Alberto **Soragna**

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ABOUT ME

I am a **Software Engineer** *with comprehensive hands-on experience in autonomous mobile robotics, proven in developing software architecture, behaviors, and estimation algorithms. As a* **ROS 2 expert**, *I am a member of its Technical Steering Committee and one of the maintainers of its core libraries.*
I am a **Technical Lead** *and a skilled contributor, and I excel at organizing and executing complex projects for small development teams, adhering to* **Agile methodologies**, *with a focus on* **writing clean, well-documented, and thoroughly tested code**. *I expertly track team progress and communicate effectively with management and stakeholders through* **concise and informative reports**. *I remain aligned with business priorities and can* **move with urgency** *to deliver successful solutions.*
In my free time, 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

Sr. Robotics Software Engineer | iRobot

August 2018 – Present | Pasadena, CA, USA

Technical Lead of 5 people team that improved ROS 2 performance, reducing CPU usage by over 70%, and integrated it on Roomba™ robots. Software Architect for floorcare robots and designed the Create™3 navigation application. Improved accuracy of dead-reckoning through data synchronization and developed libraries for behavior trees.

Data Scientist | MusixMatch

January 2018 – July 2018 | Bologna, Italy

Implemented a Java pipeline to recognize products references in lyrics for advertisements recommendations. Developed a Python framework to train and test Neural Networks for different Natural Language Processing tasks.

Graduate Internship | KUKA Robotics

July 2017 – January 2018 | Augsburg, Germany

Designed and implemented C++ algorithms for the efficient autonomous exploration of environments using potentially imprecise prior information. Published multiple patents and a paper based on this project.

EDUCATION

M.S. 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

B.S. 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

AWARDS AND CERTIFICATES

2022 *iRobot STEM Star*
2017 *Sapienza University Excellence Path*
2013 *AlmaTong Double-Degree Scholarship*

PUBLICATIONS

2019 ***Active SLAM using Connectivity Graphs as Priors.*** *Soragna A., Baldini M., Joho D., Kuemmerle R., and Grisetti G. 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.*