

ALI KHALILI

Senior Python Backend Engineer | High-Performance Distributed Systems | AI/ML Infrastructure | DevOps & Automation

 Gorgan, Iran (Remote/Relocation)

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PROFESSIONAL SUMMARY

Result-oriented Senior Backend Engineer with **6.5+ years** of experience architecting high-concurrency distributed systems, AI/ML pipelines, and scalable infrastructure. Expert in **Python** (FastAPI, AsyncIO, Flask), **RAG systems**, **LLM integration**, **Telegram bot ecosystems**, and **real-time monitoring solutions**. Proven track record delivering production systems achieving **~500-800 RPS**, **~50-100ms response times**, and **99.5%+ uptime** serving **400K+ registered users**. Specialized in blockchain payment gateways (Tron Network), multi-tenant VPN platforms, and enterprise-grade automation systems.

KEY ACHIEVEMENTS

400K+

Users Served

~500-800

Requests/Second

~50-100ms

Avg Response

99.5%+

System Uptime

80%

Setup Reduction

18+

Production Systems

TECHNICAL SKILLS

Languages	Python (Expert), Bash, JavaScript, Lua, SQL
Frameworks	FastAPI, Flask, AsyncIO, Aiogram 3.x, Pyrogram, Telethon, pyTelegramBotAPI, Pydantic v2, SQLAlchemy 2.0, Typer CLI
AI/ML & NLP	LangChain, OpenAI API, HuggingFace, RAG Systems, FAISS, ChromaDB, Qdrant, Weaviate, Sentence Transformers, Edge TTS, Speechmatics STT
Databases	Redis 7 (Clustering, Pub/Sub, Pipelines), PostgreSQL (Asyncpg), MongoDB 7, MySQL, SQLite, Vector DBs
DevOps	Docker, Kubernetes, Nginx, Prometheus, Grafana, Loki, CI/CD, Let's Encrypt, Certbot, tmux, Supervisor
Networking	VLESS, VMess, Trojan, WireGuard, Hysteria2, TUIC, SingBox, X-UI, Marzban, S-UI Panel Integration
Security	Argon2id, JWT, CSRF, Rate Limiting, RBAC, SSL/TLS, Input Validation, Audit Logging, KYC Systems
Scraping	Selenium, Playwright, BeautifulSoup, lxml, Anti-bot Bypass, Browser Fingerprinting, Cloudflare Bypass
Blockchain	Tron Network (TRX/USDT), tronpy, Non-custodial Wallets, Payment Gateway Integration
Media Processing	FFmpeg, yt-dlp, Edge TTS, gTTS, Piper TTS, Google Vision OCR, Tesseract

PROFESSIONAL EXPERIENCE

Senior Python Engineer & System Architect

March 2019 – Present

Independent Consultant | Remote

Enterprise VPN Management Platform (Namayandegi)

Engineered enterprise-grade multi-tenant VPN platform with automated provisioning for thousands of clients across multiple panels. Built metric collection pipelines using Redis multi-DB architecture for real-time traffic monitoring. Implemented multi-panel integration (X-UI, Marzban, S-UI, WireGuard-Go) with unified REST API interface. Designed multi-layer security with Argon2id (256MB memory cost), CSRF protection, distributed rate limiting, and RBAC. Built Flask-based subscription server with SingBox configuration generation and automatic SSL provisioning.

Performance: ~50-100ms avg response | ~500-800 RPS | 99.5%+ uptime | Multi-protocol support (VLESS, VMess, Trojan, WireGuard, Hysteria2)

Tech: FastAPI, Python 3.11+, Redis 7, MongoDB 7, Pyrogram, Flask, Nginx, Docker, Prometheus, Grafana, Google Vision OCR

Anonymous Messenger Platform (400K+ Users)

Architected distributed messaging system serving over 400,000 registered users with low-latency message delivery. Implemented layered async architecture (Controllers → Services → Repositories) with dependency injection. Built comprehensive health check APIs, Prometheus metrics, structured JSON logging, and audit trails. Developed RBAC, configurable rate limiting, anti-abuse systems, media locks, and 6-language internationalization. Designed webhook-based scaling with admin dashboards and real-time analytics.

Tech: Python 3.11+, Aiogram 3.4, FastAPI 0.109, PostgreSQL 14+, Redis 7+, SQLAlchemy 2.0, Nginx

RAG Telegram Assistant (AI/ML Production System)

Built production-ready Retrieval-Augmented Generation system with multi-provider LLM support (OpenAI, Anthropic, Ollama, HuggingFace). Implemented 4 vector databases (FAISS, Chroma, Qdrant, Weaviate) with migration tools and performance benchmarking. Developed advanced chunking strategies (Token, Semantic, Hierarchical, Adaptive) with hybrid search, reranking, and query expansion. Built multi-format document processing (PDF, DOCX, URL, TXT) with OCR support and Persian/English language detection. Implemented encryption, plugin system, analytics, and multi-tenant support with 82% test coverage.

Tech: Python, LangChain, FastAPI, FAISS/Chroma/Qdrant/Weaviate, OpenAI API, HuggingFace, Sentence Transformers, Redis, Docker

Telegram Engagement Automation Platform (SeenPanel)

Built high-performance distributed system for automating Telegram engagement operations with thousands of concurrent sessions. Implemented dynamic thread allocation (5-90 threads based on volume), intelligent rate limiting with FloodWait handling, and proxy rotation. Designed REST API for order management with multi-provider integration, auto-failover, and real-time statistics. Built session health monitoring with automatic quarantine, recovery mechanisms, and 1:1 proxy-session mapping. Supported 40+ emoji reactions, story views, poll voting, and referral automation for mini-apps (Blum, PAWS, Seed, etc.).

Tech: Python, Telethon, Pyrogram, Redis, Flask, tmux, Multi-threaded Architecture, Process Isolation

TronPY Cryptocurrency Payment Bot

Developed production-ready Telegram bot for automated TRON (TRX) cryptocurrency purchases with integrated Iranian payment gateway (Zibal). Implemented multi-tier KYC verification system (Level 0/1/2) with phone validation, document verification, and Zibal Facility API integration. Built real-time TRX/IRR price scraping, automated blockchain transfers via tronpy, and secure wallet management. Designed Redis-backed state machine for conversation flow, Flask webhook server for payment callbacks, and comprehensive admin panel.

Tech: Python, pyTelegramBotAPI, tronpy, Flask, Redis, BeautifulSoup, Zibal API, Multi-threaded Architecture

ADDITIONAL PRODUCTION PROJECTS

TTSKit - Multi-Engine Text-to-Speech Toolkit

Built production-ready TTS toolkit with multi-engine support (Google TTS, Microsoft Edge TTS, Piper offline). Implemented multi-framework Telegram bot adapters (aiogram, pyrogram, telethon, telebot), FastAPI REST endpoints, and CLI tools. Features smart caching, rate limiting, Persian language prioritization with fa-IR-DilaraNeural voice, and automatic language detection. **2,414 tests with 87% coverage.**

Tech: Python, FastAPI, Edge TTS, gTTS, Piper, Redis, SQLAlchemy, Docker, FFmpeg, Typer CLI

NginxSSLAuto - Automated SSL Certificate Management

Engineered Python automation tool for SSL certificate management with Let's Encrypt/Certbot integration. Implemented automated Nginx site configuration, certificate acquisition/renewal, and HTTPS reverse proxy setup. Features CLI interface, Python API, and environment-driven configuration.

Tech: Python, Nginx, Certbot, Let's Encrypt, OpenSSL, Systemctl Integration

RedisMongoBackup - Database Backup CLI Utility

Developed lightweight CLI tool for Redis and MongoDB backup/restore operations. Implemented pattern-based Redis key selection with native Python handling, MongoDB operations via mongodump/mongorestore wrappers. Features environment-driven configuration with CLI flag overrides.

Tech: Python, Redis, MongoDB Database Tools, CLI Architecture

University News Aggregator & Telegram Bot

Built intelligent news aggregation system monitoring 4 Iranian university news portals (ISCA, Mehr, ANA, IAU). Implemented Redis-backed deduplication with TTL expiration, token rotation for Telegram API load distribution, and multi-channel broadcasting. Features URL normalization, anti-flood protection, and 24/7 operation with robust error handling.

Tech: Python, Redis, BeautifulSoup, lxml, pyTelegramBotAPI, Requests

RespectBot - Enterprise Telegram Group Management

Architected enterprise-grade group management platform with 5-tier admin hierarchy (Sudo/Owner+/Owner/Manager/VIP). Implemented anti-betrayal detection system with configurable thresholds, real-time event monitoring via dedicated threads, and comprehensive statistics. Features bio/account verification, join request management, and dual-bot architecture for load distribution.

Tech: Python, Pyrogram MTProto, Redis (DB 6), Multi-threaded Architecture, Observer Pattern

Self Telegram Bot - Advanced Userbot Platform

Developed production-grade Pyrogram userbot with intelligent message archiving, deleted message recovery (SQLite-backed with 30-day retention), and TTL media preservation. Implemented profile change monitoring, dynamic bio management with Tehran timezone, and multi-platform media downloading (YouTube, TikTok, Twitter, Instagram, Spotify). Features dual-engine STT (Speechmatics + Google fallback) and Edge TTS with Persian neural voice.

Tech: Python, Pyrogram, Redis (DB 7), SQLite, Speechmatics API, Edge TTS, yt-dlp, FFmpeg

Quote Management System (Multi-Bot Architecture)

Built sophisticated quote management ecosystem with three interconnected Telegram bots: Moderator, User Messenger, and Auto Sender. Implemented AI-powered Persian translation using GPT-4 with emoji enhancement and customizable prompts. Designed gamification system with user scoring, ranking tiers (Wooden/Silver/Golden Pen), and monthly leaderboards. Built automated content distribution with flexible scheduling, category rotation, and anti-spam mechanisms.

Tech: Python, Pyrogram, Redis, OpenAI GPT-4, JSON File Storage, Scheduled Tasks

V2Ray Configuration Management System (SampleWeb)

Developed Flask-based web application for instant access to updated V2Ray configurations with modern responsive interface. Implemented real-time configuration fetching from remote APIs with performance metrics (ping times, server locations). Built multi-language support (English/Persian), dark/light mode toggle, and Telegram Web App integration. Designed Redis-backed caching, CORS support, and SSL-ready deployment with Nginx reverse proxy.

Tech: Flask, Redis, JavaScript ES6+, CSS3, Telegram Web App API, Nginx

University Dormitory Reservation System (IauBot)

Built production-grade reservation system for university dormitory management with Redis state management. Implemented Excel import/export for bulk operations, multi-level admin controls, and automated notifications. Designed user verification workflow, room allocation algorithms, and comprehensive reporting dashboard.

Tech: Python, Aiogram, Redis, Excel Processing, Multi-level RBAC

Gaming Account Marketplace (COD Platform)

Developed complete trading platform for gaming accounts with ZarinPal payment integration. Built multi-level admin system with fraud prevention, order tracking, and automated delivery. Implemented user verification, escrow system, and dispute resolution workflow.

Tech: Python, Telegram Bot API, Redis, ZarinPal API, PostgreSQL

Lottery & Referral System

Built Telegram lottery bot with multi-level referral tracking, automated prize distribution, and anti-fraud mechanisms. Implemented fair random selection algorithms, participant verification, and comprehensive analytics.

Tech: Python, Aiogram, Redis, Referral Tracking, Analytics

Multi-Service AI Bot (PadaBot)

Developed AI-powered Telegram bot with GPT integration, OCR (Google Vision/Tesseract), TTS (multiple engines), and media downloading (Instagram, Spotify, SoundCloud, YouTube). Built modular architecture with plugin system.

Tech: Python, OpenAI API, Google Vision, Tesseract OCR, TTS Engines, Media APIs

INFRASTRUCTURE & DEVOPS ACHIEVEMENTS

- Server Automation:** Reduced infrastructure setup time by 80% via Hetzner API automation, zero-touch SSL provisioning, and automated Nginx deployment
- Monitoring Stack:** Implemented Prometheus + Grafana + Loki with custom dashboards, real-time alerting, and Telegram notifications
- Server Watchdog:** Built real-time CPU/RAM monitoring, auto-kill heavy processes, scheduled backups, and disaster recovery tools
- IranConcert Ticket Scanner:** High-speed Playwright-based ticket automation bypassing anti-bot protections with millisecond-level reservations
- Distributed Backup Systems:** Created reliable disaster recovery tools for Redis/MongoDB with encryption and automated restoration

EDUCATION

B.Sc. Psychology (In Progress)

Islamic Azad University, Gorgan | Expected 2029

Focus: Cognitive Science & Human-Computer Interaction

A.Sc. Computer Engineering

Islamic Azad University, Gorgan | 2019 – 2024

LANGUAGES & AVAILABILITY

Persian: Native | **English:** Professional Working Proficiency (Technical & Conversational) | **Availability:** Ready for immediate start (Full-time Remote or Relocation)