

MUHAMMAD NAVEED

AI Automation Engineer | Full Stack Developer | Forward-Deployed Engineer

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PROFESSIONAL SUMMARY

Forward-deployed AI automation engineer with sustained production experience building and operating real-time compliance and workflow systems for a U.S.-based enterprise client. Own five interconnected Slack and Google Workspace automation systems plus a live operations dashboard, supporting 8+ field technicians across 123 properties in two U.S. regions, with daily production monitoring, root-cause debugging, and same-day issue resolution. Full-lifecycle experience: requirements gathering, spec-driven design, deployment, incident diagnosis, and iterative improvement driven by direct stakeholder collaboration.

TECHNICAL SKILLS

Backend & Runtime: Node.js, Python, FastAPI, REST APIs, Express, node-cron

Frontend: Next.js, React, TypeScript, Tailwind CSS, HTML5/CSS3

AI & LLM: OpenAI API, Anthropic API (Claude Code), Gemini API, LangChain, OpenRouter, Agents SDK, MCP

Integrations: Slack Bot & Events API, Google Sheets/Calendar/Gmail API, Webhooks, WhatsApp, Twilio

Cloud & DevOps: Railway, Docker, Kubernetes, Kafka, Dapr, CI/CD, GitHub, persistent volume storage, production log/health auditing

Databases: MongoDB, PostgreSQL, Sanity CMS

Architecture: Event-driven & spec-driven design, fuzzy matching/alias resolution, background precompute and caching, rate-limit-safe read pipelines, technician-scoped data validation

PROFESSIONAL EXPERIENCE

AI Automation Engineer (Forward-Deployed)

April 2026 – Present

Activus Capital Partners — Heat Wave Pest Control | Remote (Karachi-based)

Built and operate five production Slack/Google automation systems and a live operations dashboard for Heat Wave Pest Control, a multi-region pest control operations company. Report directly to the Managing Partner, Operations Coordinator, and Operations Director.

Specialty Form Compliance Bot

- Automated daily monitoring of 100+ calendar events against Google Forms submissions across two U.S. regions
- Built a token-based property/service matching engine with compound-word decomposition, digit-boundary splitting, and Levenshtein fuzzy matching, extended with a curated alias layer to resolve technician shorthand for property names
- Scaled to 123 registered properties using automatic header-based column detection, layout-independent across varied sheet formats, including shared multi-property sheets with property-scoped row filtering
- Designed a persistent reminder system with lookback for outstanding forms and lead-technician detection to skip secondary technicians on multi-tech events

Notes Verification Bot

- Built real-time scheduling-notes verification triggered by technician departure messages in Slack; scaled from a single-region pilot to a full 8-technician, 123-property deployment
- Implemented a 15-minute escalation and re-check workflow with automatic skip logic for cancelled, could-not-enter, and duplicate entries
- Diagnosed and resolved a cross-property validation bug on shared Google Sheets, where two properties on one tab were cross-contaminating each other's compliance checks, via a generic, collision-checked property filter
- Diagnosed and fixed a cross-technician validation gap causing technicians to be flagged for coworkers' incomplete entries on shared multi-technician properties, implementing technician-scoped row matching with a safe, coverage-preserving fallback
- Built visit-type detection distinguishing recurring routine service stops from ad hoc specialty visits via calendar-tag matching, suppressing irrelevant compliance checks on specialty-only visits while preserving full routine-service coverage

Weekly Reporting Suite

- Built and iteratively refined an automated Weekly Specialty Services Report (region, then paid/non-paid, then day-grouped), driven by multiple stakeholder feedback rounds covering tech-name formatting, pricing edge cases, and malformed-entry filtering
- Designed and shipped a second, purpose-built Bait Box & Exterior Services report for a separate reviewer, matching an exact stakeholder-specified format on an automated weekly schedule

Specialty Recommendation System

- Built a system that auto-generates draft recommendation emails to property managers from follow-up flags in scheduling sheets, using tier-aware pricing and service-specific templates
- Diagnosed a production incident that silently produced zero output for a week; traced the root cause through a full read-only data audit (307 qualifying cases across 61 properties) before re-enabling the system
- Designed a deduplication and recency-window safeguard to prevent a backlog flood on activation, and gated the rollout behind a kill switch for safe, independent release
- Migrated the system from real-time per-event emails to a consolidated daily digest at stakeholder request, using pre-rendered draft caching to keep the digest read-only and API-call-free at send time
- Redesigned per-service pricing logic to parse property-specific, day-conditional pricing rules directly from source pricing sheets — replacing a hardcoded rule limited to a single service category — correcting pricing errors across multiple properties and service types in one structural fix

Operations Dashboard (Live Web Application)

- Designed and built a password-protected operations dashboard (Express + vanilla JavaScript, no build step) covering six live sections: Overview, Route Timing, Units Allocation, Notes Bot Activity, Recommendations Tracking, and Monthly Per-Technician Reporting
- Built a Slack-history-based Route Timing engine computing per-technician daily timelines (arrival, departure, on-site duration, inter-stop transit) from field check-in/check-out messages, with configurable period views (day, week, month, quarter, year, custom range) for long-term trend analysis
- Built a Units Allocation view cross-referencing a master client tracker against live scheduling sheets to show allocated vs. actually-scheduled service units per property per week, with sortable/filterable columns and utilization-rate color coding
- Added a Monthly Per-Technician report computing daily first-arrival/last-departure field-time spans per technician per month, with partial-day flagging for incomplete check-in/check-out pairs
- Diagnosed and resolved a Google Sheets API rate-limit failure caused by 112+ concurrent sheet reads on a single request, by redesigning the data path around scheduled background precompute with snapshot caching, cutting user-facing load time from a timeout-prone 60–90 seconds to instant cached reads
- Designed a shared, rate-limit-safe Slack history cache serving three dashboard sections from a single rolling background crawl, eliminating live API calls on the request path after diagnosing a third-party platform rate-limit ceiling
- Added one-click CSV export across all dashboard views, and a proactive property-name disambiguation system that prompts field technicians for clarification instead of silently failing on ambiguous shorthand input

Engineering Practices

- Perform pre-flight verification and collision analysis before every production matching-logic change, and dry-run validation against live data before every deploy
- Prioritize verified root-cause analysis over quick patches, e.g., tracing a week-long silent outage to a single misspelled environment variable through systematic hypothesis elimination
- Proactively extended the service's health-check endpoint with feature-flag and credential-presence visibility after an incident, closing the exact blind spot that caused it, then ran a full configuration audit across 26 environment variables to pre-empt similar failures
- Migrated all runtime data stores to persistent volume storage, eliminating data loss on every deployment, and fixed a background cache readiness-check bug that reported a false “ready” state before fully warming
- Migrated all credentials to company-owned accounts (Google Cloud, OpenRouter, GitHub organization)

Founder & Lead Developer

2025 – Present

NaveedTechLab (Digital Agency) | Karachi, Pakistan

- Built a digital agency targeting local Karachi businesses; secured first two clients (CCTV World Karachi and Ha-Aeen Dentistry)
- Produced 6-month digital transformation roadmaps, partner agreements, and pricing strategies
- Delivered digital footprint setup, customer acquisition systems, and workflow automation services for early-stage clients

Freelance Full Stack Developer

2023 – Present

Fiverr & Direct Clients | Remote

- Delivered Shopify stores, business websites, custom dashboards, CMS-based sites, and automation workflows end-to-end, from requirements through design, development, and deployment

PROJECT & HACKATHON EXPERIENCE

- Autonomous AI Marketing Agency (Hackathon, 2024) — Live AI-powered marketing agency handling autonomous campaign strategy, content generation, and client outreach; deployed on Hugging Face Spaces
- Personal AI Employee (Digital FTE) (Hackathon, 2024) — Autonomous AI employee with watchers, Gmail/WhatsApp automation, an Obsidian memory system, and MCP tools for 24/7 task execution

- Customer Success FTE (CRM Agent) (Hackathon, 2024) — Multi-channel support agent across Gmail, WhatsApp, and web forms with a PostgreSQL ticket system and FastAPI backend
- Cloud-Native Microservices Architecture (2024) — Reusable agent skills and containerized microservices built on an event-driven architecture using Docker, Kafka, Dapr, and Kubernetes

EDUCATION

Governor House Initiative — GenAI, Web3 & Metaverse

2023 – Present | Diploma in Computer Information Technology (DCIT) | Certificate in Information Technology (CIT)

LANGUAGES

English (Fluent) | Urdu (Native)