

Manuela Moura

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EDUCATION

Federal University of Minas Gerais (UFMG) | School of Engineering

Belo Horizonte, Minas Gerais

Bachelor in Control and Automation Engineering

August 2022 - Expected June 2027

- **Relevant Coursework:** Artificial Neural Networks, Computer Organization and Architecture, Object Oriented Programming, Digital Systems Design, Control Engineering

WORK EXPERIENCE

VerLab | Computer Vision and Robotics Laboratory

Belo Horizonte, Minas Gerais

Undergrad Student Researcher with Scholarship

September 2023 - Present

- Participated in a research project focusing on advanced mobile robotics, applying path planning algorithms to simulate autonomous robot navigation in complex social environments, such as crowded rooms, enhancing the understanding of robot-human interaction dynamics.
- Developed dynamic social simulations using **Python** and data analysis libraries (scikit-learn, matplotlib, numpy), significantly improving predictive models and visualization of behaviors in simulated environments.
- Participated in the implementation of an autonomous vehicle by integrating algorithms and navigation systems using C++ and ROS, with deployment across real-world environments and simulation platforms like Gazebo.
- First author of a paper accepted to the **Latin America Robotics Symposium**.

Physics Demonstration Room of UFMG

Belo Horizonte, Minas Gerais

Undergrad Student Researcher

August 2023 - December 2023

- Developed the automation of experiments, like the Cavendish Balance, by integrating **Arduino**, servo motors, and cameras with **LabVIEW** for data collection and analysis, enabling global remote access to real-time experimental data and live video feeds.

ACTIVITIES AND VOLUNTEERING

Computer Science Department of Federal University of Minas Gerais

Belo Horizonte, Minas Gerais

Tutor of the discipline Programming and Software Development II

August 2023 - December 2023

- Provided individualized tutoring sessions every week helping students with theoretical computing concepts and with their programming lessons using C++.
- Assisted the course professor in a supportive academic role, correcting and grading assignments, besides planning new activities for students.

ENG 200 Program

Belo Horizonte, Minas Gerais

Event organizer for Engenharia Recebe

August 2023

- Helped organize and assemble the event called Engenharia Recebe. Which is made by veterans of the School of Engineering to give freshmen a warm reception.

SKILLS AND ABOUT ME

Programing and Technical skills:

- Python
- C/C++
- R
- ROS /ROS2
- Docker
- Git

Languages: Portuguese (Native), English (Advanced)

ARTICLES

- "Adaptive Generalized Social Space Delimitation for Human-Robot Interaction Tasks" – Presented and published at the Latin America Robotics Seminar (LARS), November 2024.

GRANTS AND SCHOLARSHIPS

Research Scholarship

Fundep | Fundação de Apoio da UFMG

Brazil

August 2024 - Present

- Year-long scholarship from Fundep for the research and development of an autonomous vehicle.

Research Scholarship

CNPq | National Council for Research and Development

Brazil

September 2023 - August 2024

- Year-long scholarship from CNPq for research on mobile robotics path planning and social delimitations algorithms.