USMAN HUSSNAIN

Python Backend & DevOps Engineer | Full-Stack Developer

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PROFILE SUMMARY

Python Backend and DevOps Engineer who takes products from the first commit to a hardened production release. I design and build APIs and services with FastAPI and Django, ship full-stack interfaces with React, Next.js and TypeScript, and own the delivery around them: Docker and Kubernetes, GitLab CI/CD with signed images, Ansible automation, Linux servers, backups and monitoring. Most of my work is for the ISP and telecom domain, including OLT/ONU network management, FreeRADIUS AAA, CGNAT log analytics and CRM platforms, where reliability, security and safe operations on live infrastructure matter most. I am also the founder of Whisper Perks, a local discovery and commerce app that I build and run end to end, and of six free websites under whisperperks.com for students, teachers and everyday file jobs.

TECHNICAL SKILLS

Languages	Python, TypeScript, JavaScript, SQL, Bash, PHP, Go, C++, C#
Backend & APIs	FastAPI, Django, Django REST Framework, Flask, Laravel, SQLAlchemy, Alembic, Pydantic, REST APIs, WebSockets, ASGI, Django Channels, JWT, RBAC, TOTP 2FA, OpenAPI
Frontend	React, Next.js, TypeScript, Vite, Tailwind CSS, Radix UI, TanStack Query, Zustand, Inertia.js, HTMX, Alpine.js, Bootstrap, HTML, CSS
DevOps & CI/CD	Docker, Docker Compose, BuildKit / buildx, Docker-in-Docker, Kubernetes, Kustomize, Helm, GitLab CI/CD, self-hosted runners, Harbor Registry, Cosign image signing, SBOM and provenance, multi-project pipelines, release tagging
Automation & IaC	Ansible, Ansible Vault, HashiCorp Vault, Bash installers and upgrade scripts, systemd, cron
Linux & Servers	Ubuntu Server administration, SSH, users and permissions, disk partitioning (GPT, XFS, ext4, fstab), LVM / RAID awareness, networking, firewalling, performance tuning, troubleshooting
Web Servers & Proxies	Caddy (automatic and on-demand TLS), Nginx, PHP-FPM, Uvicorn, Gunicorn, Granian, Cloudflare (DNS, Tunnel, R2)
Databases & Storage	PostgreSQL, TimescaleDB, ClickHouse, MySQL, SQLite, MongoDB, Redis, PgBouncer, MinIO / S3, pgBackRest
Mobile & PWA	Progressive Web Apps (offline, Web Push), Android Trusted Web Activity (Bubblewrap), Google Play release, Google Sign-In
Messaging & Jobs	NATS JetStream, Redis queues (RQ), Laravel Horizon, Celery, APScheduler, multiprocessing
Monitoring & Logging	Prometheus, Grafana, Node / Postgres / Redis exporters, Vector (VRL), Syslog, health checks
ISP & Networking	FreeRADIUS (AAA), PPPoE, CGNAT, GPON OLT/ONU (Huawei, ZTE), TR-069 / GenieACS, SNMP and traps, WireGuard, MikroTik RouterOS, NMAP
Scraping & Data	Scrapy, Playwright, Selenium, BeautifulSoup, Pandas, openpyxl, FAISS, sentence-transformers, HuggingFace
Testing & Tools	Pytest, Playwright, Pest, Ruff, Git, GitHub, GitLab, Postman, VS Code, Microsoft Office 365
Spoken Languages	English, Urdu, Punjabi
Core Concepts	System design, microservices, multi-tenancy, OOP, data structures, security hardening, backup and disaster recovery

WORK EXPERIENCE

Founder & Lead Engineer

August 2026 – Present

Whisper Perks (own product) *whisperperks.com* · *Faisalabad*

- Founded Whisper Perks and own the whole product: research, design, backend, frontend, Android release, infrastructure and operations.
- Run production on a Linux server with Docker Compose, scripted releases with a rollback point, and backups; the Android app is submitted to Google Play.
- Built and run six free websites under whisperperks.com: File Perks, Paper Desk, Uni CGPA, Honhaar Scholarship Calculator, Punjab Board Results and Secret Inbox, each with its own tests, SEO pages and Google AdSense.

Python DevOps Engineer
July 2025 – Present

Hashtag Ventures *hashtagventures.net* · *Faisalabad*

- Own DevOps for the company's ISP products end to end: image builds, GitLab CI/CD pipelines, a private Harbor registry, release tagging, production installers and staged upgrades.
- Build backend services and APIs in Python (FastAPI, Django) for network management, backup control and log analytics, plus the React and Next.js interfaces that operators use every day.
- Lead development of OLT Manager, a multi-tenant OLT/ONU operations platform for ISPs, covering the API, edge agents, device adapters, web app and Kubernetes delivery.
- Run and harden Linux production servers: Dockerized stacks, TLS reverse proxies, PostgreSQL backups with pgBackRest, monitoring with Prometheus and Grafana, and FreeRADIUS deployments.
- Automate server operations with Ansible playbooks and an in-house dashboard, replacing manual SSH work for deployments, backups, restores and migrations.

Python Django Developer
March 2025 – July 2025

AskSeo *akseo.me*

- Developed a secure real-time office chat application with Django Channels and WebSockets for internal communication.
- Built a complete email sending and receiving interface with Quill.js rich-text editing and reusable custom templates.
- Created an automated scraping pipeline that reads targets from Excel files and extracts site details with Playwright and BeautifulSoup.
- Stored scraped data in a database and presented it in a clean UI with options to search, copy and download results.

Teaching Assistant – Introduction to AI Lab
February 2025 – June 2025

National Textile University, Faisalabad

- Assisted 6th-semester students with Python programming and AI/ML concepts under the supervision of Dr. Sajida Parvin.
- Conducted lab sessions on NumPy, Pandas and core machine-learning algorithms, and helped students debug their lab work.
- Mentored students on project development, code structure and good engineering practices.

National Freelancing Training Program (NFTP)
December 2022 – March 2023

National Textile University, Faisalabad

- Completed professional training on freelancing platforms, client communication and requirement handling.
- Strengthened technical skills and learned to plan, estimate and deliver projects independently.
- Learned digital marketing fundamentals and how to build a professional online presence.

PROFESSIONAL PROJECTS

Whisper Perks – Local Discovery & Commerce App IN PROGRESS
www.whisperperks.com

Own product, live at *app.whisperperks.com* · *Android app submitted to Google Play*

- Founded and building a mobile-first app for Faisalabad: verified shops publish posts, stories, deals and menus; shoppers follow them, claim signed QR discounts, order (Pay at Shop / COD) and leave verified reviews.
- Grew it into a city app: business directory and listings, jobs, doctors with token booking, blood-donor alerts, newspaper headlines, and prayer times with alerts, in English and Urdu.
- Designed a FastAPI modular monolith with about 300 API endpoints on PostgreSQL 17 / TimescaleDB / PostGIS, Valkey for rate limits and locks, an outbox worker, deny-by-default RBAC and a full audit trail.
- Built the merchant workspace (staff, subscription plans, quotas, verification ticks, invoices, commission) and an admin console for moderation, finance and plans.
- Shipped the Next.js 16 / React 19 installable PWA with offline pages and Web Push, wrapped for Android as a Trusted Web Activity built with Bubblewrap.
- Run it on Docker Compose with segmented private networks, Caddy TLS, ClamAV upload scanning, private MinIO storage, pgBackRest backups, OpenTelemetry tracing and a release script that gates on 1,600+ tests and smoke checks.

Tech: *Python, FastAPI, SQLAlchemy 2, asyncpg, Alembic, Pydantic, PostgreSQL 17, TimescaleDB, PostGIS, Valkey (Redis), MinIO / S3, ClamAV, Pillow, OpenTelemetry, Next.js 16, React 19, TypeScript, Tiptap, Recharts, PWA, Web Push, Android TWA (Bubblewrap), Google Sign-In, Docker Compose, Caddy, pgBackRest, Pytest, GSAP*

OLT Manager – Multi-Tenant OLT/ONU Operations Platform IN PROGRESS

- Building a multi-tenant SaaS that lets ISPs discover, monitor and provision GPON OLTs and ONUs from one workspace, with vendor adapters for Huawei MA56xx and ZTE C3xx.
- Designed an edge architecture in which site agents reach devices over WireGuard and MikroTik gateways, run SSH and SNMP jobs, and report back over NATS JetStream.
- Implemented safe device writes: staged preview, typed operator confirmation, postcheck readback and a full audit trail, with device credentials kept in an encrypted vault.

- Integrated GenieACS (TR-069) for ONU Wi-Fi, WAN and PPPoE management, an SNMP trap collector, and ClickHouse plus TimescaleDB for telemetry and history.
- Built the operator web app in Next.js and React with a map view, and delivery through a four-stage GitLab CI pipeline, BuildKit images and Kubernetes (Kustomize overlays).

Tech: *Python 3.12, FastAPI, SQLAlchemy 2, Alembic, PostgreSQL, TimescaleDB, ClickHouse, Redis, RQ, NATS JetStream, Netmiko, Paramiko, pysnmp, GenieACS, MongoDB, WireGuard, Next.js 15, React 19, TypeScript, Tailwind CSS 4, TanStack Query, Zustand, MapLibre, Playwright, Pytest, Docker, Kubernetes, Kustomize, GitLab CI*

ISP CRM & Network Management System (AltRadius)

Live Demo: demo.altradius.com

- Own the complete DevOps and platform layer of a production ISP CRM, billing and RADIUS suite: a 21-service Docker Compose stack built from 12 custom images across 13 GitLab repositories.
- Built 12 tag-driven GitLab CI pipelines on Docker-in-Docker and BuildKit with a Harbor registry, multi-project triggers, in-image smoke tests, Cosign signing, SBOM and provenance attestations.
- Hardened delivery of licensed software: multi-stage builds with BuildKit secret mounts, encoded PHP and Cython-compiled Python sources, and CI checks that fail if any protected source ships in plaintext.
- Wrote the one-line production installer and a staged upgrade script that backs up config, preflights the new release and leaves the running version untouched on any failure.
- Customized FreeRADIUS 3.2 (SQL, REST, Redis cache, custom dictionaries) with a FastAPI management sidecar, and tuned PostgreSQL 17 / TimescaleDB behind PgBouncer.
- Delivered backups with pgBackRest to MinIO (WAL archiving, retention) and a custom React + FastAPI backup and restore dashboard, plus Prometheus and Grafana monitoring with exporters.

Tech: *Docker, Docker Compose, BuildKit, GitLab CI/CD, Harbor, Cosign, Bash, FreeRADIUS, PostgreSQL 17, TimescaleDB, PgBouncer, Redis, MinIO, pgBackRest, FastAPI, Cython, React 19, Vite, TypeScript, Caddy, Nginx, PHP-FPM, Laravel runtime, Prometheus, Grafana, Gotenberg, Cloudflare R2*

Syslog Server – CGNAT Log Management & Analytics Platform

Live Demo: demolog.altradius.com

- Built a Dockerized CGNAT log platform that ingests router syslog, parses and enriches it, stores it in ClickHouse and lets operators trace a public IP and port back to a subscriber.
- Developed the Vector pipeline in VRL with parsers for MikroTik RouterOS 6/7, Cisco IOS/IOS-XE, Cisco CGN NAT44, Juniper and vBNG, with router authorization, deduplication and GeoIP/ASN enrichment.
- Added runtime parser management through a FastAPI control plane: new parsers are validated, written atomically and hot-reloaded without rebuilding the image.
- Designed the ClickHouse schema with daily partitions, ZSTD compression, skip indexes, hourly rollups from materialized views, configurable retention and an S3 cold tier.
- Delivered the management portal in Laravel 12, React 19 and TypeScript (Inertia.js): CGNAT search and reports, dashboards, router inventory, RBAC, activity auditing, alerts and licensing.
- Automated releases with GitLab CI/CD, BuildKit and Harbor: tag-verified builds, chained downstream pipelines, smoke tests, Cosign-signed images, and pgBackRest backups to MinIO.

Tech: *Vector (VRL), ClickHouse, PostgreSQL, TimescaleDB, Redis, MinIO, FastAPI, Python, Cython, Laravel 12, PHP 8.3, React 19, TypeScript, Inertia.js, Vite, Tailwind CSS, Caddy, Docker Compose, GitLab CI/CD, Harbor, pgBackRest, Pest, Pytest*

Ansible Dashboard – Deployment & Server Automation Platform

- Built a web dashboard that runs Ansible from the browser: a FastAPI API queues jobs, a separate worker executes playbooks, and a React + TypeScript UI shows live logs, history and audit records.
- Wrote 53 playbooks across 6 projects covering deploy, redeploy, rollback, restart, logs, database backup and restore, full environment cloning, SSH key rotation and monitoring-agent rollout.
- Engineered safety into every run: mandatory *--limit* targeting, check mode, typed confirmations for dangerous actions, per-server job locking and backup-before-redeploy.
- Developed idempotent disk automation for Ubuntu 22.04/24.04 (GPT, XFS/ext4, UUID-based fstab) that refuses boot disks, LVM volumes, RAID members and existing filesystems.
- Secured access with JWT, TOTP two-factor, role-based permissions with risk tiers, Ansible Vault per host and HashiCorp Vault, with secrets redacted from all job output.
- Added PostgreSQL backups streamed over SSH directly into S3 storage with checksums, a Go monitoring agent for host, GPU and Docker metrics, and an MCP server for AI-assisted operations.

Tech: *Ansible, Ansible Vault, HashiCorp Vault, Python 3.12, FastAPI, SQLAlchemy, Alembic, PostgreSQL, TimescaleDB, pgBackRest, MinIO, React 18, TypeScript, Vite, Tailwind CSS, Radix UI, Go, Caddy, Docker Compose, Ubuntu, SSH*

Port Checker – Network Utility SaaS (NMAP Scanning Platform)

Live Site: port-checker.net

- Developed a live network utility that makes NMAP port scanning simple: a Django REST API backend behind a clean React (Vite) frontend.

- Engineered a custom NMAP scan engine supporting TCP SYN, TCP Connect, UDP and service-version scans for IPv4, IPv6 and domains, including TLS certificate details.
- Handled high concurrency with an async design: semaphore-limited scans, thread-pool execution, per-scan timeouts and strict input validation with a per-request port cap.
- Served the API with Granian (ASGI) and documented it with OpenAPI and Swagger UI through drf-spectacular.
- Containerized the stack with Docker Compose (web, PostgreSQL, Caddy) and configured Caddy for automatic HTTPS via Cloudflare DNS, HTTP/3, compression and security headers.

Tech: *Python 3.11, Django 5, Django REST Framework, drf-spectacular, NMAP, asyncio, Granian, Gunicorn, Uvicorn, PostgreSQL 16, React, Vite, Bootstrap, Caddy, Nginx, Docker Compose, Cloudflare*

Advanced SEO Admin Dashboard (Automation & Scraping Tool)

- Transformed Django Admin into an SEO operations portal with custom views, per-row action buttons and AJAX-driven workflows that launch crawlers and show their status.
- Built Scrapy spiders for sitemap and internal-link crawling that capture titles, meta descriptions, headings, HTTP status and cleaned page content, with exclusion rules and depth control.
- Automated backlink and guest-post audits: verifies that expected links are live, captures anchor text and checks dofollow/nofollow and index/noindex against the expected values.
- Added a headless Selenium contact scraper for emails and phone numbers, and a multi-step email verifier using DNS, MX and SMTP checks.
- Implemented semantic keyword-to-page relevance scoring with sentence-transformer embeddings and FAISS, bulk Excel/CSV keyword imports with Pandas, and a proxy manager with health tests.

Tech: *Python 3.12, Django 5, Django REST Framework, Scrapy, Selenium, Playwright, BeautifulSoup, Pandas, openpyxl, FAISS, sentence-transformers, LangChain, multiprocessing, MySQL, SQLite, Bootstrap, jQuery, Gunicorn, Nginx*

AI-Integrated E-Commerce Platform (Final Year Project)

- Developed a full-featured e-commerce platform with Django and PostgreSQL: dynamic product listings, cart management, user authentication and secure order processing.
- Integrated the Stripe payment gateway alongside cash on delivery, with validated real-time transactions.
- Built an AI customer-support chatbot with a HuggingFace BERT model, exposed through REST APIs for context-aware answers.
- Implemented order tracking and a role-based admin panel for inventory, users and deliveries, plus a Chart.js analytics dashboard for orders, revenue, customer growth and top products.

Tech: *Python, Django, PostgreSQL, Stripe API, HuggingFace Transformers (BERT), REST APIs, Chart.js, HTML, CSS, Bootstrap, JavaScript, AJAX*

Email Scraping & Automation System

- Built an automation platform for large-scale web scraping, email extraction and bulk email campaigns, managed from a single admin dashboard.
- Developed Django REST APIs with a task-based architecture so external systems can trigger and monitor scraping and sending jobs.
- Implemented parallel scraping with multiprocessing and dynamic-content extraction with Playwright and BeautifulSoup.
- Engineered bulk email delivery over SMTP with reliable dispatch, error handling and real-time progress tracking in the UI.

Tech: *Python, Django, Django REST Framework, Playwright, BeautifulSoup, multiprocessing, SMTP, Pandas, PostgreSQL, AJAX, Bootstrap*

Real-Time Chat Application (WebSocket Messaging System)

- Developed a real-time chat platform on Django Channels, WebSockets and ASGI for two-way messaging.
- Used Redis channel layers to deliver messages reliably to many concurrent users.
- Designed private and group messaging, online/offline presence and user profiles, with chat history persisted in PostgreSQL.
- Built a responsive frontend with HTMX, Alpine.js and Tailwind CSS, deployed behind an Nginx reverse proxy.

Tech: *Python, Django, Django Channels, WebSockets, ASGI, Redis, PostgreSQL, HTMX, Alpine.js, Tailwind CSS, Nginx*

FREE WEBSITES (WHISPERPERKS.COM)

Six websites I designed, built and run under Whisper Perks: free, no sign-up, each doing one job. Static pages on Cloudflare, plain HTML, CSS and JavaScript with GSAP motion, light and dark themes, a how-to guide on every site, automated unit and browser tests, and Google AdSense and Search Console.

File Perks – PDF & Image Tools in the Browser

fileperks.whisperperks.com

- Merge, split, compress, rotate, protect and unlock PDFs, PDF to JPG/PNG/text; convert, compress, resize and crop images, HEIC to JPG, favicons. Every file is processed on the visitor's device and never uploaded.

Tech: *JavaScript (ES modules), pdf-lib, pdf.js, heic-to (libheif), Canvas, GSAP, Cloudflare static assets, Playwright*

Paper Desk – Exam Paper Maker for Teachers

paperdesk.whisperperks.com

- Teachers build a board-style paper (institute header, MCQs, fill in the blanks, short and long questions, marks, answer lines) in English, Urdu or both, then print it or download a PDF or page pictures, with an answer key and an OMR bubble sheet from the same paper.

Tech: *JavaScript, KaTeX + mhchem formulas, pdf-lib, snapDOM, DOMPurify, Noto Nastaliq Urdu, GSAP, Cloudflare, Playwright*

Uni CGPA – GPA Calculators for Faisalabad Universities

cgpa-calculator.whisperperks.com

- Separate GPA and CGPA calculators for GCUF, UAF and GCWUF, each built on the university's own published grading table, with target-CGPA and marks-needed planners.

Honhaar Scholarship Aggregation Calculator

honhaar.whisperperks.com

- Works out a student's aggregate for the CM Punjab Honhaar Scholarship and checks the academic requirements, with eligibility, institutes and an application checklist.

Punjab Board Results – All Nine BISE Boards

punjab-boards-results.whisperperks.com

- 9th to 12th class results read from the board gazettes: search by roll number, name or school, result cards, gazettes to view or download, toppers and school pass percentages.

Tech: *Cloudflare Worker, R2, pdf.js (Range requests), jsPDF, GSAP*

Secret Inbox – Anonymous Messages, Real Replies

secret.whisperperks.com

- People make a link, share it on their story or status and get anonymous messages they can answer privately or share as a story picture; end-to-end encrypted, no sign-up, messages gone after 3 days.

Tech: *Cloudflare Worker (write-only API), R2, Turnstile, Web Crypto, GSAP*

EDUCATION

Bachelor of Science in Computer Science (BSCS) · National Textile University · CGPA 3.20 / 4.00 — *2021 – 2025*

Intermediate (Pre-Engineering) · Muhammad Ali Jinnah Educational Complex, Faisalabad · 1033 / 1100 — *2019 – 2021*

Matriculation · Muhammad Ali Jinnah Educational Complex, Faisalabad · 1051 / 1100 — *2017 – 2019*