

# Tugrul KOK

SOFTWARE ENGINEER

Arnhem, Netherlands (Available to Relocate)

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## Skills

Python, PyTorch, TensorFlow/Keras, LLM Fine-tuning, RAG (LangChain, ChromaDB), Generative AI, Prompt Engineering, MLOps (MLflow, Ragas, CI/CD), Model Optimization, FastAPI, AWS(EC2, S3, Lambda), GitHub Actions, Docker, Nginx, REST APIs, STL, Memory Management, Multi-threading, Lock-free Programming, Assembly, Network Programming, TCP/UDP, Latency Optimization, Bash, SQL, Kafka, Embedded C/C++, STM32 (U5/F4), Arm Cortex-M, FreeRTOS, ThreadX, UART/SPI/I2C, Cellular IoT (BG96), Real-Time Systems, Debugging, DSP, Wireless Comm., Time-Series Analysis, C++, ROS, PX4, Gazebo, UAV Autonomy, Computer Vision, Pandas/NumPy, Feature Engineering, Anomaly Detection, Predictive Modeling, Matplotlib, Git/GitHub, Bitbucket, Jira, Linux, MATLAB/Simulink.

## Work Experience

### Madlen

Remote / Istanbul, Turkey

AI RESEARCHER & DEVELOPER

Jul. 2025 - Present

- Built production-ready GenAI tools, including a highly adopted **text-to-video generator** (whiteboard-style), deployed via **AWS (EC2, S3, Lambda)**.
- Developed a **Mathematical Animation Tool** by fine-tuning **Code Llama 13B** on Kaggle and created an interactive **voice-based avatar** enabling AI-driven conversations for early education.
- Collaborated with back-end teams on scalable deployment and integration using **Python, PyTorch, FastAPI**, and model optimization techniques, ensuring Madlen's AI systems run efficiently across languages, devices, and real-world classroom use cases.

### AMEAN Digital Consultancy

Remote / Antalya, Turkey

AI ENGINEER

Dec. 2024 - Jul. 2025

- Delivered end-to-end AI solutions as a **freelance AI engineer**, including LLM-powered **commerce chatbots**, CRM-integrated workflows, and task-oriented **AI agents** for automated customer interactions.
- Developed **RAG-based** conversational systems and production-ready **AI agents**, implementing scalable **AWS/Docker/FastAPI** pipelines and optimizing inference with **Python, LangChain**, and LLM fine-tuning workflows.

## Internship & Volunteering Experience

### Kaira Engineering

Milan, Italy

EMBEDDED IOT ENGINEER INTERN

Jun. 2024 - Sep. 2024

- Developed a cellular IoT device on **STM32U5 (Arm Cortex-M33)** using **C, FreeRTOS/ThreadX** and BG96 modem, covering firmware design, connectivity and real-time operation. Led debugging and software design in a team using **Git, Bitbucket** and **Jira**, improving stability and development speed for embedded systems.

### BSH Bosch & Siemens Home Appliances

Tekirdag, Turkey

PROJECT STUDENT

Oct. 2021 - Dec. 2021

- Analyzed power consumption anomalies on dishwasher production lines with the in-house **Power Management Tool**, revealing inefficiencies and optimization opportunities. Built and validated **predictive ML models** in **Python (PyTorch, Keras, Pandas)** for abnormal energy usage forecasting and automated visualization/reporting.

### ASELSAN

Ankara, Turkey

EMBEDDED SYSTEMS ENGINEERING INTERN

Aug. 2021 - Sep. 2021

- Implemented **signal processing** algorithms for wireless communication systems and optimized embedded software performance.
- Programmed **STM32F4 (Arm Cortex-M4)** in **C** for real-time sensor data acquisition and control, using **Python** for data analysis and validation.

### Turkcell

Istanbul, Turkey

NETWORK SECURITY INTERN

Jun. 2020 - Jul. 2020

- Worked on **network security** and **DDoS attack detection**, analyzing labeled traffic to uncover patterns and anomalies. Built **Python-based** data processing and **machine learning** pipelines (incl. **matrix profile analysis**) to improve detection accuracy and automation.

### Bogazici Airbenders UAV Team

Istanbul, Turkey

VOLUNTEER SOFTWARE TEAM MEMBER

Sep. 2020 - Sep. 2021

- Developed **C++** algorithms for UAV autonomy (path planning, CV-based object detection) and performed full-stack UAV simulation using **ROS, PX4**, and **Gazebo** on **Ubuntu**. Contributed to system integration, testing, and team training by mentoring members in **C++**, simulation workflows, and software development practices.

## Education

### Politecnico di Milano

Milan, Italy

MSC. IN TELECOMMUNICATION ENGINEERING

Sep. 2022 - Dec. 2024

- Grade: 89/110
- University Ranking: 21st worldwide in Engineering & Technology (QS 2025).

### Bogazici University

Istanbul, Turkey

BSC. IN ELECTRICAL & ELECTRONICS ENGINEERING

Sep. 2018 - Jul. 2022

- Grade: 3.16/4 Honor Degree
- Entered as **58th** ranked student in Nationwide University Entrance **Exam** among **2 million** students.

## Extracurricular Activity

Participated in the **Hope to CO2 - Empowering a Sustainable Future** program at Karlsruhe Institute of Technology, completing a workshop on sustainability and contributing to a campus energy-efficiency project. Active member of **Enso (Engineering Society)** and **BEST**, organizing international student events including iCAMES '19 with participants from 12 countries and Summer Course '19 with attendees from 14 countries. Outside academics, I enjoy strategic games such as **chess**, reading on technology and psychology, and outdoor activities including **swimming, trekking, and scuba diving** (licensed diver).