



Caio Conti Guidote Ribeiro

MSc Student in Computer Science - Robotics



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Education

Federal University Of Minas Gerais (UFMG)

MSc in Computer Science - GPA 98/100

Relevant coursework: Robot Dynamics and Control, Reinforcement Learning, Natural Computation.

Belo Horizonte, Brazil

Aug 2023 - Present

Federal University Of Minas Gerais (UFMG)

Diplom in Automation and Control Engineering - GPA 86/100

Relevant coursework: Mobile Robots, Robotic Manipulators, Control Engineering, Real-Time Automation.

Belo Horizonte, Brazil

Nov 2017 - Jul 2023

Rhine-Waal University of Applied Sciences (HSRW)

Exchange Student, enrolled in Mechatronics Engineering

Coursework: Bioinspiration, Evolutionary Algorithms, Scientific Methods, Leadership, Cross-Cultural Management and Creativity.

Rhein-Waal, Germany

Sep 2022 - Feb 2023

Experience

Laboratory of Computer Vision and Robotics (VeRLab), UFMG

Graduate Researcher

- Social Navigation and Transportation for Mobile Manipulator Robots.
- Dubins Orienteering Problem variants.
 - Second author [paper](#).
- Technical Skills:** MATLAB, Python, ROS, RRT, Reinforcement Learning, Navigation Stack.

Belo Horizonte, Brazil

Aug 2023 - Present

Laboratory of Computer Vision and Robotics (VeRLab), UFMG

Undergraduate Volunteer Researcher

- Path design for a cooperative ground and aerial vehicle system.
 - First author [paper](#) published at [LARS 2022](#). Awarded as one of the conference's Top 15 Papers.
- Path-planning for multi-robot systems.
 - Second author [paper](#), under review.
- Technical Skills:** Python, ROS, Genetic Algorithms, MoveIt.

Belo Horizonte, Brazil

Nov 2021 - Aug 2023

Localiza Rent a Car SA

Software Engineer Intern

- Backend Software Developer.
- Responsible for developing the Human Resources software application.
- Technical Skills:** C#, SQL.

Belo Horizonte, Brazil

Aug 2021 - Feb 2022

Evolutionary Computation Laboratory, UFMG

Undergraduate Fellowship Researcher

- Evolutionary methods for optimizing the design of power distribution lines based on environmental conditions.
- Software development, designing graphical interfaces and generating reports.
- Technical Skills:** Evolutionary Algorithms, Java.

Belo Horizonte, Brazil

Dec 2020 - Jul 2021

AVANT, UFMG

Electronic & Software Division Member / Manager

- AVANT UFMG is a student-composed team that works with drones automation.
- Electronic assembly, control, computer vision, navigation and path planning for aerial vehicles, drones.
- From 2019 to 2020 served as Manager.
- Participated in the [Brazilian Robotics Competition](#) - Petrobras Robotic Challenge 2020
 - Responsible for autonomous search and navigation.
- Technical Skills:** ROS, C++, Python, Arduino, Pixhawk, A*.

Belo Horizonte, Brazil

Nov 2017 - Nov 2020

Scholarships and Awards

- 2023 **Academic Excellence Program (PROEX) Scholarship**
Four-year CAPES/PROEX MSc scholarship funded by the Brazilian Government.
- 2022 **Top 15 Best Papers Award**
IEEE Latin American Robotics Symposium (LARS)
- 2022 **Ambassador Grant of Rhine-Waal University for Applied Sciences**
One semester long, funded by the German Academic Exchange Service (DAAD).
- 2020 **Research Scholarship**
One semester long, funded by the state electric company CEMIG Distribuição S.A.
- 2017 **First place at Desafio do Engenharia Recebe**
Best proposal for urban mobility inside UFMG.

Skills

- Languages:** Portuguese (Native), English.
- Programming:** C, C++, Python, MATLAB.
- Hardware:** Arduino, Raspberry Pi, Pixhawk.
- Technologies:** ROS, Git, LaTeX.

Publications

Collaborative UGV/UAV Path Planning for Inventory Management in Warehouses

Caio C. G. Ribeiro, Leonardo H. M. C. Santos, and Douglas G. Macharet

In 2022 Latin American Robotics Symposium (LARS), 2022 Brazilian Symposium on Robotics (SBR), and 2022 Workshop on Robotics in Education (WRE), 2022. ([paper link](#)).

Variable-Speed Dubins Orienteering Problem

L. C. Vinicius Faria, C. G. Caio Ribeiro, and Douglas G. Macharet

In 2024 Latin American Robotics Symposium (LARS), 2024. ([paper link](#))

Communication Backbone Reconfiguration with Connectivity Maintenance

Leonardo Santos, Caio C. G. Ribeiro, and Douglas G. Macharet

Under review to IEEE Latin America Transactions. arXiv preprint arXiv:2409.16851 (2024). ([paper link](#))

Socially-aware Object Transportation by a Mobile Manipulator in Static Planar Environments with Obstacles

Caio C. G. Ribeiro, and Douglas G. Macharet

To be submitted (2025). ([paper link](#))