Luca Bonamini

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Summary

Robotics Software Engineer with a strong track record of delivering real-world autonomy solutions across field robotics, industrial manipulation, and autonomous vehicles. I specialize in developing robust navigation stacks, integrating sensors through Kalman filtering, and deploying scalable robotics systems using modern simulation and cloud tools.

Areas of Expertise

- **Autonomous Navigation:** ROS 2 & C++ development for production robots

- **Sensor Fusion:** Integration of lidar, GPS, encoders using Kalman filtering

- **Industrial Robotics:** Robotic manipulators for palletizing and welding

- **Simulation:** Dockerized simulation environments with Gazebo and Foxglove

- **Autonomous Racing:** High-speed planning, MPC control, and perception

- **Cloud Integration:** MQTT protocols, AWS IoT, distributed data logging

- **Team Leadership:** Agile workflows, technical mentoring, project delivery

Professional Experience

Freelance Robotics Engineer • Milan, Italy
May 2020 – Present
Consultant and developer for robotics companies across Europe. Specialized in ROS 2 system integration, planning and control, and simulation tooling.

Yape s.r.l. • Milan, Italy
Team Lead, Robotics Software • Nov 2022 – May 2024
Robotics Software Engineer • Apr 2021 – Nov 2022
- Led 4-person team building autonomous navigation software
- Delivered CAN, MQTT, and data logging libraries in C++
- Designed SIL systems and mentored junior engineers

Proxima Robotics s.r.l. • Pisa, Italy
Robotics Software Engineer • Mar 2020 – Mar 2021
- Developed Frenet frame planner and adaptive controllers
- Established CI/CD pipelines and GitOps workflow

Roboteam Italia • Pisa, Italy
Robotics Software Engineer • Dec 2018 – Mar 2020
- Delivered planning/control stack for autonomous racing cars
- Designed lidar-based localization in GNSS-denied conditions

Technical Skills

Languages: C++, Python, Bash
Frameworks: ROS, ROS 2
Simulation: Ignition Gazebo, Foxglove, RViz
Cloud & Networking: MQTT, AWS IoT
Libraries: STL, Boost, Qt, Eigen, gRPC, PCL, Behavior Trees
Tools: Git, Docker, gdb, CMake, GitHub Actions

Education

M.S. Robotics and Automation Engineering
University of Pisa, 2015 – 2018

B.S. Mechanical Engineering
University of Genova, 2012 – 2015