

Raphael de Souza Nunes

📍 Manaus, Amazonas, Brazil ✉ raphaelnunes@gmail.com.com ☎ +55 92 98149-6235 📞 Raphael Nunes
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About Me

I have over 7 years of experience in Software and Firmware development for web, desktop, and embedded systems, with a strong background in teamwork using agile methodologies. I am communicative, proactive, and punctual. I hold a Bachelor's degree in Control and Automation Engineering and a Master's degree in Electrical Engineering. In new opportunities, in addition to contributing to projects with my skills and experience, I seek to further strengthen my knowledge through both teaching and learning.

Professional Experience

Software Developer PL

Fundação Paulo Feitoza - FPFtech

Manaus, AM

May 2021 – Present

- Solid experience in developing APIs and web applications using Flask, Django, NestJS, FastAPI, Spring Boot, Crow, React/NextJS, and Angular, implementing both monolithic and microservices architectures;
- Experience in system and application integration through protocols and tools such as MQTT, RabbitMQ, Kafka, HTTP, ZeroMQ, as well as creating communication drivers using XFS and XFS4IoT;
- Experience in desktop applications with Electron, Tauri, and Qt, as well as software development for embedded systems and industrial devices, including microcontrollers (Espressif, Raspberry, Atmel, and STM32) and microprocessors/SoMs (Compulab and Raspberry Pi), with development of custom operating systems based on the Linux kernel;
- Development of solutions for industrial communication and IoT, using protocols I2C, CAN, UART, SPI, Modbus, RS485, EtherCAT, TCP, UDP, Ethernet/IP, OPCUA, as well as Wi-Fi connectivity (IEEE 802.11), Bluetooth Low Energy (IEEE 802.15.1), and LoRa;
- Knowledge in Robotic Process Automation (RPA) with image classification (using TensorFlow, Keras, and OpenCV) and Web scraping (BeautifulSoup and Playwright);
- Solid experience with relational databases (SQLite, MySQL, SQL Server, PostgreSQL) and non-relational databases (MongoDB, Redis, MinIO), using SQL and tools such as Prisma, SQLAlchemy, and Hibernate;
- Experience with the AWS ecosystem (EC2, Lambda, S3), versioning and CI/CD with Gitlab, as well as deploying applications via Docker, Kubernetes, and Terraform;
- Experience in unit testing (unittest, CppUnit, Jest, JUnit) and test-oriented applications using Robot Framework;
- Configuration and use of Advantech industrial PCs, Portwell RevolutionPi, and Advantech devices (WISE-6610 V2, WISE-2200-M);
- Solid experience in developing applications for data collection and control of industrial devices, such as Keyence (SR-X and CV-X), Yaskawa Motoman, PLCs (Mitsubishi, Schneider, and Rockwell), among others;
- Experience with agile Scrum methodology and acting as technical leader of projects.

Test Automation Developer

Sidia Institute of Science and Technology

Manaus, AM

Dec 2019 - Mar 2021

- Conducted manual and automated testing on Android devices focused on Firmware Over The Air (FOTA) updates;
- Experience with test automation using pytest, unittest, and Android Debug Bridge (ADB);
- Development of applications for Robotic Process Automation (RPA) using Selenium, Playwright, PyAutoGUI, PyWin32, Sikuli;
- Experience with data manipulation of .csv, .xlsx, .json, and .yaml files;
- Development of desktop applications for Quality Assurance (QA) using Electron and PySimpleGUI;
- Experience with reading and creating test reports;

- Use of JIRA, Bitbucket, and Confluence tools;
- Experience with Scaled Agile Framework (SAFe) methodology with continuous planning and delivery.

Firmware Developer

Manaus, AM

Embedded Systems Laboratory - LSE - HUB

Sep 2017 - Dec 2019

- Programming of Espressif microcontrollers (ESP32 and ESP8266), ATMEL (Attiny85, Attiny167, Atmega328P), STMicroelectronics (STM32F1), and Nordic (nRF24);
- Creation of operating systems based on the Linux kernel using YoctoProject;
- Experience with microprocessor platforms from Raspberry Pi, Compulab (CL-SOM-iMX7), and Toradex (Colibri iMX6);
- Experience with data transmission via Wi-Fi radio frequency (IEEE 802.11), ANT, and Ethernet (IEEE 802.3) with HTTP, MQTT, and ESP-NOW protocols;
- Development of applications using C/C++ and Python languages;
- Deployment of applications for embedded systems using Supervisor and Systemctl;
- Experience with code versioning using Gitlab and test management using Mantis;
- Experience with SQLite database.

Other Experiences (Legal Entity)

Freelance Software Developer

Manaus, AM

- Experience with secure Back-end services with HTTPS using NestJS and implementation of real-time bidirectional communication with Socket.IO (WSS);
- Configuration and deployment of secure WEB applications on servers using Nginx and Certbot for SSL certificate issuance and renewal;
- Project with microservices architecture, using RabbitMQ for queues and asynchronous messages, promoting scalability;
- Experience with symmetric (AES) and asymmetric (RSA) encryption for handling and storing sensitive data;
- Experience with creating Point of Sale (POS) applications with integration of Stone POS machines;
- Experience sending notifications via SMS and Whatsapp using Twilio;
- Creation of applications with payment methods using Stripe;
- Experience with CI/CD via GitHub Actions.

Teacher

Manaus, AM

- Experience teaching at technical and undergraduate levels, focusing on the following subjects: Programming Languages, Databases, IoT, Embedded Systems, and Web Programming.

Education

Master's in Electrical Engineering

Mar 2022 – Dec 2024

Federal University of Amazonas - UFAM

- Research Area: Smart Grids, Distributed Systems, Electric Vehicles, Energy Efficiency, and Data Science.

Specialization in Industrial Control and Automation

Jan 2023 – Dec 2023

Faculdade Única

- Research Area: Industrial Protocols and Systems.

Bachelor in Control and Automation Engineering

Feb 2016 – Dec 2021

State University of Amazonas

- Final Paper: Design of a Rainwater Supply System Based on *IoT*

Technician in Electronics *Federal Institute of Amazonas - IFAM*

Feb 2013 – Dec 2015

Major Publications

Study of Costs Generated to Utilities with RDBTs under Joint Operation of PV and EV Subject to Volt-VAr Control ↗	Oct 2023
Application of a Telemetry System Applied to the Automatic and Remote Monitoring of a Nautimodelism ↗	Jun 2021

Languages

Portuguese: Fluent (Native).

English: Advanced (C1).

French: Basic (A1).

Technical Skills

Main Programming Languages: C++, Python, Typescript, and JAVA.

Main Tools: VSCode, Pycharm, Webstorm, IntelliJ, CLion, MQTTX, Insomnia, and Postman.

Fundamental Concepts: TDD, SOLID, and Clean Code;

Operating Systems: Windows and Linux kernel-based: Ubuntu, OpenSUSE, Debian, and Mint.

Experience with agile methodology: Use of Trello, Confluence, and JIRA tools for activity management and process documentation.

Publication of articles and documentation: Proficiency in LaTeX and experience with technical writing and presentations.