Tolgahan Özdemir

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Summary

◦ As a third-year Computer Engineering student, I specialize in software development, artificial intelligence, and computer vision. I have experience in developing real-world AI solutions for healthcare and UAV systems through competitions and internships.
With the energy and curiosity of my youth, I continue to develop intelligent and scalable AI solutions.

Quick Guide

- Artificial Intelligence and Deep Learning: Hands-on experience with CNN architectures (U-Net, YOLO), classification, segmentation, and object detection for real-world applications in healthcare and UAV systems.
- Computer Vision: Skilled in image preprocessing, feature extraction, annotation pipelines, and OpenCV-based tracking systems; experience in real-time detection using edge devices.
- Programming Languages: Proficient in Python, C++, Java, C,Pascal,JavaScript; experience in developing backend APIs and desktop applications with .NET and Delphi.
- Machine Learning Frameworks: Experienced with TensorFlow, Keras, Scikit-learn, PyTorch (basic); capable of building and optimizing models, including training, validation, and deployment phases.
- Database Technologies: Proficient in relational (MySQL, Oracle) and NoSQL (MongoDB) databases; strong understanding of query optimization, joins, and stored procedures.
- Web and API Development: Familiar with RESTful API design, integration, and testing; experience with ASP.NET for building scalable backend services.
- Development Tools: GitHub, VS Code, Postman; experienced with Docker for environment management.
- Software Engineering: Solid foundation in OOP, SOLID principles, design patterns, and version control systems (Git); practiced in writing clean, testable, and maintainable code.
- Linux and Docker: Proficient in using Linux (Ubuntu) and Docker for development and deployment.and Docker for development and deployment

Education

University of Tarsus / Turkey *Sept 2023 – May 2026*
BS in Computer Engineering

- Cryptography and Network Security
- Machine Learning and Deep Learning
- Distributed Systems Architecture
- Software Engineering Principles
- **Coursework:** Computer Architecture, Comparison of Learning Algorithms, Computational Theory,European Union Information Technologies Training

Experience

Intern-Software Engineering *Konya, Turkey*
Belya *June 2024 – Aug 2024*

- Designed and implemented REST API connections to interact with external services
- Worked with Oracle database for management optimization
- Gained experience in ASP.NET for web application development.

Intern-Information Security *Konya, Turkey*
Loras Holding *June 2025 – Aug 2025*

- Gained hands-on experience with hardware components used in enterprise IT infrastructure
- Monitored and analyzed network traffic using IDS/IPS tools to support security operations

Publications

- "Autonomous Target Detection and Kamikaze Dive Algorithms for UAVs" Teknofest Combat UAV – KTR Report, 2025 Led development of image processing and YOLO-based object tracking modules. Passed KTR stage with a score of 78.67. Jan 2024

- 2024 Artificial Intelligence in Health Competition University and Above Level Disease Detection with Computer Vision Category PSR Successful/PDR Status with a score of 76.00.

Certifications
- European Union Information Technology-Certificate
- IBM Cyber Security Fundamentals – IBM Skills Build, 2024
- Explore Emerging Tech – IBM SkillsBuild, 2024

Projects

Teknofest Combat UAV Project(78.67 pts)

- Developed a real-time object detection system using YOLOv8 for UAVs to autonomously detect and lock onto enemy drones. Integrated the algorithm with flight simulation and ensured it complied with Teknofest lock-on criteria.
- Technologies: Python, OpenCV, YOLOv8, ROS

Vertical Landing Rocket Competition

- Designed a basic UI for ground control and conducted research on avionics systems for a vertical landing rocket prototype.
- Technologies:Arduino

Deep Learning for Medical Image Segmentation(76.00 pts)

- Designed and trained a U-Net model for breast cancer classification in medical images. Passed the initial evaluation round of the competition. Focused on data preprocessing, model tuning, and evaluation metrics.
- Technologies: Python, TensorFlow, Keras, NumPy, OpenCV

Desktop Application for PDF Text Error Detection

- Developed a Delphi-based desktop application leveraging NLP techniques to automatically detect and highlight writing errors in user-provided PDF documents. Focused on accurate error identification and user-friendly feedback.
- Technologies: Delphi, Natural Language Processing (NLP), PDF parsing

Technologies

Languages: C++, C, Java, C#, SQL, JavaScript, Pascal,Python

Technologies: .NET, Microsoft SQL Server,VSCode, Delphi ,Matlab,Anaconda