

# Álvaro Quintana

**Robotics Software Engineer**  
(ROS2, Autonomous Systems & Perception)

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## Summary

Robotics and Autonomous Systems Engineer with solid experience in ROS2 development, sensing and perception, embedded systems. Mobile and industrial robotics. Capable of designing, implementing and debugging complete robotic solutions—from control and navigation to simulation and design. Strong Linux workflow, fast learner and highly versatile across software and hardware tasks.

*I Have Worked With . . .*

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**ROS2:** nodes, services, actions, lifecycle nodes, TF2, custom interfaces, launch files, Behavior Trees, FSMs, RViz2, Rqt.

**Navigation:** Nav2, OMPL, SLAM Toolbox, AMCL.

**Simulation:** Gazebo Classic, Ignition, PyBullet, Unibotics

**Robot Modeling:** URDF, Xacro, Phobos, CAD

**Computer Vision:** OpenCV, YOLO

**Industrial Robotics:** RobotStudio, RAPID, trajectory planning.

**Programming languages:** C, C++, Python, MATLAB, Java, PDDL

*Languages*

**English** (B2 Official)

**Spanish** (Native)

## Some of my Projects . . .

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**Autonomous Human-Robot Interaction System (TFG, In Progress)**

Development of an autonomous robotic system capable of interpreting human actions and generating adaptive robot responses in real time. Architecture based on ROS2 with modular nodes for perception, decision-making and actuation.

**Multi-Robot Autonomous Guidance System (Real Kobuki Fleet)**

Development of an autonomous multi-robot guidance system using 3 real Kobuki robots coordinated through ROS2. The system integrates Behavior Tree decision-making, distributed communication via domain bridge, QR-based user identification, dialog interaction and real indoor navigation to autonomously receive users and guide them to their assigned rooms

**Visual Odometry for Drone Localization (C++ / ROS2 / OpenCV)**

I developed a monocular visual odometry system in C++ with ROS2, OpenCV and Eigen that tracks features via Lucas-Kanade optical flow, estimates the essential matrix and recovers relative pose between frames. The motion is converted from OpenCV coordinates to ROS convention, scaled, filtered and integrated over time to obtain a stable camera trajectory. The resulting world -> camera\_link transform is published for real-time visualization and integration in RViz.

## Education

**Robotics Software Engineering — Universidad Rey Juan Carlos (2019–2026)**

## About me

I'm an outgoing and highly motivated engineer who connects easily with people and works well in any team. I learn fast, seek out information proactively and enjoy tackling challenging and ambitious projects. I'm driven, resilient and willing to do whatever it takes to deliver high-quality results. My goal is to grow as far as possible in robotics and contribute to systems that push the limits of what is currently possible.