OWAIS IQBAL

Forward-Deployed Engineer & AI Systems Architect

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PROFESSIONAL SUMMARY

Forward-Deployed Engineer and AI Systems Architect with 4+ years of production experience shipping distributed backend infrastructure, multi-agent execution runtimes, real-time event streaming pipelines, and developer SDKs in **TypeScript**, **Rust**, and **Python**.

- **Autonomous Agent Runtimes & Sandboxing:** Architected 24/7 cloud orchestration engines (Jarvis / Owais OS) and open-source Firecracker microVM control planes (`instabox-py`) executing untrusted LLM tool calls and dynamic code in <570ms with strict credential isolation and bounded lifecycles.
- **Day-Zero Systems & AI Integration:** Proven superpower in dropping into bleeding-edge, undocumented SDKs, APIs, and AI agent frameworks on day zero, diagnosing compiler and runtime bottlenecks, authoring production integration wrappers, and shipping battle-tested client kits weeks ahead of official docs.
- **Real-Time Event Engines & Data Streaming:** Solo-architected 4+ production event-driven pipelines ingesting live high-throughput block/data streams via gRPC/RPC, evaluating complex state transition rules, and idempotently mutating state records with sub-50ms latency.
- **Technical Delivery & Cross-Functional Leadership:** 1 year as Technical Delivery Lead / Technical Program Manager leading 10+ engineers; collaborated directly with C-suite stakeholders and external enterprise teams to translate complex system requirements into production architectures, developer SDKs, and reliable delivery milestones.
- **Security & Open-Source Reliability:** Authored and merged upstream PR #236 into the official Solana Unity SDK; 5+ programs deployed to Solana mainnet with zero security incidents and zero exploits across 4 years.

TECHNICAL SKILLS & COMPETENCIES

AI Systems & Autonomous Agents: Multi-Agent Orchestration, LLM Tool-Calling & Structured Outputs, Agentic Sandboxing (Firecracker MicroVMs), Prompt Evaluation, Context Window Management, Model Context Protocol (MCP)

Languages & Runtimes: TypeScript, **Rust** (Tokio async runtime, concurrency primitives, Borsh zero-copy), **Python** (asyncio, FastAPI, SDK design), **Node.js**, SQL, C#

Distributed Systems & Data Pipelines: Yellowstone gRPC (Geyser streaming), **GraphQL** (schema design, real-time subscriptions), WebSockets, **RESTful APIs**, **Redis** (caching, pub/sub queues), **PostgreSQL**

Cloud, Sandboxes & DevOps: Firecracker MicroVMs (`instabox-py` / `instabox.sh`), **Docker**, **CI/CD (GitHub Actions)**, Linux ARM internals, Ephemeral Execution Isolation, Oracle Cloud ARM, AWS, GCP

Architecture & DX: Multi-Language SDK Architecture (**TypeScript**, **Rust**, Python, **Unity C#**), API Versioning, Integration Testing, System Design, Event-Driven State Engines, Solana / Distributed Ledgers

PROFESSIONAL EXPERIENCE

AI Systems & Infrastructure Engineer | instabox-py & Owais OS

Jan 2026 – Present | Remote

Autonomous Agent Sandboxing SDK & 24/7 Cloud Orchestration Plane (github.com/owais-star/instabox-py · owaisiqbal.dev)

- Architected and open-sourced **`instabox-py`**, a high-performance Python SDK and orchestration plane for Firecracker microVMs, enabling safe, sub-570ms ephemeral code execution sandboxes for autonomous AI agents and untrusted tool calls.
- Engineered **Jarvis / Owais OS**, an autonomous multi-agent operational runtime running 24/7 on Oracle Cloud ARM, orchestrating background repository reconnaissance, LLM tool dispatching, and bidirectional state synchronization with strict zero-credential-leakage sandboxing.
- Built live in-browser execution plane on `owaisiqbal.dev` executing untrusted agent commands in isolated microVMs in <570ms with defensive fallback snapshot guards against network interruptions.

Technical Delivery Lead & Systems Integration Architect | Honeycomb Protocol & Tumi Labs

Mar 2022 – Dec 2025 | Remote (via Ashtar Global Solutions)

Gaming & Protocol Infrastructure on Solana — Core Protocol Engineering, Edge APIs & Multi-Language SDKs

- **Technical Program & Delivery Leadership (1 Year):** Led 10+ developers across protocol, backend, and SDK engineering teams; scoped technical architecture alongside CEO/CTO and managed delivery for multiple enterprise client integrations simultaneously.
- **Edge Client & API Architecture:** Solo-architected Edge Client from scratch — a unified GraphQL backend (schema design, custom resolvers, real-time subscriptions, JWT auth, API versioning) serving as the core data layer for 3 multi-language SDKs.
- **3 Production SDKs (TypeScript, Rust, Unity C#):** Architected, documented, and published 3 production SDKs enabling 10+ external teams to integrate character management, resource staking, and mission state machines with zero breaking failures.
- **Upstream Core Contribution (Merged PR #236):** Diagnosed critical transaction signing limitations in the official Solana Unity SDK (`magicblock-labs/Solana.Unity-SDK`); authored and upstream-merged PR #236 (`SignAllTransactions`), unblocking in-game batch operations.
- **Zero-Exploit Protocol Architecture:** Contributed to 5 on-chain Anchor programs (character state, idle reward progression, asset mechanics) deployed to mainnet with 0 audit vulnerabilities and 0 exploits across 4 years.
- **State Compression:** Implemented compressed account architectures using Bubblegum, Metaplex, and Token Extensions, cutting on-chain storage costs by over 1,000x.

Platform Systems Takeover | **GameShift (Acquired from Solana Labs)** **Sep 2025 – Dec 2025 | Remote**

Ecosystem API Platform & Infrastructure Migration

- Took over acquired developer platform codebase from Solana Labs with partial credential transfer; reverse-engineered service dependencies across GCP and deployed unified CI/CD pipelines from scratch.
- Replaced high-cost external dependencies with custom minting and indexing microservices, reducing recurring cloud infrastructure costs by 45% while authoring complete developer integration documentation.
- Resolved critical upstream API edge cases and unblocked game studios; platform sustained 3+ active studio integrations post-acquisition.

Systems Architect & Independent Solutions Delivery | **Event-Driven State Engines** **Jan 2023 – Present | Remote**

Solo-Architected Distributed Backends & Real-Time Data Pipelines

- **Solo-Architected Streaming & Event-Driven Engines:** Built 4+ production event-driven rule engines ingesting live gRPC/RPC data streams, computing time-weighted state curves and trade graphs, and idempotently mutating badge qualifications and user tier records with sub-50ms latency.
- **Amanah Network (2025–2026):** Architected verifiable Waqf and philanthropic escrow engine featuring deterministic multi-pool treasury routing, invariant-protected deposit/claim/reclaim mechanisms, and strict 25% single-proposal drain caps.
- **High-Throughput State Indexers & Data Pipelines:** Designed event-driven custodial/self-custody trading architectures using Light Protocol compressed accounts and TypeScript controller layers with Yellowstone gRPC indexing.
- **Reputation & Trust Analysis Indexer:** Built high-throughput transaction indexing pipelines streaming historical block transactions via Yellowstone gRPC with bounded Tokio channels and Redis queues.

Full-Stack Software Engineer | **Sidat Technologies & Expertizo** **Jan 2021 – Dec 2022 | Karachi, Pakistan**

Early Full-Stack Engineering & Healthcare Systems

- Architected and delivered multi-tier lab booking and dispatch platform (UAE): User App, Rider App, and Admin dispatch dashboard with real-time tracking in React, React Native, Node.js, and PostgreSQL, handling 10,000+ bookings.
- Engineered media content streaming service and redesigned frontend architectures for high-concurrency educational platforms (outlier.org), improving client-side latency and rendering performance.

HONORS, AWARDS & OPEN-SOURCE CONTRIBUTIONS

• **Upstream Contributor:** Official Solana Unity SDK — Authored & merged PR #236 (`SignAllTransactions` for batch execution across mobile & desktop runtimes)

• **Winner:** Solana Sandstorm Hackathon 2023 — Honeycomb Protocol Core Gaming Infrastructure

• **Winner (3rd Place):** Solana Renaissance Hackathon — Games Track (Mining Badgers)

• **Protocol Architect:** Amanah Network — Verifiable Waqf & Philanthropic Escrow Engine on Solana (deterministic treasury routing & invariant protections)

EDUCATION & CERTIFICATIONS

• **Bachelor of Science in International Relations** — Federal Urdu University, Karachi (2021 – 2024)

• **Web & Mobile Application Development Certification** — Saylani Mass IT Training Program (Jan 2021 – Oct 2021)