Renato Freitas

520 W 43rd St, New York, NY

freitas-renato@outlook.com

+1 (917) 880-7610

https://renatofreitas.me/

Renato Freitas is an Embedded Systems Engineer from Brazil 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 Systems Engineer, Full-Time   01/2021 – 01/2023

PullUp Solutions in Electronic Systems – Product Development Consultancy

- Designed and developed embedded HMI applications for occupational health devices using the TouchGFX Framework for **ARM Cortex-M STM32 microcontrollers** (C and C++)
- 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)

Embedded Systems Engineer, Part-Time   09/2019 – 12/2020

PullUp Solutions in Electronic Systems – Product Development Consultancy

- Developed an embedded HMI application for a human body vibration analyzer using **Qt for Embedded Linux** (C++) on an ARM Cortex-A4 processor
- 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 alongside the hardware development team to verify and validate new projects – 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

- Won national and international competitions with autonomous robot projects – Winter Challenge, Robogames
- Self-learning environment where students ran the team independently without any university funding
- 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, Makefile, CMake

Language: Portuguese (native), English (advanced)

Technology: Git, RTOS, ARM architecture, ARM Embedded Toolchain (GCC, GDB etc), BLE, Wi-Fi and MQTT protocols, ROS, development platforms such as NVidia Jetson TX2, Raspberry Pi, Arduino and ESP32, Docker container builds, GitHub Actions, NGINX, hardware debugging lab equipment