

## ABOUT ME



**Robotics Software Engineer** with over 5 years of hands-on expertise in autonomous navigation and an in-depth understanding of Software Architecture. **ROS 2 expert:** I serve in its Technical Steering 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.

Besides robotics, I enjoy a balance of outdoor and indoor hobbies, such as hiking, playing board games, reading books, 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 Bash, C, Java, JavaScript, Matlab.**

**Daily user of 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. Thanks to these enhancements, I successfully deployed ROS 2 to millions of Roomba™ robots.
- Software Architect for floorcare and educational robotics navigation applications.
- Designed and implemented libraries for dead-reckoning pose estimation, global 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.
- 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.