Kutluhan Aygüzel

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EXPERIENCE

AI Engineer
SemperTech

Sep. 2025 – Present
Istanbul, Turkey

- Architected a scalable Agentic AI ecosystem for Homewhiz IoT, handling 3000+ concurrent users with sub-task decomposition and 5–20s response times
- Engineered a RAG system with 90% retrieval accuracy, cutting hallucinations from 15% to 6% through advanced context engineering and API integration.
- Optimized on-premise LLMs via quantization, achieving a 20% latency reduction while maintaining high-quality tool-use performance.

AI/ML Engineer Intern
German Turkish Research Center

July 2024 – Sep. 2024
Berlin, Germany

- Developed a text-to-video pipeline integrating open-source TTS with SadTalker, achieving 512x512 resolution and a 7.29 SyncNet Confidence Score.
- Optimized inference workflows to achieve a -2.8 second generation latency.
- Built an autonomous AI Tutor using GPT models, enhancing reasoning and coherence by 35% while reducing human mentorship dependency.

Learning Assistant
Sabanci University

Feb. 2023 – July 2023
Istanbul, Turkey

- Mentored 250+ undergraduate students in C++ fundamentals, specifically handling concepts like Pointers, Memory Management, and Recursion resulting in 70% of the students scored 90+ out of 100 on recitation quizzes.

Software R&D Assistant
Sabanci University

Feb. 2021 – July 2021
Istanbul, Turkey

- Engineered a cross-platform Python-Arduino system utilizing Bluetooth protocol to synchronize real-world LED stimuli with VR environments for comparative behavioral analysis.

EDUCATION

Sabanci University
B.Sc in Computer Science and Engineering

Istanbul, Turkiye
October 2020 – June 2025

PROJECTS

AI-Driven Algorithmic Trading Ecosystem Graduation Project
Sep. 2024 – June 2025

- Developed a BIST30 trading bot using feedforward neural networks, achieving 65.4% simulated profit and 52.8% directional accuracy on 10-year historical data.
- Engineered a sentiment-enhanced model by fusing FinBERT-based NLP data with technical indicators (RSI, MACD) to optimize signal precision.
- Integrated Denizbank Algolab API for live order execution, supported by a Dockerized Flask backend and a React.js real-time dashboard.
- Optimized system architecture with RESTful APIs to ensure low-latency communication between the inference engine and the UI.

Cloud Computing Distributed Systems Project
Feb. 2025 – June 2025

- Designed a GCP-based architecture supporting 1,000+ concurrent users through Kubernetes autoscaling and Layer 4/7 load balancing.
- Implemented low-level distributed communication using TCP/UDP socket programming and RPC mechanisms.
- Orchestrated containerized environments with Docker to achieve OS-level isolation and minimize inference latency.

EXTRA-CURRICULAR ACTIVITIES

Head of Sponsorship & Author, kAi NVIDIA Branch: Led a team of 6 to secure 50,000+ TL from partners including NVIDIA and authored weekly AI/ML newsletters for the community.

Volunteer, Civic Involvement Project: Published climate change awareness content on university platforms to drive social engagement.

Active Member, Economy and Management Club: Coordinated event logistics and sponsorship outreach to optimize resource allocation.