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**, *a member of its Technical Steering Committee, and one of the maintainers of its core libraries, I made the platform usable on low-cost embedded devices,* **reducing CPU usage by over 70% and improving RAM utilization**.

As a **Technical Lead** *and a skilled contributor, I excel at organizing and executing complex projects for small development teams, 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**, *adhering to* **Agile methodologies**. *Furthermore, I possess a deep understanding of business priorities and can* **move with urgency** *to deliver successful solutions.*

In my free time, I enjoy a balance of outdoor activities and hobbies such as 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 small 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 integrated ROS 2 on Roomba™. Software Architect for floorcare and educational robots. Developing robotics applications, estimation algorithms and behaviors.

Data Scientist | MusixMatch

January 2018 – July 2018 — Bologna, Italy

Developed Machine Learning, Statistics and Neural Network techniques for Natural Language Processing. Implemented pipelines for lyrics processing. Dataset collection and features engineering.

Software Developer | KUKA Robotics

July 2017 – January 2018 — Augsburg, Germany

Master Thesis student in the Mobile Robotics Navigation team. Developed algorithms for the exploration of industrial environments and active SLAM. Published the work as multiple patents and a paper.

EDUCATION

M.S. Artificial Intelligence and Robotics | La Sapienza

September 2015 – January 2018 — Rome, Italy

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

Study Emphases: Mobile Robotics, Computer Vision, Machine Learning

B.S. Automation Engineering | University of Bologna

September 2012 – June 2015 — Bologna, Italy

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

Study Emphases: Mathematics, Physics, Control Theory

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.*