








Gyokhan Kochmarla Software Engineer


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 02 Nov 2001

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 electricalgorithm

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 Bulgarian, Turkish - full working permission in Germany

 gkankocmarli

PROFESSIONAL EXPERIENCE

Jul 2023 – present
Istanbul, Turkey

Embedded & Firmware Software Engineer

Accenture Industry X 

- Engineered a framework for Microblaze architecture to enable OTA updates as a static-library Conan package using TFTP and RPC. Developed CI/CD pipelines.
- Designed architectural software for a high-performance Embedded Linux application, used gRPC protocol & shared memory for high data transmission.
- Implemented an R&D algorithm to remove aberrations in electron microscopy with Python, focusing on community standards and SOLID principles.
- Deployed AI LLM solutions with Ollama, and developed RAG chatbots with code and PDF reading capabilities and custom agents using LangChain and LLaMaIndex.
- Development of computer vision algorithm for Universal Robotics arm, utilizing OpenCV, and optimization of background using Video4Linux.

Technologies: Python, C++, CMake, Conan, Docker, gRPC, OpenCV, Embedded Linux, Systemd, Busybox, LangChain, Ollama

Oct 2023 – present
Istanbul, Turkey

Graduate Researcher (Part-Time)

Marmara University - Holographic Imaging Laboratory

- Research and development on state-of-the-art super-resolution models. Transfer learning on HAT, ESRGAN, and BasicSR models.
- Pre- and post-processing for video applications using FFmpeg.
- Strong focus on holographical imaging, and image enhancement on inline and off-axis holography.

Technologies: PyTorch, CNN, LaTeX, FFmpeg, OpenCV, Image Enhancement, Super-resolution, Hyper-parameter Tuning, Transfer Learning

Aug 2022 – May 2023
Istanbul, Turkey,
(Remote)

Embedded Software R&D Engineer

Sixfab Inc. 

- Led development of open-source TCP/IP layer in MicroPython, enabling cellular connectivity for RP2040 microcontrollers.
- Built hardware-in-loop test infrastructure with Raspberry Pi, automating GNSS/LTE/GSM performance evaluation for RP2040 & Quectel boards across 5 countries.
- Developed an eSIM provisioning tool for Sixfab Core, enabling OTA SIM management and leveraging smart-card technology, SGP22, and APDU protocol.

Technologies: Python, MicroPython, 4G/LTE/GPS, RP2040, Raspberry Pi, TCP/IP, HTTP, MQTT, CoAP, AT protocol

Aug 2022 – Sep 2022
Istanbul, Turkey

Image Processing and Computer Vision Intern

YongaTek Microelectronics [↗](#)

- Performed fine-tuning for the open-source vision models. Achieved 15 FPS with the YOLOv5 model.
- Developed a real-time image-processing algorithm for mass mirror production where the quality control was reduced to 2 minutes/sample.

Technologies: Python, OpenCV, YOLO, Transfer Learning

Apr 2022 – Aug 2022
Istanbul, Turkey,
(Remote)

Embedded Software Engineering Intern

Sixfab Inc. [↗](#)

- Introduced to cellular technologies using AT communication protocol, experienced TELIT and Quectel modems.
- Developed MQTT library using Pico C SDK with SIM 3G network registration.

Technologies: Python, C, Pico C SDK, UART, 3G

Apr 2020 – Oct 2021
Istanbul, Turkey

Undergraduate Student Researcher (Part-Time)

İstanbul University - Cerrahpaşa | Sustainable Energy Research Lab [↗](#)

- Management of governmentally funded projects spanning 6 and 12 months.
- Participated development of embedded systems, NodeJS back-end applications and mobile applications.

Technologies: Python, Raspberry Pi, ESP32, Arduino, OpenCV, Kivy, Cryptography, TCP/UDP, WebSockets, MongoDB, NodeJS

EDUCATION

Sep 2020 – Jul 2024
Istanbul, Turkey

BEng. Electrical & Electronics Engineering

Marmara University [↗](#)

- High-honours degree with 3.57/4.00 GPA.
- Bachelor's Thesis: Developing of a Performance Comparison Index for Image Super-Resolution Models [↗](#)
- Shallow CNN with Adaptive Histogram Equalization on COVID-19 Prediction [↗](#)
- 6-Band Multi-Effect Sound Equalizer [↗](#)
- Optogenetics: A Review Study on Biomedical Optics Technique [↗](#)

Sep 2021 – Jul 2022
Szczecin, Poland

Faculty of Electrical Engineering, Exchange Studies, 1-Year Period

West Pomeranian University of Technology in Szczecin [↗](#)

SKILLS

Embedded Linux Application Development • RP2040, ESP32, nRF91 • Zephyr RTOS •
Large Language Models • Computer Vision • Industrial IoT (LTE / BLE / WiFi / GPS) •
Python, Modern C++, MATLAB • SCRUM Methodology • Project Management & Client Relations

PUBLICATIONS

Aug 2024

Performance Comparison Index for Image Super-Resolution Models [↗](#)

Springer Nature - Signal, Image and Video Processing

OPEN SOURCE PROJECTS

May 2024 – present	Open Source Smartwatch with Zephyr RTOS ↗ Technologies: ESP32, LVGL, Zephyr RTOS, Bluetooth Low Energy, BLE GATT
Nov 2023 – Apr 2024	Home Security System on Raspberry Pi with EfficientDet ↗ Technologies: Embedded Linux, RPi Compute Module, USB Camera, Video4Linux, Design Patterns, Systemd, Telegram API, BeautifulSoup
Jun 2023 – Jan 2024	Anomaly Detection on Diesel Engines for Public Transportation ↗ Technologies: nRF91, CoAP, ThingSpeak, Zephyr RTOS, TinyML: Decision Trees & MLPs, emlearn, Flask, PostgreSQL
Aug 2023 – Aug 2023	Image Steganography: Embedding Two Image into One Image ↗ Technologies: Fourier Transform, Python, OpenCV
Apr 2023 – May 2023	Low Power House Environmental Sensing ↗ Technologies: C, Zephyr RTOS, ESP32, Bluetooth Low Energy, GATT, I2C
Jul 2022 – Sep 2022	Liyakat - Anonymous Voting Application for Merit Issues ↗ Technologies: JavaScript, NodeJS, MongoDB, Bulma CSS, EJS
Apr 2022 – Jun 2022	Classic Genetic Algorithm for PID Tunning ↗ Technologies: MATLAB, GUI, Control Theory, Evolutionary Algorithms

REFERENCES

Yasin Kaya, *R&D Director of Embedded Software, Sixfab Inc.*
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Atakan Çelik, *Embedded Systems Team Lead, Accenture Industry X*
atakan.celik@accenture.com

Gökhan Bora Esmer, *Prof. Dr., Marmara University*
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LANGUAGES

English — Professional Working Proficiency

Turkish — Native Language

Polish — Beginner



Gyokhan Kochmarla

04/08/2024