

# MUSTAFA KURAL

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## HIGHLIGHTS OF QUALIFICATIONS

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- Bachelor's degree in Control and Automation Engineering with focus on programming and robotics
- 2 years of experience in robotics software development using C++ and Python with OOP, leveraging ROS/ROS2, Gazebo, MoveIt2, OpenCV, PCL, and PyTorch
- Hands-on integration and troubleshooting of hardware components including LiDAR, cameras, IMUs, motors, SBCs (Raspberry Pi, Jetson, LattePanda), and embedded systems (STM32, Arduino)
- Skilled in hardware interface protocols (USB, UART, Serial, I2C) and validating software-hardware systems in lab and field environments
- Proficient in developing, testing, and deploying robotics modules in Linux (Ubuntu) with Bash/Python scripting and containerized environments using Docker and Conda
- Experienced with unit testing (GTest, Rostest), CI/CD pipelines (Jenkins), and version control and project management tools (Git, SVN, CMake, Jira)

## EXPERIENCE

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### Robotics Software Engineer, *Milvus Robotics*

June 2023 - Jan 2024

- Developed a human-following module for an Autonomous Mobile Robot (AMR) utilizing a 2D LiDAR system. The process involved data filtering, leg detection from laser points, tracking of leg pairs, and implementing path-following algorithms to physically trail a human. This helped my company meet the demand of a new customer, increasing its revenue. **ROS, C++, Python, OpenCV, Pykalman, A\***
- Worked on a line detector to improve navigation of AMRs in warehouses. **C++, OpenCV**

### Software Engineer, *Polonom Robotics*

Sep 2022 - June 2023

- In a collaborative robotics project, implemented deep learning inference for object detection and tracking. Developed a script to extract 3D object locations by matching LiDAR point clouds with detected bounding boxes. Additionally, created custom ROS messages to facilitate multi-robot communication. These contributions enabled the company to maintain collaboration with a defense industry agency. **ROS, C++, PCL, OpenCV, Python, Pytorch**
- Updated and improved old submodules of a service robot which assisted while finding a new customer for the product. **ROS, C++**

## EDUCATION | CERTIFICATES

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The Construct, Online Certificate, Robotics Developer Masterclass, 2025

Coursera, Online Certificate, Self-Driving Cars Specialization, 2024

EdX, Online Certificate, Autonomous Mobile Robots, 2021

Istanbul Technical University, **BSc Diploma**, Control and Automation Engineering, 2018

## COMPUTER SKILLS

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**OS** : Ubuntu Linux, Windows

**Languages** : C++, Python, MATLAB, C/Embedded, JS, HTML, LaTeX

**Programming**: ROS, ROS2, Gazebo, MoveIt2, OpenCV, CUDA, Pytorch, TensorFlow, STM32

**Dev Tools** : Bash, Docker, Conda, Git, Svn, Gtest, Rostest, Jenkins, Jira