

Enthusiastic engineer with more than 10 years of industrial experience working in highly innovative international companies and organisations (DYSON, European Patent Office, SAR, BOSH, BIAL) developing complex and robust systems in the field of electronics, software and robotics. Driven by challenging projects and working with a motivated team in stimulating environments.

Technical Skills

- Algorithm development and mathematical modelling
- C/C++, Matlab, Python, Linux, ROS, Gazebo
- Motion Control, Trajectory tracking, Path Planning, Sensor fusion, Mapping, Localisation
- Computer Vision, Object detection/recognition, Machine Learning, Deep learning
- Portuguese (native), English (proficient), French (intermediate), Spanish (intermediate), German (A2)

Projects

DYSON 360 EYE ROBOT VACUUM CLEANER – *using 360 degrees vision system for autonomous navigation*

- Developed a new path deformation algorithm which combines both motion control and trajectory tracking functionalities taking into account the exact geometry of the robot and its kinematic constraints

GOLF BALL PICKER ROBOT – *mobile robot for picking balls autonomously in golf driving ranges*

- Developed new path planning algorithm for multiple non-mandatory targets, TWIN-RRT* which enables efficient asymptotically optimal trajectories to be generated in real time for up to 20,000 targets

BOT'N ROLL ONE – *mobile educational robot platform*

- Developed 4 generations of a mobile robotic platform from concept to product over 7 years which became a standard educational platform used in Roboparty® and Robocup™ international events

Professional Experience

DYSON - *Advanced Robotics Algorithms Engineer*

MALMESBURY, UK | *October 2014 – Present*

- Lead investigations in 5 areas: path planning, motion control, sensors, 3D simulation and mapping
- Work with the architecture team to identify functional requirements in 3 mobile robotic projects
- Collaborate with test teams to define testing strategies for new algorithms
- Guide and mentor fellow robotic engineers

EUROPEAN PATENT OFFICE - *Patent Examiner*

THE HAGUE, HOLLAND | *October 2013 – October 2014*

- Assessed over 20 patent applications in the field of computer devices and human interfaces
- Provided detailed reports on state-of-the-art technologies

UNIVERSITY OF GRONINGEN - *Guest Researcher*

GRONINGEN, HOLLAND | *March 2013 – September 2013*

- Developed algorithms, simulations and path planning methods such as TWIN-RRT* for mobile field robots
- 2 publications and PhD thesis: "Golf ball picker robot: path generation in unstructured environments towards multiple targets"

SAR – *Project Developer*

GUIMARÃES, PORTUGAL | *September 2006 – February 2013*

- Investigated and implemented sensor-guided mobile robotics solutions for 2 innovative products
- Developed software for computer vision, motion control and path-planning projects
- Submitted 3 patent applications: PT106417, WO2009022929 (A3), WO2007035122 (A1)
- Co-organized several Roboparty® events, workshops and exhibitions
- Managed and coordinated an European Project Application with a consortium of 3 companies

Education

UDACITY - *Self-Driving Car Engineer Nanodegree*

October 2017

MIT PORTUGAL - UNIVERSITY OF MINHO - *Leaders for Technical Industries, Ph.D.*

January 2015

UNIVERSITY OF MINHO - *Industrial Electronics and Computer Engineer, Licenciante Degree*

July 2006

UNIVERSITY OF COIMBRA - *Biochemistry, Licenciante Degree*

December 1999