

HILAL ALPAK

AI/ML Engineer | MLOps & LLMOps

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PROFESSIONAL SUMMARY

AI/ML Engineer with a healthcare background, building production-oriented agentic AI, RAG, MLOps and LLMOps systems. Experienced in multi-agent orchestration, model evaluation, observability, API development and cloud-native deployment with LangGraph, LangChain, Qdrant, LiteLLM, FastAPI, Docker, Kubernetes and Terraform.

TECHNICAL SKILLS

AI & LLMops: Agentic AI, Multi-Agent Systems, LangGraph, LangChain, Advanced RAG, Hybrid Retrieval, Reranking, LiteLLM, Langfuse, OpenTelemetry, Prompt Versioning, Ragas, DeepEval, Qdrant, ChromaDB, FAISS, Ollama, Groq
ML & Data Science: TensorFlow, PyTorch, Scikit-learn, XGBoost, LightGBM, CNN, RNN, LSTM, Physics-Informed LSTM, ResNet, YOLO, Time Series, Survival Analysis, Recommendation Systems, Clustering, A/B Testing, Customer Segmentation, Sentiment Analysis
MLOps & Cloud: MLflow, Docker, Kubernetes, GKE, Terraform, Jenkins CI/CD, Prometheus, Grafana, Alertmanager, PostgreSQL, SQLite, MinIO, S3, Nginx, Distributed Systems, Cloud Architecture, Infrastructure as Code
Programming & Data: Python, Rust, SQL, Bash, FastAPI, REST APIs, Pydantic, Git, Polars, Pandas, NumPy, ETL, Feature Engineering, Code Optimization, MATLAB, Plotly, Streamlit, Web Scraping, BeautifulSoup

WORK EXPERIENCE

- AI/ML Engineer** | Kairu | Project-based 2026 - Present
- Design and develop multi-agent systems and end-to-end LLM applications for client use cases.
 - Establish and manage LLMops pipelines; monitor deployed AI systems and support production reliability.
- Independent Data Scientist** | Upwork | Freelance 2024 - Present
- Deliver ML solutions for healthcare, biomedical, sports science, financial and market forecasting applications.
 - Build signal-processing and end-to-end analytics workflows with Python, TensorFlow, PyTorch and MATLAB, covering feature engineering, model training, evaluation and deployment.
- Data Science Mentor Assistant** | Miuul 2024 - 2025
- Supported Data Science and Machine Learning bootcamps, mentoring learners on MLOps fundamentals, production ML workflows, project reviews, model evaluation and best practices.
- Machine Learning Mentor Assistant** | Turkishe Network 2024 (Summer)
- Mentored women entering machine learning and data science careers, guiding participants through project planning and technical development.
- Physical Therapist, Owner** | Zenfiz Clinic 2021 - 2025
- Managed an independent healthcare business and applied analytical, patient-centered and data-driven approaches to clinical process optimization.

PROJECTS

- CairnOps - Agentic Expedition Planning Platform** | [GitHub](#) 2025 - Present
- Architected a LangGraph-based multi-agent platform for route analysis, weather forecasting, equipment planning, risk assessment and itinerary generation, combining deterministic safety scoring, LLM reasoning and RAG with Qdrant, LangChain and mountaineering knowledge bases.
 - Built Langfuse, Ragas and DeepEval observability and evaluation workflows; implemented service fallbacks, LiteLLM routing from Groq to Ollama, unified OpenTelemetry tracing, and deployed the API, UI and LLM proxy on GKE with Kubernetes and Terraform.
- Stack:** Python, LangGraph, LangChain, LiteLLM, Ollama, Groq, Qdrant, Langfuse, Ragas, DeepEval, FastAPI, Docker, Kubernetes, Terraform, GKE

PROJECTS (CONTINUED)

LinguaGate - AI-Driven Growth & Outreach Automation GitHub	2-Day Case Study
• Built an end-to-end HR lead enrichment and outreach prototype covering intake, enrichment, scoring, routing, content generation and CRM tracking through a LangGraph-based multi-agent workflow. • Integrated FastAPI, Ollama, MLflow, Langfuse and Streamlit; documented limitations and future improvements for automation, sending integrations, logging and monitoring. Stack: Python, FastAPI, LangGraph, LangChain, Ollama, Pydantic, SQLite, PostgreSQL, MLflow, Langfuse, Streamlit, Docker	
OrbitDecay MLOps Platform GitHub	2024 - Present
• Designed an eight-phase, checkpoint-based MLOps architecture orchestrating 15 microservices; built a Rust and Polars acceleration layer for CPU-intensive orbital calculations and Physics-Informed LSTM forecasting services exposed through FastAPI. • Implemented CI/CD and monitoring with Jenkins, MLflow, Prometheus and Grafana; authored a Medium article on scaling Python pipelines with Rust and Polars. Stack: Python, Rust, Polars, TensorFlow, FastAPI, Docker, Jenkins, MLflow, Prometheus, Grafana, PostgreSQL, MinIO	
Therapy Tunes - Emotion-Aware Music Recommender GitHub	
• Developed a mood-based music recommendation system using XGBoost, Random Forest, LightGBM, clustering, sentiment analysis and web scraping; deployed an interactive Streamlit dashboard. Stack: Python, Pandas, Scikit-learn, BeautifulSoup, Streamlit	

EDUCATION

Data Analysis & AI Specialization Council of Higher Education	2025 - 2026
Data Scientist & Machine Learning Bootcamp Miuul - 5-Month Project-Based Program	2024
B.Sc., Physiotherapy and Rehabilitation Mugla Sitki Kocman University	2015 - 2019

CERTIFICATIONS

Generative AI & Prompt Engineer - Miuul MLOps VideoCamp - VBO Deep Learning Specialization - DeepLearning.AI Complete Docker Course - Udemy Data Science Specialization - IBM

LANGUAGES

English: Professional Proficiency Turkish: Native
