Vitor Ortega

Belo Horizonte, MG, Brazil | vitorvobrs@gmail.com
vitorortega.com

EDUCATION

Federal University of Minas Gerais (UFMG) Belo Horizonte, Minas Gerais
Bachelor's Degree in Electrical Engineering – 6th Semester 2024–2028 (Expected)

Relevant Coursework: Data Structures and Algorithms, Electronics, Control, Deep Learning, Robotics.

WORK EXPERIENCE

VerLab | Computer Vision and Robotics Laboratory Belo Horizonte, Minas Gerais
Digital Speleology (Vale)
Undergraduate Researcher (Scholarship Recipient) *October 2025 – Present*
My goal within this project is to enable the Unitree Go2 robot to work reliably in unstructured environments.

- Developing Unitree Go2's autonomy stack for simulation and real-world operation, working on mapping, perception and navigation, with a focus on LiDAR-inertial odometry. Currently working on odometry failure detection, improving robustness during extended autonomous operation and contributing to reinforcement-learning-based perception. Used ROS 2, Docker, CAD tools, Gazebo, Python and C++.
- Co-author of a paper accepted for presentation at the Latin American Robotics Symposium. Worked specifically on adapting BIEVR-LIO and FAST-LIO2 so that a fair comparison between the two could be made.

VerLab | Computer Vision and Robotics Laboratory Belo Horizonte, Minas Gerais
Autonomous Vehicle Project (VAL-Lynx)
Undergraduate Researcher (Scholarship Recipient) August 2024 – August 2025

- Contributed to the development of an autonomous vehicle by helping define hardware and software specifications, developing methods to improve GNSS global localization and navigation, addressing orientation, signal quality, waypoint collection and storage, and synchronization. Also implemented deterministic obstacle detection algorithms prioritizing performance and robustness. Used C++, Python, ROS and Gazebo.

ACTIVITIES AND VOLUNTEERING

Computer Science Department of the Federal University of Minas Gerais, Belo Horizonte, Minas Gerais
Teaching Assistant for Introduction to Robotics First semester of 2026

- Taught a class about sensors and robot perception and helped students in practical classes and during external tutoring sessions.

Federal University of Minas Gerais, Belo Horizonte, Minas Gerais
Volunteering 2024–Present

- Helped with multiple welcome events for new university students, visits from primary and high schools, and career fairs by bringing robots to the events and talking to the public. Also taught a FreeCAD class to undergraduate students in August 2026.

SKILLS

Programming and Tools: Python, C++, Docker, ROS, ROS 2, Verilog/VHDL, MATLAB and Linux
Robotics: Filtering and processing of sensor data, development of mobile robots, navigation and routing of single robots, perception using point cloud data and system architecture for autonomous robotic systems.
Languages: Portuguese (Native), English (Fluent)

ARTICLES

- "A Handheld System for Three-Dimensional Mapping of Harsh Natural Caves" — To be presented at the Latin American Robotics Symposium 2026 (LARS 2026) and published in its proceedings.