

# SAFDAR AYUB

AI Engineer | Full Stack Developer | Cloud-Native Kubernetes

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## PROFESSIONAL SUMMARY

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Results-oriented AI Engineer and Full Stack Developer with 23+ years of distinguished service in the Pakistan Air Force. Specializing in agentic AI systems, autonomous agent orchestration, and cloud-native technologies. Hands-on experience building production AI-powered applications using OpenAI Agents SDK, Claude Code, MCP Protocol, and modern full-stack frameworks. Military leadership background translating to exceptional project management and quality assurance capabilities.

**Agentic AI | MCP Servers | Full Stack Development | Cloud-Native Kubernetes | Spec-Driven Development | Docker | CRM & Dashboard Systems | Team Leadership**

## TECHNICAL SKILLS

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**AI & Agentic Systems:** OpenAI Agents SDK, Claude Code (Opus), MCP SDK, FastMCP, Prompt Engineering, RAG Systems, Gemini TTS

**Programming Languages:** Python, TypeScript, JavaScript

**Frontend:** Next.js, React.js, Remotion, Tailwind CSS, ShadCN UI, Recharts, Framer Motion

**Backend & Databases:** FastAPI, Node.js, REST APIs, Prisma, SQLAlchemy, PostgreSQL, SQLite, Turso/LibSQL, Neon DB, Supabase, Qdrant Cloud

**DevOps & Cloud:** Docker, Kubernetes, Helm Charts, OCI/OKE, NGINX Ingress, Dapr, Apache Kafka, GitHub Actions, Vercel

**Validation & Auth:** Zod, React Hook Form, NextAuth, Clerk, Better Auth, JWT, Gmail OAuth2

## KEY PROJECTS

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### Personal AI Employee — Autonomous Agent System (Hackathon Platinum Tier) | [GitHub](#)

- Built local-first AI agent monitoring Gmail, filesystem, and WhatsApp with priority-queue orchestration and human-in-the-loop approval gates
- Implemented 4 custom FastMCP servers (email, social media, Odoo ERP, documents) with circuit breaker patterns and correlation ID tracking
- Designed risk-based action routing (routine/sensitive/critical) with dry-run defaults and PM2 process management
- Integrated Obsidian vault pipeline with 12 Claude Code skills for automated task processing and weekly CEO briefing generation

*Tech Stack: Python, FastMCP, Claude Code, Gmail OAuth2, Playwright, Odoo RPC, APScheduler, Obsidian, PM2*

### Campaign Manager — Full-Stack CRM Dashboard | [GitHub](#) | [Live Demo](#)

- Built a full-stack CRM prototype with contacts CRUD, audience segmentation rule builder, multi-step campaign wizard, and analytics dashboard
- Implemented server-rendered dashboard with KPI cards and Recharts analytics — zero client-side data waterfalls
- Designed visual segment rule builder with AND logic, multiple operators, and live preview with 300ms debounce
- Engineered Prisma v7 dual adapter pattern (SQLite locally, Turso LibSQL in production) with Zod-validated API routes

*Tech Stack: Next.js 16, TypeScript, Tailwind CSS, ShadCN UI, Prisma, Turso/LibSQL, Zod, Recharts*

### AI Video Generation Agent — End-to-End Content Automation | [GitHub](#) | [YouTube Demo](#)

- Built AI pipeline that generates complete motion graphics videos from text prompts: script to storyboard to scenes to narration to rendered video
- Integrated Claude Code (Opus) as orchestrator with Remotion/React rendering engine and Gemini TTS for synchronized voiceover
- Produced 4-minute 1080p explainer video with spring physics animations and 3D card transformations
- Demonstrated spec-driven development methodology with four-phase workflow: Spec, Design, Generate, Review

*Tech Stack: TypeScript, React, Remotion, Claude Code (Opus), Gemini TTS, Spring Physics, Lucide React*

## AI-Powered Todo Application (8-Phase Cloud-Native Evolution) | [GitHub](#) | [Live](#)

- Evolved application across 8 phases: Console App to Full-Stack to AI Chatbot to Kubernetes to Kafka Events to Dapr Microservices to OCI Cloud
- Integrated AI chatbot using Groq API for natural language task management with conversation history
- Deployed production system on OCI OKE with Helm charts, NGINX Ingress, Dapr sidecar injection, and free-tier optimization
- Documented 11+ Architecture Decision Records (ADRs) following spec-driven development methodology

*Tech Stack: Next.js, FastAPI, SQLAlchemy, Groq API, Docker, Kubernetes, Helm 3, Dapr, Apache Kafka, OCI OKE, Neon PostgreSQL*

## Physical AI & Humanoid Robotics Interactive Textbook | [GitHub](#) | [Live](#)

- Built interactive textbook with RAG chatbot using OpenAI Agents SDK, FastAPI, Neon Postgres, and Qdrant Cloud
- Created 6-chapter curriculum covering ROS 2, Gazebo, NVIDIA Isaac, and VLA models with user authentication

*Tech Stack: Docusaurus, React, FastAPI, OpenAI Agents SDK, MCP SDK, Neon DB, Qdrant, Better Auth, Vercel*

## PROFESSIONAL EXPERIENCE

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### Quality Control Inspector & Electronics Technician (Retired) | Pakistan Air Force

*February 2000 – March 2023 (23 Years)*

- Led quality control inspection in Air Logistics and engineering depots ensuring adherence to military-grade standards
- Specialized in electronics and communication equipment maintenance across multiple operational units
- Managed cross-functional teams, HR development, and protocol liaison with foreign personnel

## EDUCATION & CERTIFICATIONS

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**Certified Agentic and Robotic AI Engineer** | PIAIC, Air University Islamabad | Expected 2026

**Master of Computer Science (CGPA: 3.11)** | Virtual University of Pakistan | 2012

**DAE Radio Technology (71%)** | School of Electronics, PAF Korangi Creek | 2003

- Artificial Intelligence and Computing Program — Presidential Initiative for AI and Computing (2023)
- PCAP: Programming Essentials in Python — Cisco Networking Academy / OpenEDG Python Institute (2022)
- Quality Control & Management Certification — Pakistan Air Force

## ADDITIONAL

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- Veteran: 23+ years of distinguished service in Pakistan Air Force
- Active Contributor: Building production AI agents and open-source projects on GitHub
- Operating Systems: Linux Ubuntu, Windows