% to 76%** on a labelled eval set, hit **92% intent-field accuracy**, and enforced **250/250 deterministic safety cases** in CI.

RepoPilot - Evidence-Grounded Coding Agent | [GitHub](#)

Python, FastAPI, Tree-sitter, BM25, Chroma, LangGraph, React/TypeScript, Docker

- Local-first agent that locates and repairs bugs in a codebase using hybrid retrieval, **human approvals bound to the exact patch hash**, scoped edits, and Docker-isolated test runs; passed **33/33 safety scenarios**.
- Controlled model comparison (retrieval, prompts, and approval policy fixed): hosted Gemini repaired **6/6 frozen defects** vs. **1/6 for local Gemma**, and median workflow latency fell from **111s to 21s**.

HookRelay - Reliable Webhook Delivery Platform | [GitHub](#)

TypeScript, Node.js, Fastify, PostgreSQL, Redis/BullMQ, React, Docker

- Service that guarantees webhook events reach their destination: signed requests, bounded retries, dead-letter recovery, idempotent ingestion, and a React dashboard. **PostgreSQL owns delivery state**; Redis/BullMQ coordinates work.
- Verified idempotency under **25 concurrent ingest and replay requests**; **100% terminal success** across 3×500 deliveries at **71-79 deliveries/s**.

OPEN SOURCE

Agenta | [PR #7701](#) | Merged

- Added **bounded HTTPX streaming** for Slack media downloads, enforcing attachment limits on decoded bytes before buffering and closing oversized responses early. Regression tests cover missing or understated metadata, gzip, exact byte limits, and stream cleanup (**216 Slack tests passing**).

Pydantic Logfire | [PR #2650](#) | Open PR

- Gave FastAPI background-task batches their own **root traces**, linked to the originating request via **OpenTelemetry span links** so each can be tail-sampled independently, while preserving callback ordering, exceptions, and cancellation.

DSPy | [PR #10563](#) | Open PR

- Proposed safer prerelease-docs cleanup with **atomic stable publication**, immutable snapshots, and retry safety.

TECHNICAL SKILLS

Languages: Java, Python, TypeScript/JavaScript, SQL

Full Stack: React, Next.js, Node.js, Fastify, Spring Boot, FastAPI, REST APIs, PostgreSQL, Redis, BullMQ

AI / ML: LLMs, Agentic Workflows, Tool Calling, RAG, AI Evaluation, Embeddings, LangGraph, PyTorch, Gemini, Ollama

Engineering: Docker, GitHub Actions, Testing, Data Pipelines, API Integrations, Git

Fundamentals: Data Structures & Algorithms, OOP, DBMS