M.Sc Nestor D. **Pereira Neto**

Electronic engineer · 38

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"Graduated in Electronic Engineering (2013) and specializing in Biomedical Engineering (2019). My professional journey includes practical experience in the maintenance of diagnostic imaging hospital equipment, along with a stint in teaching technical and higher education courses since 2011. Recently, I earned a Master's in Electrical Engineering with a focus on computing and robotics (2022), propelling me into the realm of research and development in robotics since 2019. My expertise spans hardware description, digital signal processing, C/C++ programming, embedded systems, and mobile robotics."

Education

Federal University of Bahia - UFBA

Salvador, BA

Doctorate Degree in Electrical Engineering - Research Line: Computing and Robotics — *Fev. 2023 - Mar. 2027*

- Development triggered event algorithm based on FPGA for the ATLAS experiment at the Large Hadron Collider (LHC-CERN).

Master's Degree in Electrical Engineering - Research Line: Computing and Robotics — *Apr. 2018 - Dec. 2022*

- Communication between *Robot Operating System - ROS* and *System-on-a-chip - SoC* with integrated FPGA.

Estácio de Sá University

Salvador, BA

Specialization in Biomedical Engineering — *Oct. 2017 - Feb. 2019*

- Convolutional Neural Network for Detection of QRS Complexes in Electrocardiogram Signals

Faculty of Science and Technology - ÁREA1

Salvador, BA

Bachelor's degree in Electronic Engineering — *Feb. 2008 - Jul. 2013*

- Command prototype to fit X-ray equipment to the standards required by the National Health Surveillance Agency - ANVISA.
- Undergraduate research scholarship for two years

Professional Experiences

SENAI - CIMATEC

Salvador, BA

Specialist II - Robotic Engineering — *Apr. 2022 - currently*

- ROS2 robotics framework: Gazebo Simulation, URDF/Xacro, SLAM Techniques for UGV.
- Programming C/C++ and python.
- Hardware and software integration.
- Hardware and firmware development for embedded systems.

Consultant II - Robotic Engineering — *Apr. 2019 - Apr. 2022*

- ROS robotics framework: Gazebo Simulation, URDF/Xacro.
- Programming C/C++ and python.
- Hardware and software integration.
- Hardware and firmware development for embedded systems.

Professor part time - 20h — *Nov. 2018 - Apr. 2019*

- Teach class for the course: Industrial Mechatronics.
- Subjects: Analog Electronics and Digital Eletronic.

ÁREA1|Wyden College

Salvador, BA

Laboratory technician — *Jul. 2013 - Aug. 2017*

- Prepare and teach practical classes for the courses: Computer Engineering, Electrical Engineering and Automation Engineering.
- Test new tools used in laboratories and provide training.
- Provide extension courses and the experience program.

Alfamed Eletromedicina

Salvador, BA

Engineer - Technical responsible — *Aug. 2013 - Feb. 2015*

- Technical responsible for the company.
- Electronic maintenance in hospital bio-imaging equipment.

Centro Territorial de Educação Profissional da Região Metropolitana CETEP-RM

Camaçari, BA

Teacher - 40h — *jun. 2011 - jun. 2013*

- Teach classes in the following subjects: Analog and digital electronics; Microcontrollers; Electric circuits.
- Guide students in their course completion work.

Micro Comércio e Serviço Ltda. *Salvador, BA*

Maintenance technician *Jun. 2009 - Sep. 2010*

- Preventive and corrective maintenance in hospital bioimaging equipment.

Intern - maintenance *Mar. 2008 - Jun. 2009*

- Preventive and corrective maintenance in hospital bioimaging equipment.

Languages

Portuguese Native.
English B1 level - CEFR.

Courses

2021 **FPGA INTEL Training(20h),** Macnica DHW - Official Training Center FPGA INTEL *Florianópolis, SC*
2018 **NucLi - English. listening comprehension (32h),** Federal University of Bahia - UFBA *Salvador, BA*
2018 **Programa Idiomas sem Fronteiras: My English Online - Level 4 (120h) ,** Ministry of Education - MEC. *Brasil*
2010 **Study of Device Control via parallel, serial and USB ports (60h),** Faculdade ÁREA1. *Salvador, BA*
2010 **Applied Analog Electronics (30h),** Faculdade ÁREA1. *Salvador, BA*

Projects and Research

SENAI CIMATEC *Salvador, BA*

Flatfish - Sipem *Oct. 2023 - currently*

- Mobile underwater robotics development project.
- Development in C/C++ language.
- Tools: Gitlab, Docker, Hyro.

SuBot - CTG Brasil (China Three Gorges Corporation) *Oct. 2021 - Sep. 2023*

- Mobile robotics development project for inspection of high voltage substations.
- Development of ROS nodes in C/C++ and Python language.
- Hardware and firmware development for actuator systems and peripheral communication.
- Electronic and mechanical project development.

DIGISUB - Petrobras *Apr. 2019 - Oct. 2021*

- 3D digitizer development project of underwater surfaces in deep water.
- Development of ROS nodes in C/C++ and Python language.
- Hardware and firmware development for actuator systems and peripheral communication.
- Prototype power system sizing: sources, AC-DC/DC-DC converters, batteries.

Polytechnic School of the Federal University of Bahia - UFBA *Salvador, BA*

Master's project *Dec. 2018 - Dec. 2022*

- 1 GigE communication development between FPGA and ROS.
- Hardware project in verilog for implementation in SOC/FPGA (Cyclone V - Intel).
- Socket programming in C/C++ language for linux.
- Development of ROS nodes in C/C++ language.
- Paper presented at *IBERCHIP 2022*.

Faculty of Science and Technology - ÁREA1 *Salvador, BA*

Undergraduate research scholarship *Jul. 2011 - Jul. 2013*

- Development of a microcontrolled command to fit old X-ray equipment to current technical standards.
- Programming 8051 family microcontrollers in assembly language.
- Research of the technical standards established by ANVISA in relation to X-ray equipment.
- Presentation of monthly reports with activities developed in the period.
- Publication of the results in an article in the journal *Cientefico ISSN 1677-1591, jul/dez 2013*.

Skills and Abilities

Basic Verilog HDL, Cyclone V, Sockets, Cmake, GDB, Nios II, Embedded Linux, SimuLink.
Intermediate Python, 3D CAD, Quartus Prime, RTOS, OOP, Linux, Git/Github, PIC, AutoCAD, ROS/Gazebo.
Advanced PCB/KiCad, Matlab, C/C++, AVR, 8051, ARM Cortex M, GNU-Make, LaTeX.

Honors & Awards

2022 **PETROBRAS,** Prêmio Inventor 2022 - Award for filing a patent for an underwater 3D scanner — *Rio de Janeiro, Brasil*

Presentation

28th IBERCHIP Workshop — *Santiago, Chile*

IEEE Circuits and Systems Society in Latin Ameriaca — *1-4 Mar. 2022*

- Communication between Robot Operating System - ROS and SoC with integred FPGA