Renato Freitas

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Renato Freitas is an Embedded Software Engineer with experience in product development. He is currently living in New York holding an L-2S Visa with employment authorization (no Visa sponsorship required), and is looking for an opportunity as a Software Engineer.

Work Experience

Embedded Software Engineer   09/2019 – 01/2023

PullUp Soluções em Sistemas Eletrônicos – Product Development Consultancy   São Paulo, Brazil

- Designed and developed embedded HMI applications for occupational health devices using the TouchGFX Framework for **ARM Cortex-M STM32 microcontrollers** (C and C++) and also **Qt for Embedded Linux**
- Created high-frequency sensor data visualization tools using **Qt** (C++ and QML) and **Grafana** for IoT devices
- Revised a legacy project, changing hardware/firmware architecture and replacing key hardware components, which led to an 80% bill-of-materials cost reduction and increased the client's profit margins
- Oversaw the work of two interns that answered directly to me
- Reduced device production time **developing test jigs**, integrated hardware/firmware test scripts, and automated continuous delivery of new binary releases to the manufacturing team
- Technical specification of new projects from ground up for various clients (medical, human safety, mining and infrastructure industries)
- Implemented libraries and device drivers for various ICs, including high-speed accelerometer sampling, NAND flash memories, and battery managers utilizing **I²C and SPI protocols**
- Worked on hardware projects review and validation – component choice, hardware bring-up, electrical schematics, and PCB layout review on **Altium Designer**
- Developed prototypes and proof-of-concept using development kits from various vendors (ST, Texas Instruments, Espressif, Nordic Semi, Microchip) to reduce possible errors in the final hardware design

Education

University of Sao Paulo, Brazil

B.S. Electrical and Computer Engineering

Undergraduate Thesis: Smart comfort level sensor network designed to monitor office environments   github.com/co-env

- Custom BLE Mesh sensor network that sent environmental data to InfluxDB on an AWS EC2 instance via MQTT + Grafana dashboard for visualization and analysis.

Extracurricular Activities

ThundeRatz Robotics Team   03/2017 – 06/2020

University Robotics Team

- First place in one of the largest Brazilian robotics competitions with a self-driving autonomous robot – ROS, sensor fusion for robot localization, neural network for image detection
- Second place at Robogames (Pleasanton, CA) with a humanoid radio-controlled robot
- Software and Firmware Team Lead (1 year)
  - People management, maintainer of the team's cloud server on Digital Ocean, project management, and version control using Git on both GitHub and a private self-hosted Gitea server

Skills

Programming: C, C++, Python, SQL, Shell Scripting, QML, JavaScript, TypeScript, HTML, CSS, Makefile, CMake

Language: Portuguese (native), English (advanced)

Technology: Git, RTOS, Linux, ARM architecture, Qt Framework, BLE, Wi-Fi and MQTT protocols, ROS, hardware development platforms (ESP32, NVidia Jetson TX2, Raspberry Pi, Arduino), Docker containers, GitHub Actions, NGINX, hardware debugging lab equipment (oscilloscope, multimeter, logic analyzer), React, Next.js, Tailwind CSS, Node.js