

ABOUT ME



Robotics Software Engineer with over 6 years of professional expertise in mobile robotics and an in-depth understanding of Software Architecture.

ROS 2 expert: I serve in its Project Management Committee and as a maintainer and one of the most active developers of the ROS 2 Open-Source C++ core libraries.

Technical Lead with a proven track record of successfully organizing and executing complex projects with small development teams. I foster a culture of continuous improvement, emphasizing **clean, well-documented, and thoroughly tested code**. I understand the benefits and trade-offs of **Agile methodologies** and I can implement them when suitable to enhance collaboration and project outcomes. I **define metrics and KPIs** to track the work and communicate concisely and effectively with stakeholders. By understanding business priorities, I can move with urgency and also develop incremental solutions to mitigate risks.

I enjoy a balance of outdoor and indoor hobbies, such as hiking, training, playing board games, and studying personal finance.

TECH SKILLS



8+ 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 coding guidelines for my company and mentored junior developers.

Proficient with Python

I often use it for prototypes and non-performance-critical applications.


Worked on projects using C, Java, JavaScript, Matlab.


Daily user of Bash, Docker, Git, LaTeX.

LANGUAGES



 **Italian:** Mothertongue

 **English:** Fluent

 **Chinese:** Basic spoken

EXPERIENCE



Principal Robotics Engineer | iRobot

 August 2018 – Present

 Pasadena, CA, USA

- Promoted from Robotics Engineer to Senior Robotics Engineer to Principal Robotics Engineer, consistently exceeding expectations.
- Technical Lead in a team of 5 engineers for two years, with the primary goal of driving the internal adoption of ROS 2. Significantly improved ROS 2 performance, reducing its CPU usage by over 70% and optimizing its RAM utilization. Led the deployment of ROS 2 to millions of Roomba™ robots.
- Software Architect for floorcare and educational robotics navigation applications.
- Designed and implemented libraries for pose estimation, path planning, and behavior-trees for mission planning.

iRobot

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.



Graduate Internship | KUKA Robotics

 July 2017 – January 2018

 Augsburg, Germany

Designed and implemented C++ algorithms for the efficient autonomous exploration of environments exploiting prior information. Authored two patents and a paper based on this project.

KUKA

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.