

# Cemal Özçelik

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## WORK EXPERIENCE

**OPTOFİL** – İstanbul, Türkiye

City: İstanbul | Country: Türkiye

### Software Engineer

[ 15/11/2022 – Current ]

**Embedded AI on Jetson Nano** – Developed and deployed multiple AI solutions on embedded hardware, including:

- **Cell Counter Device:** Implemented live/dead cell viability detection using **TensorFlow** with a lightweight **U-Net** architecture.
- Integrated **Basler camera** for real-time acquisition and processing.
- Built image preprocessing and analysis pipelines optimized for embedded performance.

**Morphology Analyzer Platform** – Designed and implemented the **PySide2 UI** for an automated hematology system:

- Integrated **Basler camera** for high-quality image capture.
- Motorized stage control via C++ for precise cell positioning.
- Autofocus algorithm for Z-axis optimization, improving clarity for downstream AI models.
- AI model (PyTorch) for **13-class white blood cell classification**, integrated into the UI for real-time results and reporting.

**Web-based AI Tools** – Created an **automated image labeling platform** for medical datasets:

- Frontend: **React + TypeScript** for an interactive annotation experience.
- Backend: **Flask API** with YOLO and SAM-based models for automated segmentation and labeling.

**C++ Development** – Built robust software modules for optical analysis and device control:

- Converted **Zernike polynomial** computation from Python to C++ for faster image processing.
- Developed Qt-based applications integrating camera control, analysis tools, and user interface components.

### Key Skills & Technologies:

- C++, Python, Qt (PySide2/PySide6), TensorFlow, PyTorch, U-Net, YOLO, SAM, OpenCV, Flask API, React, TypeScript, Basler pylon SDK, Embedded AI (Jetson Nano), Image Processing, Computer Vision, Automation, Motor Control

## EDUCATION AND TRAINING

### Master of Science - MS, Artificial Intelligence

**Gebze Teknik Üniversitesi** [ 09/2024 – Current ]

City: Kocaeli | Country: Türkiye | Website: [gtu.edu.tr/](https://gtu.edu.tr/)

Taking:

- Deep Learning and Applications
- Digital Image Processing
- Code Theory

### Electrical and Electronics Engineering

**Eskişehir Osmangazi Üniversitesi** [ 23/09/2017 – 2022 ]

Address: Odunpazarı Büyükdere Meşelik Yerleşkesi, 26040 Eskişehir (Türkiye) | Website: <https://www.ogu.edu.tr/>

| Final grade: 2,89 | Thesis: [https://drive.google.com/file/d/1B0XM30RrHGnhmyNKXaP7\\_0QfSDCdHUnk/view?usp=sharing](https://drive.google.com/file/d/1B0XM30RrHGnhmyNKXaP7_0QfSDCdHUnk/view?usp=sharing)

### Bachelor of Electrical and Electronics Engineering:

- Completed English preparation courses throughout the academic year.
- Demonstrated proficiency by taking all lessons in English.
- Excelled in high-mathematics courses covering electricity and electronics.
- Engaged in self-directed learning and hands-on projects in electronics, Arduino, programming, and artificial intelligence.
- Successfully navigated complex mathematical concepts in data structures.

### Key Skills Developed:

- C++ programming for software development.
- Python programming for versatile applications.
- Object-Oriented Programming principles for robust software design.
- In-depth understanding of electronics and its applications.
- Proficiency in handling complex mathematical concepts.

### Academic Insight:

- Acknowledged the importance of research and development through academic exploration.
- Realized that continual learning and staying abreast of advancements are crucial for success in diverse fields.

### Software Engineer

**Teknotam Teknoloji Araştırma ve Geliştirme Merkezi San. Tic. Ltd. Şti.** [ 18/07/2022 – 20/08/2022 ]

Address: Büyükdere Gençlik Bulvarı No:4-59 D:220, 26040 Eskişehir (Türkiye) | Website: [teknotam.com.tr/](http://teknotam.com.tr/)

Developed and implemented socket programming solutions in Python for efficient data processing.

### Software Engineer

**Inovasyon Muhendislik** [ 30/06/2021 – 06/08/2021 ]

Address: Büyükdere Mahallesi Osmangazi Teknoparkı No 4/59 Oda: B23 Osmangazi Meşelik Kampüsü, Odunpazarı, 26480 Eskişehir (Türkiye) | Website: <https://www.inovasyonmuhendislik.com/>

- Contributed to the development of mobile robot localization systems.
- Utilized Python, OpenCV, and ROS (Robot Operating System) for effective implementation.
- Gained hands-on experience in industrial automation and robotics.
- Collaborated with the team to enhance the efficiency of mobile robot operations.

## LANGUAGE SKILLS

**Mother tongue(s):** Turkish

**Other language(s):**

#### English

**LISTENING** B2 **READING** B2 **WRITING** B2

**SPOKEN PRODUCTION** B1 **SPOKEN INTERACTION** B1

#### German

**LISTENING** A2 **READING** A2 **WRITING** A2

**SPOKEN PRODUCTION** A2 **SPOKEN INTERACTION** A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user