Caio Conti Guidote Ribeiro
M.Sc. Student in Computer Science- Robotics

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Education

Federal University Of Minas Gerais (UFMG)
Belo Horizonte, Brazil
Aug 2023 - Present
M.sc. in Computer Science – GPA 98/100
Relevant coursework: Robot Dynamics and Control, Reinforcement Learning, Natural Computation.

Federal University Of Minas Gerais (UFMG)
Belo Horizonte, Brazil
Nov 2017 - Jul 2023
Diploma in Automation and Control Engineering – GPA 86/100
Relevant coursework: Mobile Robots, Robotic Manipulators, Control Engineering, Real-Time Automation.

Rhine-Waal University of Applied Sciences (HSRW)
Rhein-Waal, Germany
Set 2022 - Feb 2023
Exchange Student, enrolled in Mechatronics Engineering
Coursework: Bioinspiration, Evolutionary Algorithms, Scientific Methods, Leadership, Cross-Cultural Management and Creativity.

Experience

Laboratory of Computer Vision and Robotics (VeRLab), UFMG
Belo Horizonte , Brazil
Aug 2023 - Present
Graduate Researcher
- Social Navigation and Transportation for Mobile Manipulator Robots (project link).
- Dubins Orienteering Problem variants (project link).
  - Second author paper.
- **Technical Skills:** MATLAB, Python, ROS, Reinforcement Learning.

Laboratory of Computer Vision and Robotics (VeRLab), UFMG
Belo Horizonte , Brazil
Nov 2021 - Aug 2023
Undergraduate Volunteer Researcher
- Path design for a cooperative ground and aerial vehicle system (project link).
  - First author paper published at LARS 2022. Awarded as one of the conference's Top 15 Papers.
- Path-planning for multi-robot systems (project link).
  - Second author paper, under review.
- **Technical Skills:** Python, ROS.

Localiza Rent a Car SA
Belo Horizonte , Brazil
Aug 2021 - Fev 2022
Software Engineer Intern
- Backend Software Developer.
- Responsible for developing the Human Resources software application.
- **Technical Skills:** C#, SQL.

Evolutionary Computation Laboratory, UFMG
Belo Horizonte , Brazil
Dec 2020 - Jul 2021
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.

AVANT, UFMG
Belo Horizonte , Brazil
Nov 2017 - Nov 2020
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, Gazebo.

Scholarships and Awards

2023 **Academic Excellence Program (PROEX) Scholarship**
Four-year CAPES/PROEX Master's 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

Programming: C, C++, Python, MATLAB
Tecnologies: ROS, Git, LaTeX.
Languages: Portuguese (Native), English.

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. Vinícius 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 submited (2025). (paper link)