

# Sarp Algan

FULL-STACK AI DEVELOPER

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Locations: Milan, Italy · İstanbul, Türkiye

GitHub: [sarpalgan](#) · LinkedIn: [sarp-algan](#)

Portfolio: [sarpalgan.github.io/cv](https://sarpalgan.github.io/cv)

## PROFESSIONAL SUMMARY

Full-Stack AI Developer specializing in computer vision, real-time anomaly detection, and production-grade machine learning systems. Expert in deploying YOLO, TensorFlow, and OpenCV pipelines on NVIDIA Jetson edge devices, and building scalable React + Tailwind UIs with Supabase backends. Experienced with n8n automations, LLM integrations, RAG systems, prompt engineering, and end-to-end AI product delivery. Proven track record delivering full-stack applications across web, mobile, and edge platforms with Git-driven development practices.

## SKILLS

**Machine Learning & Data Science:** Python, TensorFlow, PyTorch, Scikit-learn, XGBoost, Pandas, NumPy, Jupyter | Model development (supervised/unsupervised/semi-supervised learning), training/validation/testing, deployment | Data pre-processing, statistical analysis, PCA, classification, regression, clustering

**Computer Vision:** YOLO (detection, segmentation, classification), OpenCV, TensorFlow | Real-time object detection, tracking, anomaly detection | Dataset creation, annotation, validation | Image preprocessing | Hardware selection (camera sensors, lenses, lighting for industrial applications) | Model optimization and fine-tuning

**AI Automation & LLMs:** n8n workflow orchestration, chatbot development | LLM integrations (OpenAI API), prompt engineering, embeddings | Retrieval-augmented generation (RAG), document classification | Automated report generation (PDF/DOCX), email automation

**Full-Stack Development:** React, TypeScript, JavaScript, Tailwind CSS | Frontend architecture, component systems, responsive UI/UX | Backend development (API design, authentication, CRUD operations) | Supabase (PostgreSQL, Auth, RLS, Edge Functions) | REST/WebSocket integrations | Full-stack web applications with AI model integration

**Edge AI & Hardware:** NVIDIA Jetson (setup, optimization, production deployment), Embedded Linux, CUDA | On-device inferencing, real-time low-latency pipelines | Model quantization, pruning, optimization for edge devices | Sensor calibration, GPU acceleration

**Tools & DevOps:** Git/GitHub (version control, workflows, code review), Docker, Linux/Bash, CI/CD pipelines | VSCode, Postman, Figma

## PROFESSIONAL EXPERIENCE

### Machine Learning Engineer — Egemen Yazılım

Istanbul, Türkiye

07/2022 – Present

- **Lead Times Prediction System (TÜBİTAK\*\* 1501 R&D Program – Finalized):** Developed ML models using Random Forest, SVM, and MLP with extensive data preprocessing (Z-score normalization, feature engineering) to optimize textile manufacturing lead times.
- **Fabric Defect Detection System (TÜBİTAK\*\* 1501 R&D Program – Application Stage):** Engineered end-to-end computer vision pipeline with YOLO/TensorFlow/OpenCV for real-time fabric anomaly detection; built dataset pipelines (collection, annotation, validation, augmentation); optimized and deployed models on NVIDIA Jetson devices for low-latency edge inference; selected camera, lens, and lighting hardware for industrial imaging.

\*\* TÜBİTAK: Turkish Scientific and Technological Research Council (industrial R&D funding agency).

### Machine Learning Engineer — PC CUBE

Rome, Italy — Remote

08/04/2024 – 16/02/2025

- Built a multilingual (Italian & English) RAG-based document chatbot microservice using BM25, transformer embeddings, vector databases, Apache Artemis, and LLMs.
- Developed zero-shot and few-shot document classification systems using RoBERTa and keyword-extraction techniques for multilingual document handling.
- Automated generation of JUnit tests, integration tests, and JavaDoc by integrating advanced LLM prompting techniques within CI/CD pipelines.
- Implemented a time-prediction model for project completion using XGBoost and deep learning techniques to support project managers and stakeholders.

## **Research and Development Engineer — Labomak Makine**

01/12/2021 – 30/06/2022

Istanbul, Türkiye

*Labomak CRM — B2B Quote Management Platform*

- Full-stack product development for a modern B2B quotation and CRM system designed for sales teams to generate company-branded proposals.
- **Tech Stack:** React, TypeScript, Vite, Tailwind CSS, Supabase (PostgreSQL, Auth, RLS, Storage), Capacitor, Electron, jsPDF, html2canvas.
- **Key contributions:** Architected frontend systems (component library, responsive UI, PDF proposal generation); built Supabase backend (Auth, RLS, real-time subscriptions, migrations); implemented RBAC and per-user data isolation; shipped Android and Windows builds via Capacitor and Electron; added drag-and-drop product selection, form persistence, and dark/light themes.
- **Demo available upon request.**

## **Quantum Machine Learning Researcher (Intern) — METU IVMER**

01/03/2021 – 31/12/2021

Ankara, Türkiye

- Led the Quantum Machine Learning research group.
- Delivered lectures on QML to junior researchers.
- Performed scientific research and contributed to academic publications.

## **Research Physicist (Intern) — Turkish Atomic Energy Authority**

01/11/2021 – 01/12/2021

Ankara, Türkiye

- Conducted research on particle accelerators and related experimental systems.

## **EDUCATION**

### **Master of Science in Artificial Intelligence for Science and Technology**

2023 – Present

University of Milano-Bicocca — Milan, Italy

### **Bachelor of Science in Physics**

2015 – 2021

Middle East Technical University (METU) — Ankara, Türkiye

Honor Student (GPA: 3.06 / 4.00) | Thesis: “Comparison of Classical and Quantum Support Vector Machines for Classification”

## **CERTIFICATIONS**

- Advanced Computer Vision with TensorFlow — Coursera
- Improving Deep Neural Networks: Hyperparameter Tuning & Optimization — Coursera
- Machine Learning (Andrew Ng) — Coursera
- Convolutional Neural Networks — Coursera
- Unsupervised Learning, Recommenders & Reinforcement Learning — Coursera
- The Ultimate MySQL Bootcamp — Udemy
- Python for Data Science and Machine Learning Bootcamp — Udemy
- Introduction to Linux — edX (Linux Foundation)
- Python Basics for Data Science — edX

## **PUBLICATIONS & PRESENTATIONS**

- “Comparison of Classical and Quantum Support Vector Machines for Classification” — Poster presentation at Turkish Physical Society 37th International Physics Congress.

Authors: Sarp Algan, Cenk Tüysüz, M. Bilge Demirköz | Institution: Middle East Technical University, Department of Physics — IVMER

## **LANGUAGES**

- English — C1
- Turkish — Native
- Italian — A1