

Osaid Shah

SENIOR APPLIED AI & DISTRIBUTED SYSTEMS ENGINEER

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PROFESSIONAL SUMMARY

Senior applied AI engineer with 6+ years across multinational enterprises and automation products. Builds systems from scratch, takes ownership of inherited ones, and ships features end to end. Architects, mentors, and puts AI to work multiplying what a single engineer can deliver.

PROFESSIONAL EXPERIENCE

Senior Software Engineer, Full Stack

June 2025 – Present

SIV.AG | Harris Operating Group, Constellation Software · *via Contour Software*

Lahore, Pakistan

- Architected Address Space, a company-wide platform that consolidates 7M+ address records across 150+ tenants. Designed its OpenSearch layer and built a KrakenD gateway that serves the routes and composes the JSON:API document, so every client integrates through one governed API surface.
- Architected and launched the Feed-in cube MVP covering grid registration, solar onboarding, metering, and market-location workflows. It now runs in production across 150+ tenants in the German energy market.
- Migrated millions of legacy energy records with zero downtime. Designed Kafka-based synchronization and expand-and-contract schema evolution, and used feature flags for tenant-scoped rollout, to preserve continuity through production releases.
- Built a reusable case-management library that removed duplicated workflow logic from six cube applications. Contributed the shared Keycloak, microfrontend, and design-system integration patterns those teams now build on.
- Built the full test pyramid across unit, integration, system, web, and end-to-end layers using Nx, Turborepo, Jest, and CI quality gates. Gave distributed teams one repeatable verification path under trunk-based development.
- Drove architecture decisions through ADRs proposed in design review, then owned delivery of what was agreed. Reviewed merge requests across these packages and built the documentation and CLI tooling that onboards new developers.
- Adopted spec-driven development across planning, architecture documentation, and implementation. Implemented AI-assisted release-note management to improve delivery consistency.

Software Engineer II

July 2023 – June 2025

Formulatrix

Lahore, Pakistan

- Shipped React, Redux, and TypeScript control software for the aptoPulse v4 and Reagent Exchanger releases. These instruments sell at approximately \$120K each and run walk-away sample-processing workflows for laboratory scientists.
- Engineered an MQTT broker and ingestion pipeline into PostgreSQL to release production data trapped inside automated hardware. Built shift and caddy-tip OEE calculations and dashboards, which opened a one-year analytics subscription alongside instrument sales.
- Developed real-time camera streaming at 24 fps inside the STAMPEDE instrument and integrated it with embedded hardware controls. Operators gained live visibility during automated runs.
- Standardized shared React design patterns and reusable controls across instrument applications, which improved maintainability and shortened delivery of later workflows.

Software Engineer

August 2021 – July 2023

Dubizzle Group (EMPG)

Lahore, Pakistan

- Built a multi-tenant automotive operations platform for OLX, dubizzle, Lamudi, and Zameen within Dubizzle Group, a \$1.4B marketplace operator. Delivered CRM, auction, inspection, reporting, dashboard, and access-control workflows while leading a team of developers.
- Scaled Carforce to 350+ internal users across five tenants, including the field-sales and inspection workforce, supporting dealer subscriptions that average AED 50,000 to 60,000 per client alongside enterprise accounts valued in the millions.
- Replaced a full workday of manual warehouse attendance processing with QR-based check-in and check-out. Daily processing dropped from eight hours to 30 minutes.
- Replaced manual field-sales allocation with ROTA scheduling, flexible lead assignment, and inspection workflows, which together supported 1,000+ car sales per month across dubizzle.

Full Stack Software Engineer

August 2020 – July 2021

Swoop Cart Technologies

Remote

- Delivered booking, account, listings, chat, notification, and live-feed workflows across the customer and vendor experience as the marketplace grew toward 10K daily active users.
- Built a streaming Google Drive and TSV image pipeline that compressed images from approximately 5MB to under 100KB and ingested thousands of listings without manual work.
- Introduced multi-stage Docker builds that cut the image from 2GB to 170MB, which eliminated memory-related deployment failures on a constrained VPS.

SELECTED AI AND INFRASTRUCTURE PROJECTS

SwoopAutos | *Applied AI automotive sourcing platform, in daily production use by industry operators*

- Built a fully autonomous intake and quotation workflow on the Meta WhatsApp Cloud API, covering customer and supplier messaging, quotations, and follow-ups. Raised per-operator throughput tenfold, from about 10 to 100+ inquiries per day.
- Built multimodal, multilingual intake. The system transcribes customer voice notes in Pashto, Urdu, Arabic, and English, and extracts vehicle details from images and video. It resolves vehicle identity through OCR, function calling, and NHTSA vPIC lookups.
- Constrained autonomous decisions with deterministic business rules, structured outputs, guardrails, and bounded retries, so vehicle identification, supplier selection, pricing, follow-ups, and exception handling run without manual handoff. Operators report roughly 90% of inquiries completing autonomously, with human override on the remainder.
- Cut inference cost per inquiry by 82% through tiered model routing, selective premium-model escalation, and bounded retries.
- Attracted angel financing on the strength of live traction: an initial AED 60K credit, followed by a USD 200K working-capital line as volume scaled.

Soastra | *Cost-aware multi-agent engineering orchestrator*

- Built a Python orchestration platform that assigns planning and review to Claude Code and Codex, and routes bounded implementation to customizable Hermes, OpenRouter, and DeepSeek Harness workers.
- Created role, persona, skill, provider, billing, and isolation registries with spec-driven prompts, default fan-out, verified retry loops, dependency graphs, bounded delegation, and deterministic completion checks.
- Validated the platform by delivering nine isolated SwoopAutos features through parallel worktrees and dependency-aware execution waves. A frontier orchestrator over lower-cost bounded workers brought nine features in at roughly the cost of one, where a single feature had previously exhausted a subscription.

SoasKit | *Private second brain and personalized digital agent*

- Built an all-in-one second brain for tasks, finance, capture, notes, journaling, knowledge, books, and career data using FastAPI, PostgreSQL, SvelteKit, Android, and owner-controlled Drive vaults. Exposed working MCP servers and tools so agents can query and act across the system.
- Built local ingestion pipelines for WhatsApp and Meta chats, Gmail, and ChatGPT history. Normalized them into append-only events, searchable memory, and a generated chronology that learns communication patterns, preferences, and history.
- Combined a PostgreSQL source of truth, evidence-linked vaults, multimodal inputs, task-routed models, scoped MCP tools, confirmation policies, audit records, Cloudflare Access, and cloudflared deployment to keep a deeply personalized agent private and dependable.

TECHNICAL SKILLS

AI and Agent Engineering: Claude Code, Codex, LangGraph, Hermes, DeepSeek Harness, multi-agent orchestration, delegation, loop engineering, dependency graphs, context engineering, reusable skills, system prompts, spec-driven development, agent development, deterministic verification, AI-assisted code review, LLMs, multimodal vision, speech processing and transcription, OCR, function calling, tool use, MCP server and tool development, structured outputs, model routing, prompt engineering, evaluation harnesses, guardrails, human-in-the-loop workflows, provenance, OpenAI API, Anthropic API, OpenRouter

Backend and APIs: Python, TypeScript, Node.js, NestJS, FastAPI, Pydantic, Uvicorn, HTTPX, psycpg, REST APIs, GraphQL, JSON:API, OpenAPI, WebSockets, Pillow, pypdf, RapidOCR, Tesseract

Distributed Systems and Data: PostgreSQL, MySQL, SQLite, OpenSearch, Kafka producers and consumers, topic and event-schema design, MQTT, event-driven systems, multi-tenancy, data synchronization, ETL, schema evolution, idempotency

Infrastructure and Platform: Docker, Docker Compose, AWS, OCI, Cloudflare, cloudflared, Cloudflare D1, R2, and Queues, KrakenD, API gateways, feature-flag rollout, Meta Graph API, WhatsApp Cloud API automation, NHTSA vPIC, Google Drive API, Linux, VPS deployment, GitLab CI/CD, GitHub Actions

Observability, Security and Identity: LGTM stack (Loki, Grafana, Tempo, Mimir), metrics, distributed tracing, structured logging, health checks, zero-downtime delivery, retry strategies, cost and latency monitoring, Keycloak, OAuth 2.0, OpenID Connect, role-based access control, Cloudflare Access, API security, policy-gated automation, approval workflows, audit trails

Frontend: TypeScript, JavaScript, Angular, React, Redux, Next.js, SvelteKit, microfrontends, design systems, real-time dashboards, responsive interfaces

Testing, Architecture and Delivery: full test pyramid, unit, integration, system, web, and end-to-end testing, Jest, pytest, unittest, Playwright, Nx, Turborepo, API contract testing, regression testing, deterministic AI evaluation, CI quality gates, domain-driven design, hexagonal architecture, ports and adapters, clean architecture, microservices, event-driven architecture, API-first design, expand-and-contract migrations, trunk-based development

EDUCATION

Information Technology University, Lahore | BS Computer Science, 2021

Beaconhouse School System | A Levels, O Levels

Languages: English, Urdu

Interests: Lore, worldbuilding, and the themes underneath. A Song of Ice and Fire, Dune, Andor, Dostoevsky, and whatever earns a place in the S-tier list. Football for the tactics, plus the dopamine of a new system or a new signing. Chasing the perfect Neapolitan. Ideas that stick in my head get built. Short novels, one day.