Eduardo Borges

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Education

University of Coimbra *Sep 2025 to present*
PhD in Electrical Engineering and Intelligent Systems

- Research focus on computer vision, and machine learning applications in autonomous systems.
- Aiming to contribute to the development of intelligent robotic systems for industrial and real-world applications.

University of Coimbra *Sep 2022 to Sep 2024*
MSc in Electrical and Computer Engineering – Robotics, Control, and Artificial Intelligence

- **GPA:** 19/20
- Advanced coursework in robotics, control systems, and machine learning.
- **Dissertation:** "DL-Based Multimodal Object Detection and Tracking Targeting Industrial AMRs", earning a grade of 20/20.

Polytechnic University of Coimbra *Oct 2021 to Jul 2022*
BSc in Electrical Engineering – Automation

- **GPA:** 16/20
- Specialized in control systems and industrial automation with a focus on global engineering impacts.
- Honed skills in project management and professional ethics.

Polytechnic University of Coimbra *Sep 2018 to Jul 2021*
BSc in Biomedical Engineering – Bioelectronics

- **GPA:** 16/20
- Strong foundation in Physics, Mathematics, and Electrical Engineering applied to biomedical systems.
- Developed engineering solutions for healthcare, integrating electronics, microprocessors, and programming.
- Presented a final internship report, achieving a 19/20 evaluation.

Experience

Master Researcher *Coimbra, Portugal*
Institute of Systems and Robotics – University of Coimbra *Jan 2025 to present*

- Implementing a ROS-based multimodal detection & tracking system for industrial AMR safety.
- Designing and integrating an object re-identification module into a real-time detection & tracking pipeline.

Student Researcher *Coimbra, Portugal*
Institute of Systems and Robotics – University of Coimbra *Jan 2024 to Dec 2024*

- Conducted a comprehensive literature review on RGB-D and 3D point cloud object detection and tracking.
- Developed a multimodal object detection and tracking approach for collision avoidance in industrial settings.
- Collected and prepared a multimodal dataset in an industrial environment.

Quality Engineer Intern *Coimbra, Portugal*
Olympus Medical Products Portugal *Mar 2021 to Jun 2021*

- Reduced errors and improved repair processes by creating quality documentation.
- Enhanced operational efficiency by investigating and resolving recurring issues.
- Tested and proposed new tools for integration into workflows.

Research Interests

Computer Vision • Machine Learning • Robotics

Publications

Safer and Trustworthier Navigation of Automated Vehicles May 2025

Martin Aleksandrov, Kristina Yordanova, ***Eduardo Borges***, Diogo Soares, Tiago Barros, Cristiano Premebida

10.1109/CSCS66924.2025.00035 (25th International Conference on Control Systems and Computer Science (CSCS))

A Modular Multimodal Multi-Object Tracking-by-Detection Approach, with Applications in Outdoor and Indoor Environments Nov 2024

Eduardo Borges, Luís Garrote, Urbano Nunes

10.5220/0013073200003822 (Presented at the 21st International Conference on Informatics in Control, Automation and Robotics (ICINCO))

Reviewing Experience

2025: IEEE IV

2024: IEEE ITSC

Projects

GreenAuto: Green Innovation for the Automotive Industry *Oct 2022 to Jun 2025*

- **Role:** Researcher

Explainable Probabilistic Models for Robot Applications (XPro) *Mar 2024 to Mar 2026*

- **Role:** Visiting Researcher
- Visited the University of Greifswald, in Germany, and collaborated with researchers on the paper "Safer and Trustworthier Navigation of Automated Vehicles".

Awards and Grants

(2025) PhD Studentship - FCT: Awarded a 4-year PhD studentship by FCT to pursue doctoral studies at the University of Coimbra.

(2025) Master Research Grant: Awarded by the project "GreenAuto: Green innovation for the Automotive Industry". Project page

(2024) ABB-FCTUC Award: Best Master's dissertation for "DL-Based Multimodal Object Detection and Tracking Targeting Industrial AMRs". Award includes a €1000 prize and a paid internship opportunity at ABB.

(2024) Research Initiation Grant: Awarded by the project "GreenAuto: Green innovation for the Automotive Industry". Project page

(2023/24) Merit Board Member: Recognized as part of the top 5% of Bachelor's and Master's students in the University of Coimbra.

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Skills

Programming: Python (PyTorch, OpenCV, SciPy, Scikit-learn, NumPy) • C • MATLAB • LaTeX

Languages: Portuguese (Native) • English (Advanced, DET: 150/160)