

ERAY KULKIZAGA

Software Engineer | Python Backend & AI Systems
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Software Engineer specializing in Python backend and AI systems. Builds production-oriented APIs and retrieval-augmented applications using FastAPI, PostgreSQL, Redis, Celery, Docker and LLM APIs. Experienced in real-time inference, computer vision and deploying measurable AI services.

SKILLS

Languages: Python, SQL, TypeScript

Backend: FastAPI, REST, WebSocket, Pydantic, SQLAlchemy, Alembic

Data & Async: PostgreSQL, pgvector, Redis, Celery

AI Systems: LLM APIs, RAG, ONNX Runtime, OpenCV, TensorFlow

Testing & DevOps: pytest, Ruff, Pyright, Docker, GitHub Actions

EDUCATION

Eastern Mediterranean University | EMU — Famagusta, Northern Cyprus

Sep 2021 – Jun 2026

B.Sc. in Software Engineering

- ABET-accredited & 100% English-taught Program | 2 Times Dean's High Honor List
- Relevant Coursework: Data Structures & Algorithms, Database Management Systems, Data Science, Linear Algebra, Artificial Intelligence

SELECTED PROJECTS

SupportFlow AI | Multi-Tenant AI Customer Support Platform | [GitHub](#)

July 2026 – Present

Tech: Python, FastAPI, PostgreSQL, Redis, Celery, SQLAlchemy, Alembic, Docker, pytest, GitHub Actions, LLM APIs, RAG, pgvector

- Co-developing a modular-monolith B2B support platform designed to classify customer tickets and generate human-reviewed, citation-backed response suggestions from tenant-specific product documentation.
- Built the local development and CI foundation using Docker Compose, PostgreSQL, Redis, Celery, pytest, Ruff, Pyright, and GitHub Actions, including application health checks and reproducible environment setup.
- Implemented tenant-scoped ticket and message models, SQLAlchemy repositories, Alembic migrations, REST endpoints, status-transition rules, filtering, and pagination; currently contributing to authorization tests, audit logging, and the first agent-facing interface.

SignTurk | Real-Time Turkish Sign Language Recognition System | [GitHub](#)

Nov 2025 – Jun 2026

Tech: Python, FastAPI, WebSocket, TensorFlow/Keras, MediaPipe, RTMW/RTMPose, PostgreSQL, SQLAlchemy, React, Three.js, OpenCV

- Owned model design, training, and evaluation for an AUTSL-based recognition pipeline, processing 35,000+ videos across 226 isolated Turkish Sign Language classes.
- Developed two recognition tracks: a 226-class RTMW/RTMPose multi-stream research ensemble reaching 94.17% Top-1 accuracy offline, and a 179-class MediaPipe/BiLSTM model selected for the real-time product pipeline, reaching 85.65% Top-1 and 95.59% Top-5.
- Co-developed an authenticated FastAPI/WebSocket platform supporting live camera ingestion, per-session sequence buffering, confidence-ranked predictions, user approval, PostgreSQL-backed history, and Turkish sentence assembly with optional speech output.
- Integrated Three.js avatar playback using landmark and BVH motion assets; the project received Eastern Mediterranean University's Outstanding Graduation Project recognition.

PROFESSIONAL EXPERIENCE

FlyRank.ai | Backend AI Engineer Intern

July 2026 – Aug 2026 (Ongoing)

- Currently completing an Backend AI Engineering internship focused on automation, data-intensive applications, agent workflows, documentation, and token/cost-aware AI system design.
- Built and documented production-oriented backend systems spanning REST/CRUD APIs, database integration, Docker, authentication, AI API integration, background jobs, responsible scraping, and PDF report generation.
- Applied AI fluency practices to prompt engineering, workflow automation, agent development, evaluation, security hardening, capstone delivery, and technical case-study communication.

Microsoft Türkiye | AI Innovators Summer Internship

Jun 2026 – July 2026

- Completed a mentorship-based Microsoft Türkiye summer program and developed QueryPilot Local, an offline PostgreSQL query-plan assistant powered by Microsoft Foundry Local.
- Built a local RAG pipeline combining structured EXPLAIN JSON analysis, on-device embeddings, semantic retrieval, and citation-grounded generation to produce evidence-backed database performance recommendations.
- Evaluated the system across 12 curated query-plan scenarios, documented its architecture and limitations, published the implementation on GitHub, and delivered a final technical presentation.

Iskur Holding | Enterprise Data Software Engineering Intern

Jun 2024 – Aug 2024

- Optimized SQL-based enterprise data retrieval workflows using SAP Open SQL joins, reducing processing time by 41%.
- Developed backend validation and automation logic for contract, barcode, inventory, and operational cost workflows.
- Implemented transactional logging and structured audit trails to improve system monitoring, reporting, and traceability.

LANGUAGES

English | C2 (CEFR) | EF SET 4-Skill Certificate, 71/100 | [Verify Certificate](#)

Turkish | Native