PROFESSIONAL SUMMARY

Muhammad Umar Aibak

Senior Software Engineer with more than six years of professional experience designing, building, deploying, and maintaining production-grade software systems. His work through Terminal Byte focuses on Backend engineering, distributed systems, cloud-native applications, full-stack development, AI-enabled software, and scalable system architecture.

PROFILE

Senior Software Engineer

This page provides a concise web CV for technical recruiters, engineering managers, research supervisors, and graduate admissions reviewers.

Founder and Principal Engineer

Terminal Byte is the company/studio brand. The engineering direction is led by a senior software engineer focused on building systems that remain reliable, scalable, maintainable, and useful over time.

> Backend engineering, API design, distributed systems, cloud-native applications, and scalable system architecture

> Full-stack product development with React, Next.js, TypeScript, Flutter, React Native, Node.js, Django, Laravel, PostgreSQL, Prisma, and Redis

> Production workflows across CI/CD, Docker, AWS, monitoring, performance optimization, maintenance, and release readiness

> Research-oriented engineering interests across AI-assisted infrastructure, autonomous systems, intelligent scheduling, observability, and large language models

SENIORITY

Leadership And Engineering Judgment

The strongest signal for senior and staff-level roles is not tool count; it is the ability to own architecture, trade-offs, reliability, and delivery across the system lifecycle.

Architecture Ownership

System work is presented through boundaries, data flow, ownership rules, deployment constraints, and recovery paths instead of only framework names.

Production Judgment

Case studies document why stacks were selected, which trade-offs were accepted, and how operational behavior was kept maintainable.

Cross-Lifecycle Delivery

Experience spans requirements, architecture, implementation, API contracts, database design, CI/CD, deployment, monitoring, maintenance, and optimization.

Research-Oriented Learning

Lab work connects practical production engineering with longer-term interests in observability, intelligent infrastructure, AI-assisted workflows, and distributed systems.

EVIDENCE

Verified Portfolio Metrics

These are portfolio-level evidence signals based on currently documented systems, writing, screenshots, regions, and professional experience.

Documented Systems

14+

Product, operations, automation, monitoring, simulation, CMS, mobile, backend, and API systems are documented through reusable case-study templates.

Technical Articles

18

Engineering notes cover SaaS ownership, workflow recovery, telemetry, AI workload observability, typed APIs, browser compute, and production architecture.

Interface Captures

24

Portfolio-safe screenshots document selected SaaS, CMS, travel-planning, and browser-lab workflows across desktop and mobile.

Deployment Regions

3

Production and delivery experience includes systems deployed across Pakistan, UAE, and Oman.

Years Experience

6+

Professional work spans architecture, backend, frontend, mobile, database design, cloud deployment, CI/CD, monitoring, and maintenance.

Technical Domains

7

Work spans SaaS, mobile systems, backend APIs, CMS/admin platforms, automation, monitoring, simulations, and research-oriented engineering.

LIFECYCLE

Engineering Scope

Professional work spans the complete software lifecycle from discovery and architecture through deployment, monitoring, maintenance, and optimization.

Requirements analysis and technical discovery

Software architecture and system decomposition

Backend API design and implementation

Frontend and mobile application development

Database design, data modeling, and query performance

Cloud deployment, Docker, CI/CD, and release readiness

Production monitoring, maintenance, and performance optimization

Workflow automation, observability, and operational recovery paths

SELECTED SYSTEMS

Representative Work

Systems are anonymized where needed, but still documented by problem, architecture, data flow, engineering decisions, scaling strategy, and outcome.

Engineering Lab

Browser-Based Proof-of-Work Simulation & Validation Lab

Interactive blockchain simulation, mining workflow visualization, deterministic validation, benchmark reporting, persistence, and JavaScript/WebAssembly execution paths.

MVP / SaaS Foundation

Billora SaaS Invoicing & Billing Platform

Authenticated SaaS invoicing workflows, organization and team management, business profiles, customers, invoice items, manual payments, payment status tracking, PDF generation, audit logs, background jobs, and dashboard summaries.

Functional MVP

Itinerary Orchestration & Cost Modeling Platform

Destination discovery, personalized multi-day itineraries, regional multi-currency pricing, package reservations, custom-trip registrations, and authenticated travel operations.

Production System

Commerce Catalog & Order Processing Platform

Mobile catalog discovery, promotional offers, cart state, transactional order capture, order tracking, caching, and release automation.

Public Product

Schema-Driven Modular Content Management System

Reusable content sections, structured page configuration, focused admin workflows, backend rendering, and shared-hosting-aware deployment.

Production System

Real-Time Field Operations & Event Synchronization System

Field activity capture, operational state transitions, live event delivery, alerting, reconnection, and state reconciliation for intermittent networks.

Production System

Role-Based Service Marketplace & Booking Platform

Customer, provider, and admin workflows covering service discovery, booking, payment coordination, notifications, and operational control.

Production System

Telemetry Ingestion, Alerting & Monitoring Platform

Telemetry ingestion, event normalization, dashboard summaries, alert evaluation, cached operational reads, and mobile visibility.

RESEARCH DIRECTION

Long-Term Technical Interests

Professional work and research interests are intentionally aligned around intelligent large-scale software systems.

Distributed Systems And Observability

Exploring how services expose useful pressure signals through metrics, logs, traces, queues, load tests, and runtime dashboards before scaling decisions are trusted.

AI-Assisted Infrastructure

Studying how AI-enabled workflows can support infrastructure operations while preserving approval gates, audit trails, rollback behavior, and human control.

Intelligent Scheduling And Autoscaling

Investigating how workload profiles, latency, saturation, queue depth, and cost signals can inform future scheduling and autoscaling policies.

Research-Oriented Engineering Labs

Building small, inspectable systems that turn complex ideas into measurable experiments across browser execution, monitoring, automation, and distributed behavior.

AI Engineering

Agentic AI workflow architecture with permissions, approval gates, audit trails, retries, and recovery paths

AI Engineering

LLM-assisted developer productivity and workflow automation for engineering teams

AI Engineering

Observability foundations for AI workloads, queues, traces, metrics, logs, cost visibility, and scaling signals

AI Engineering

Intelligent software systems that combine backend architecture, cloud infrastructure, and AI-enabled decision support