Alberto **Soragna**

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ABOUT ME

Robotics Software Engineer *with 8 years of experience, from startups to established companies, developing software deployed to millions of robots.*
ROS 2 expert: *I serve in its Project Management Committee and as a maintainer and one of the most active contributors of the ROS 2 Open-Source C++ core libraries.*
Proven technical leader *who drives complex projects from architecture to deployment I foster a culture of continuous improvement and engineering excellence through* **clean code practices, comprehensive testing, and data-driven decision making**. *Led Agile process implementation, managing sprints and JIRA boards while* **adapting methodologies to fit team dynamics and stakeholder needs**. *I translate business priorities into technical strategy, define meaningful metrics, and execute with urgency while managing risk through incremental solutions.*
Outside of robotics, I enjoy balancing physical activities like hiking and crossfit, with strategic thinking through board games and personal finance study.

TECH SKILLS

10+ years experience with **C++**
It is my go-to language. I have an in-depth understanding of its features and design choices. I contributed to define company-wide coding guidelines and mentored developers.
Proficient with **Python**
I often use it for prototypes, data analysis, and non-performance-critical applications.
Worked on projects using **C**, **Java**, **JavaScript**, **Matlab**.
Advanced user of **Bash**, **Docker**, **Git**, **LaTeX**.

LANGUAGES

- *Italian:* *Mothertongue*
- *English:* *Fluent*
- *Chinese:* *Basic spoken*

EXPERIENCE

Principal Software Engineer | Outrider

January 2025 - Present — Brighton, CO, USA

- *Technical lead for 4 software engineers developing high-level robotics behaviors, user interactions, and software quality tools.*
- *Optimized logging pipeline enabling daily triage via real-time access to critical logs, and overall >99% bags reliability with 6x faster uploads.*
- *Redesigned mission taxonomy with unique error codes, clear state observability, and star-schema DB structures for efficient retrieval.*

Principal Robotics Engineer | iRobot

August 2018 – January 2025 — Pasadena, CA, USA

- *Promoted from Engineer (2018) → Senior (2020) → Principal (2022).*
- *Technical lead for 6-engineer ROS 2 architecture team (2+ years). Optimized ROS 2 performance (70% CPU reduction) enabling deployment to millions of Roomba robots.*
- *Software Architect for consumer robotics applications.*
- *Developed libraries for sensor processing, state estimation, path planning, behavior trees and mission orchestration.*

Data Scientist | MusixMatch

January 2018 – July 2018 — Bologna, Italy

Implemented a Java pipeline to recognize product references in lyrics and provide recommendations for advertisements. Developed a Python framework for training and testing neural networks for various NLP tasks.

Software Engineer | KUKA Robotics

July 2017 – January 2018 — Augsburg, Germany

Developed C++ framework for exploration using prior information.

EDUCATION

MSc Artificial Intelligence and Robotics | La Sapienza

September 2015 – January 2018 — Rome, Italy

Final Grade: 110/110 With Honors | Thesis: "Active SLAM using Connectivity Graphs as Prior" Advisor: Prof. Giorgio Grisetti

BSc Automation Engineering | University of Bologna

September 2012 – June 2015 — Bologna, Italy

Final Grade: 109/110 | Thesis: "Design and Implementation of the Guidance Law for a Quadrotor Aerial Vehicle" Advisor: Prof. Lorenzo Marconi

PUBLICATIONS

2023	***Impact of ROS 2 Node Composition in Robotic Systems.*** *Macenski S., Soragna A., Carroll M., and Zhenpeng G. IEEE RAL.*
2023	***Building the iRobot Create 3 robot.*** *Soragna A. and Shamlian S. ROSCon.*
2019	***Active SLAM using Connectivity Graphs as Priors.*** *Soragna A., Baldini M., Joho D., Kuemmerle R., and Grisetti G. IEEE IROS.*
2019	***ROS 2 for Consumer Robotics.*** *Soragna A., Oxoby J., and Goel D. ROSCon.*
2018	***Optimal graph exploration with active loop closure.*** *Soragna A., Baldini M., and Kuemmerle R. European patent.*
2018	***Online adaptation of a prior topology graph to the observed environment during autonomous exploration.*** *Soragna A., Baldini M., and Joho D. European patent.*