Fatih Ayıbasan

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About me

Final-year Computer Engineering student who thinks in systems — from edge inference pipelines to backend architectures. Never waited for an internship to build real things: led a UAV team, shipped end-to-end AI projects, learned by doing. Looking for my first professional experience where I can contribute from day one.

Education

Ataturk University Erzurum, Türkiye

Bachelor's Degree in Computer Engineering *Aug 2022 – jun 2026*

Experience

ATA-TEB Club / Combat UAV Competition May 2023 – Jan 2026

Team Lead / Captain

- System Integration: Led the system integration and technical roadmap for a 15+ member multidisciplinary team, orchestrating MAVLink-based hardware/software communication for the TEKNOFEST Combat UAV finals.
- Edge AI Performance: Optimized YOLOv8 models via TensorRT on NVIDIA Jetson Orin NX, achieving stable 45 FPS for autonomous aerial target acquisition.
- Communications: Architected a high-throughput framework to minimize end-to-end latency for real-time telemetry and HD video streaming.
- Software Engineering: Developed a C#/.NET Ground Control Station (GCS) with autonomous fail-safe protocols, reducing manual pilot intervention during mission phases.

SUAS Project Laboratory May 2023 – July 2024

Lead Software Engineer

- International Coordination: Directed software efforts for the AUVSI SUAS (USA) competition, delivering technical documentation and autonomous cargo delivery algorithms under international competition standards.
- Deployment: Scaled object detection pipelines across Jetson Nano and Raspberry Pi, maintaining 25-30 FPS through custom computer vision bottlenecks.
- Validation: Validated Gazebo navigation and automated high-res geospatial mapping via OpenDroneMap (ODM).

Projects

PathFinder-Ship | *Hybrid RAG, ONNX-INT8, Multimodal, YOLO, Intent Routing* Sep 2025 – Dec 2025

- Architected a local-first multimodal AI assistant with intent-routed architecture: MiniLM classifier routes requests to chat, hybrid RAG retrieval, web search gating, camera control, or YOLO-NAS object detection
- Deployed 783M-parameter Flan-T5 via ONNX INT8 quantization for CPU-only inference, achieving practical response times without cloud dependency or GPU hardware
- Integrated hybrid retrieval combining ChromaDB vector search with SQLite FTS5/BM25 scoring for document QA with confidence-gated web augmentation.

API Change Radar | *PostgreSQL, OpenTelemetry, FastAPI, Docker, Pydantic* Jan 2026 – Current

- Architected a deterministic OpenAPI schema comparison engine using Python 3.12 and FastAPI, enabling automated detection and severity-based classification (breaking, non-breaking, silent) of API changes with robust PostgreSQL database persistence via SQLAlchemy
- Engineered a production-ready observability architecture by integrating OpenTelemetry tracing, Prometheus metrics, structured JSON logging, and correlation ID propagation, achieving comprehensive request traceability and proactive performance profiling
- Designed a fully automated CI/CD pipeline using GitHub Actions for seamless test automation (Pytest), linting (Ruff), and multi-stage Docker containerization, streamlining deployment with multi-environment Docker Compose configurations.

Adaptive Edge-Inference Controller | *Edge AI, Thermal/Power Optimization, Controller* Dec 2025 – Current

- Engineered an adaptive, closed-loop thermal controller for real-time YOLO object detection on NVIDIA Jetson edge AI devices, proactively preventing thermal throttling, frame drops, and hardware freezes under heavy workloads.
- Implemented intelligent decision-making and predictive control systems by combining a First-Order Plus Dead-Time (FOPDT) model for near-future temperature estimation with a Fuzzy Logic controller to dynamically scale image resolution and frame-skipping rates.
- Validated system robustness through 130-minute continuous testing and multi-threaded telemetry logging (GPU/CPU load, temperature, and FPS), proving the controller's stability and ability to maintain hardware safely below critical thermal thresholds.

Technical Skills

Languages: Python, C++ (PyBind11), SQL (Postgres), TypeScript, Bash
AI & Edge Engineering: LangGraph (Stateful Agents), Hybrid RAG (ChromaDB), YOLO, TensorRT, ONNX Runtime, Fuzzy Logic, ANFIS
Backend & Cloud: FastAPI (Pydantic, Dependency Injection), Docker (Multi-stage builds), Redis, Celery, Git, Linux
Libraries & Tools: PyTorch, OpenCV, NumPy, pandas, SQLite FTS5, MAVLink