

Abdullah ERZIN

Ljubljana, SL | abdullaherzin80+resume@gmail.com | [Github](#) | [LinkedIn](#) | [Medium](#) | [BentoMe](#)

EDUCATION

Marmara University

Mechatronics Engineering

Istanbul, TURKEY

Graduation Date: Mar 2021

WORK EXPERIENCE

Pek Automotive

Computer Vision Engineer

Ljubljana, SLOVENIA

Apr 2025 - Present

- Developed an advanced stereo camera calibration system for agricultural robots, reducing calibration time by 60% while achieving industry-leading precision of $\pm 5\text{mm}$ deviation, significantly improving operational efficiency and robot accuracy in field conditions.
- Improved a YOLO neural network's detection accuracy by developing a secondary ML pipeline. This pipeline uses a gradient boosting model with depth data to correct false positives in bundled apples and detect partially visible apples.
- Engineered mathematical transformation algorithms to resolve spatial misalignment between camera 3D coordinates and robotic arm positioning, enabling precise computer vision-guided targeting and eliminating systematic positioning errors in agricultural applications.
- Enhanced object detection capabilities by integrating depth analysis with YOLO models through custom linear regression algorithms, improving apple detection accuracy in real-world field conditions and implementing adaptive camera control systems that optimize depth mapping performance under varying sunlight conditions.

Robsys Robotic Systems

Software Engineer

Istanbul, TURKEY

Mar 2024 - Present

- Architected and single-handedly implemented an autonomous navigation algorithm from scratch, incorporating custom SLAM mapping, pathfinding logic, and obstacle avoidance systems that enabled the cleaning robot to operate independently without pre-existing frameworks.
- Engineered an end-to-end AI solution utilizing Jetson hardware and multi-sensor fusion (stereo cameras, gyroscopes, and ultrasonic sensors), designing and training custom deep learning models for comprehensive environmental perception. Implemented stereo vision algorithms for depth mapping and 3D positioning, while integrating gyroscopic data for precise orientation tracking and ultrasonic measurements for reliable obstacle detection. Developed low-level firmware for sensor synchronization and direct robot control through motherboard communication protocols, achieving robust autonomous navigation in dynamic environments.
- Collaborated with cross-functional teams to develop a robust communication system that streams live data and camera feeds to a mobile application, enhancing user experience by providing real-time monitoring and remote control capabilities.

Bomensorsoft (Lay-off due to economic bottleneck)

AI Developer

London (Remote)

Jan 2024 - Feb 2024

- Collaborated with team members to optimize AI models and add new features to backend significantly enhancing efficiency and performance
- Revamped website log structure using JavaScript, HTML and Python, enhancing data connectivity and streamlining access for improved analysis
- Expanded website functionality by developing new pages and implementing additional features to enhance the backend of the company's project

DGR Project

Computer Vision Engineer

Istanbul, TURKEY

May 2023 - Dec 2023

- Led end-to-end development of algorithms and AI models demonstrating a deep understanding of project intricacies
- Developed a highly secure face recognition algorithm achieving 98% accuracy and reducing false positives by 30%, optimizing memory usage to just 4kb with Jetson Nano
- Optimized processing time through C++ function optimization, enhancing efficiency
- Aligned package versions with project dependencies for compatibility with Jetson, while customizing AI models for the platform

- Spearheaded the development of an innovative live streaming project, aiming to reduce processing time to under 30ms, managing both software and computer vision model development

ZGN Autonomous & Robotics

Istanbul, TURKEY

Autonomous Vehicle Development Engineer

Dec 2022 - May 2023

- Contributed to autonomous driving algorithm development projects
- Optimized pathfinding algorithm for autonomous vehicles, resulting in a 30% reduction in processing time and increased overall efficiency
- Designed and implemented an algorithm enabling robors to map areas directly using construction plans' blueprint

Gensys Automation & Machine Vision

Kocaeli, TURKEY

Machine Vision Engineer

Dec 2021 - Dec 2022

- Acquired proficiency in C#, SQL, and Halcon, utilizing these skills to develop desktop applications and machine vision programs
- Integrated Halcon codes into C# desktop applications and established connections with MSSQL databases for seamless functionality
- Conducted on-site setup of the project in the early stages of my career and developed two projects for Tubitak(The Scientific and Technological Research Council of Türkiye)

Mavis Machine Vision

Kocaeli, TURKEY

Intern

Jul 2020 - Mar 2021

- Gained hands-on experience in Halcon for computer vision, SQL for database management, and C# for software development, enhancing skills in image processing, data querying, and application building.

PROJECT EXPERIENCE

Gensys Automation & Machine Vision (TUBITAK)

Kocaeli, TURKEY

Non-Destructive Testing Program

Jan 2022 - May 2022

- Spearheaded a research project focused on non-destructive testing (NDT) utilizing halogen lamps
- Conducted mathematical research to develop equations for the project
- Designed and implemented a setup with halogen lamps and thermal cameras for experimental purposes
- Developed a desktop application to succesfully demonstrate the detection of defects in materials using thermal cameras and heat effects

Gensys Automation & Machine Vision (TUBITAK)

Kocaeli, TURKEY

Auto Image Cropping Program

Feb 2022 - Mar 2022

- Developed an auto image cropping program to preprocess images for feeding into machine learning models

DGR Project

Istanbul, TURKEY

High Secured Face Recognition System

May 2023 - Jul 2023

- Independently developed and implemented an algorithm aimed at enhancing efficiency, resulting in the creation of a high-security face recognition system achieving 98% accuracy
- Solely managed the entire development lifecycle of the project, from conceptualizaion to deployment, ensuring robust security measures and optimal performance
- Engineered innovative solutions to reduce false positives by 30% and optimize memory usage to a mere 4kb for personal data storage, demonstrating strong problem-solving skills and technical acumen

DGR Project

Istanbul, TURKEY

Live Streaming Poject Leadership

Jul 2023 - Oct 2023

- Led to end-to-end development of an innovative live streaming project with the primary goal of recuding the entire process time to under 30ms for seamless live stream on YouTube.
- Implemented advanced algorithms and software engineering methodologies in independently to optimize the live streaming process for minimal latency and superior performance

Robsys Robotic Systems

Istanbul, TURKEY

Software Engineer

Mar 2024 - Present

- Utilized stereo cameras, ultrasonic sensors, and encoders to build a comprehensive autonomous navigation system for the cleaning robot, ensuring accurate environmental sensing and movement.

- Collaborated with an embedded engineer to design and implement a custom communication protocol via UART for precise control and data exchange between the robot's motherboard and its subsystems.
- Integrated real-time data and camera streaming to a mobile app, enabling users to monitor and control the robot remotely, including safety operations through direct interaction with the app.
- Developed a dynamic mapping and navigation algorithm from scratch using NumPy arrays, allowing for autonomous driving and real-time updates of the robot's environment.
- Developed a custom AI model integrated into the autonomous driving algorithm, enhancing the robot's ability to navigate and make real-time decisions based on environmental data

SKILLS & INTERESTS

Skills: Python, Halcon, JavaScript, C#, C++, HTML, CSS, SQL, Tensorflow, PyTorch, OpenCV, Numpy, Git

Interests: Motorcycles, Scuba Diving (1* Diver)

REFERENCES

Yasin CICEK : Robsys Robotic Systems : Embedded Software Engineer