

Nino Pereira

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Date of Birth: 06/07/1976
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PROFILE

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. Engaging with colleagues and team members in order to meet the vision specs on time and on budget. Solid academic background on Electronics and Computer Engineering with a PhD from MIT – Portugal program on Leaders for Technical Industries. Currently engaged with online course on Self-Driving Cars Engineering nanodegree course (12 months) from Udacity.

TECHNICAL SUMMARY

ADVANCED

- Algorithm development
- C / C++ programming
- Matlab
- Python
- Motion Control
- Trajectory tracking
- Path Planning
- Computer Vision
- Mathematical modelling

INTERMEDIATE

- Machine Learning
- Deep Learning
- Sensor fusion
- Mapping
- Localisation
- Object detection/recognition
- 3D Simulations
- CAD modelling
- Sensing systems
- Linux OS

EMPLOYMENT HISTORY

10/2014 – Present Advanced Robotics Algorithms Engineer Dyson Ltd

Brought in by Dyson to help identify, develop and mature the innovative and transformational technologies required to enable the next generation of Dyson's market-changing products. Role outcomes:

- Lead algorithmic investigations in 5 areas including path planning, motion control, sensor arrangement, 3D simulation modelling and mapping;
- Research algorithmic solutions in 3 projects and develop prototype demonstrators;
- Present reports to management team about key enabler and risk areas of proposed algorithmic solutions;
- Work with the architecture team to identify functional requirements in 3 projects;
- Liaise with functional teams to define relevant domain strategies;
- Collaborate with test teams to define testing strategies for new algorithms;
- Work with relevant implementation domains early in the development lifecycle to ensure timely and complete knowledge transfer;
- Provide complete documentation and investigative support;
- Guide and mentor fellow algorithm engineers.

10/2013 – 10/2014 Patent Examiner European Patent Office

- Assessed over 20 patent applications in the field of computer devices and human interfaces;
- Provided detailed reports on state-of-the-art technologies and communicated with applicants on any objections to the grant of a patent.

3/2013 – 9/2013 Guest Researcher University of Groningen

Worked as a guest researcher with Professor Tijn van der Zant at Cognitive Robotics Laboratory in Faculty of Mathematics and Natural Sciences, School of Computing and Cognition from University of Groningen in The Netherlands. Outcomes:

- developed several algorithms, simulations and advanced path planning methods such as TWIN-RRT* for mobile field robots;
- 2 Publications;
- Completed PhD thesis.

9/2006 – 2/2013 Project Developer
SAR – Soluções de Automação e Robótica

- Investigated and implemented sensor-guided robotics solutions;
- Selected technologies and techniques used in the delivery of robotics application demonstrators;
- Performed mathematical modelling and algorithm development to achieve real-time sensor-guided robot motions;
- Developed software for computer vision, motion control and path-planning projects;
- Submitted 3 patent applications;
- Managed and coordinated an European Project Application with a consortium of 2 companies and a University as partners;
- Demonstrated working systems and thoroughly test them to establish their operational limits;
- Worked closely with other team members and liaise with other teams on issues relating to design and requirements;

4/2010 – 12/2012 Teacher (part-time)
Escola Profissional CENATEX

Teacher in part-time on several different subjects, including theoretical and practical modules in Electrical Motors, Analog Electronics, Digital Control, Power Systems, Amplifiers and others.

10/2001 – 9/2008 Manager
Electro Positivo – Componentes de Electrotecnia, Lda

Ran a family business for 7 years having all the responsibilities of administration and business development.

9/2004 – 1/2005 Electronics Technician
Blaupunkt (BOSH Car Multimedia)

Worked for 4 months as an electronics technician in a full time job while taking Engineering degree at University of Minho.

5/2000 – 9/2001 Biochemist Researcher
BIAL - Portela & C^ª SA

Biochemist researcher at the Portuguese pharmaceutical company BIAL.

EDUCATION

10/2016 – Present Engineering Nanodegree on Self-driving Cars Udacity

- Expanded skills through interactive projects in computer vision, robotic controls, localisation, path planning, machine learning, sensor fusion and others;
- Successfully completed 10 projects;

10/2008 – 1/2015 PhD - Leaders for Technical Industries MIT Portugal - University of Minho Golf Ball Picker Robot: path generation in unstructured environments towards multiple targets

- Completed the MIT-Portugal doctoral program in Leaders for Technical Industries (LTI) within the Engineering Design and Advanced Manufacturing (EDAM) focus area;
- Successfully submitted projects within an Engineering Systems framework on Product Development, Systems Engineering, Product and Process Innovation, Complex Decision-making and Leadership;
- Applied economics, management and social aspects into research projects;
- Thesis on the development of a mobile field robot with focus on new algorithms for path planning - "Golf Ball Picker Robot: path generation in unstructured environments towards multiple targets".
- 3 Patent applications

10/2001 – 7/2006 Licenciante Degree – Industrial Electronics and Computer Engineer Universidade do Minho

- Gained competences in the domain of Electronics and Computers Engineering, namely design and implement electronic systems and/or devices in several specialization areas: Automation, Control and Robotics; Electrotechnics and Energy Systems; Computer Technology; Microtechnology and Instrumentation; Telecommunication Systems;
- Joined the Automation and Robotics Laboratory research group and took part in several national and international robotic competitions on wheeled mobile cooperative robots.

9/1994 – 12/1999 Licenciante Degree – Biochemistry University of Coimbra

- Acquired scientific knowledge and training in the areas of Life Sciences, Biochemistry and others, which provided strong foundations for biotechnology and health care research;
- Completed one year training at Histocompatibility Center performing DNA Sequencing methods for organ compatibility tests.

PATENTS

- “Sistema para cadeira de rodas omnidireccional motorizada, roda omnidireccional e utilização dos mesmos” – (Portuguese patent number 103 354, submitted on 21st September 2005)
- International Patent “Omnidirectional Electric Wheelchair Control System”, n.º 2006000022, (PCT/PT2006/000022), on 21st September 2006. Published on 29th March 2007 under WO 2007/035122
- “Sistema de Recolha de Bolas de Golfe Totalmente Autónomo ou Remotamente Operado” – (Portuguese patent 103 807, on 13th August 2007). Published on the Journal of Industrial Property no. 8/2009, edited on 13th January 2009, under the 66º of “Código da Propriedade Industrial”.
- Fully Autonomous or Remotely Operated Golf Ball Picking System – (International Patent number PCT/PT2008/000031, on 18th August 2008).
- “SIMPLO - Hybrid Real-Virtual Electronic Information System” – Submitted on December 2011, (conceded on September 2014)

PUBLICATIONS

- Pereira, Nino, et al. "Path planning towards non-compulsory multiple targets using TWIN-RRT." *Industrial Robot: An International Journal* 43.4 (2016): 370-379.
- Ribeiro, António Fernando, et al. "Learning Robotics for youngsters-the RoboParty experience." *Robot 2015: Second Iberian Robotics Conference-Advances in robotics* (vol. 1). Springer, 2016.
- Pereira, Nino, et al. "A golf ball picking robot design and development." *15th International Conference on Experimental Mechanics*. 2012.
- Pereira, N., et al., Autonomous golf ball picking robot design and development. *Industrial Robot: An International Journal*, 2012. 39(6): p. 541-550.
- Ribeiro, António Fernando, et al. "Bot'n roll robotic kit as a learning tool for youngsters." *9th International Conference on Hands on Science (HSCI'2012)*. Universidade do Minho, 2012.
- Lopes, G., F. Ribeiro, and N. Pereira, Catadioptric system optimisation for omnidirectional robocup MSL robots. 2011.
- Ribeiro, F., et al., High accuracy navigation in unknown environment using adaptive control. *RoboCup 2007: Robot Soccer World Cup XI*, 2008: p. 312-319.
- Ribeiro, A.F., et al., Optimized robot strategy, ball filters and new referee whistle hardware filter. 2007.
- Ribeiro, A.F., et al., Mobile robot construction for edutainment application. 2007.
- Ribeiro, A.F.M., et al., Omnidirectional Electric Wheelchair Control System. 2006, Google Patents.
- Ribeiro, A.F., et al., Cooperative Behaviour of specific tasks in multi-agent systems and robot control using dynamic approach. 2006.

- Pereira, N., et al., Computer-controlled model railroad. 2006.
- Ribeiro, A.F., et al., Optimization of fast moving robots and implementation of I2C protocol to control electronic devices. 2005.
- Ribeiro, A.F., et al., Vision, kinematics and game strategy in multi-robot systems like MSL RoboCup. 2005.
- Ribeiro, A.F., et al., Controlling omni-directional wheels of a MSL robocup autonomous mobile robot. 2004.
- Ribeiro, A.F., et al., Three omni-directional wheels control on a mobile robot. 2004.

HONORS AND AWARDS

- 1st place at Robotics National Festival Robotica, at Freebots Competition, 2006
- Honor medal awarded by Guimarães Town Mayor, 2006
- Honor medal awarded by Fafe Town Mayor, 2006
- Best Student in Industrial Electronics and Computer Engineering at University of Minho (2003,2004,2006)
- 1st place at BES National Innovation Contest with « Omnidireccional Wheelchair, 2005
- 1st place at Inventuminho National Innovation Contest with « Omnidireccional Wheelchair, 2005
- 3rd place at Inventuminho National Innovation Contest with “SIR – Intelligent Traffic Signaling System”, 2005
- 1st place at « 1º Encontro de Robótica do Algarve », Portugal on Medium Soccer Robots Competition, 2005
- 1st place at Robótica 2006 – Guimarães, Portugal on Medium Football Robots Competition,
- 1st place at Robocup 2005 – Osaka, Japan, in “Technical Challenge” of Medium Soccer Robots,
- 1st place at Robótica 2005 – Coimbra, Portugal on Medium Soccer Robots Competition,
- 1st place at Robótica 2004 – Porto, Portugal on Medium Soccer Robots Competition

LANGUAGES

- Portuguese (native), English (proficient), French (intermediate), Spanish (intermediate), German (A2)

PERSONAL

- [Stackoverflow contributor](#)
- [Github – Contributor](#) on Open Source Projects
- Youtube channel: [Open Roberta Tutorials with Bot'n Roll ONE](#)
- Sports: MTB
- Music: Singing, Piano, Guitar, Mandolin, Ukelele
- SPR (Portuguese Robotics Society) founder associate
- IET (Institution of Engineering and Technology) member (registration in progress)