

Volkan Doğan

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EDUCATION

M.S. in Cognitive Science

Middle East Technical University, 2023

Thesis Title: Deep learning classification of cognitive workload levels from EEG wavelet transform images

B.Sc. in Electrical - Electronics Engineering

Middle East Technical University, 2017

SKILLS

Technical Skills

- Neural networks, model optimization, and deployment
- Image processing and computer vision techniques

Programming Languages

- Python, C++, MATLAB

Frameworks & Libraries

- PyTorch, TensorFlow, Keras
- TensorRT, TVM, ONNX, RKNN
- OpenCV, NumPy

Development & Deployment

- Linux, Nvidia Jetson (GPU/TPU), Rockchip RKNN
- Model quantization, acceleration, and conversion for embedded and edge devices
- Optical design & camera calibration
- Radar image analysis
- Data pipeline automation

SUMMARY

Computer Vision Engineer with 8+ years of experience building real-time embedded systems using image processing and deep learning. Skilled in end-to-end development of AI models—from design and training to deployment and maintenance—across diverse hardware platforms. Focused on delivering optimized, resource-efficient solutions for industrial and consumer products.

WORK EXPERIENCE

Senior Computer Vision/Deep Learning Engineer

Rapsodo Sports (Singapore Baseball Team)

04/2021 - 07/2025 (Promoted to Senior in April 2023) Izmir/Turkey

- Led end-to-end deep learning pipeline development and maintenance for baseball/softball tracking, managing all aspects of data preprocessing, model training, and deployment.
- Achieved massive model size reduction (up to 95%) and inference latency reduction (up to 90%) for real-time object detection and semantic segmentation models by employing model quantization and utilizing custom, ultra-lightweight architectures.
- Spearheaded cross-platform model conversion and optimization for diverse embedded and edge devices, including Nvidia Jetson and Rockchip RKNN chips, requiring extensive custom layer changes for compatibility.
- Designed and implemented C++ system-level algorithms for core baseball parameter processing, including high-precision ball tracking, velocity calculation, hitting angles, curveball breaks, and algorithm-based device triggering.
- Enhanced 2D and 3D human pose estimation models for accurate pitching analysis, directly improving the precision and reliability of customer-facing performance metrics.
- Maintained and improved production models by performing continuous performance analysis on millions of monthly video inputs, identifying low-accuracy and non-working cases via customer feedback and data pipeline analysis.
- Contributed to multiple successful Proof-of-Concept (PoC) projects, demonstrating new deep learning advancements in performance tracking.
- Filed a US patent application as the primary contributor in Multi-Camera Synchronization and Human Pose Estimation, introducing innovative method to refine motion analysis and improve data synchronization.

Computer Vision Engineer

Arvento Mobile Systems

01/2020 - 03/2021 (1 year and 3 months)

Ankara/Turkey

- Researched and implemented core object detection and image segmentation algorithms for next-generation autonomous driving applications.
- Developed a low-latency video and text data streaming solution using GStreamer and MQTT on Nvidia Jetson platforms
- Collaborated with the embedded software team to design and implement device drivers for STM32 chips.

Volkan Doğan

Tools & Platforms

- Git, Cursor, LLM-based coding tools
- Jira, Confluence, Office tools

Soft Skills

- Creative problem-solving
- Fast learner
- Strong collaboration and teamwork

LANGUAGES

- Turkish (Native)
- English (Proficient)
- German (Beginner)

Embedded Systems/Computer Vision Engineer

ATARGET

07/2017 – 10/2019 (2 years and 4 months)

Ankara/Turkey

Project : Driver Drowsiness System

- Designed and deployed a real-time driver drowsiness detection system using facial landmark and eye gaze estimation, specifically optimized for Xilinx FPGA hardware.

Project : SoDarCAM

- Developed a highly accurate, real-time sound camera system that located sound sources by synchronizing video input with a digital MEMS microphone array.
- Designed the product's hardware using Altium Designer.
- Implemented the C++ beamforming algorithm (HLS) and programmed FPGA configurations in Verilog (RTL) using the Vivado software suite.

PATENTS

Multi-Camera Synchronization and Human Pose Estimation

- Assignee: RAPSODO PTE. LTD.
- Inventor: Volkan Doğan
- Publication No.: US 2025/0139794 A1
- Publication Date: May 1, 2025
- Status: Patent Pending (Published)
- Description: Introduced an innovative method to refine motion analysis and improve data synchronization accuracy across multi-camera systems.