Mateus Alves da Rocha

Brasília, Brazil

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Skills

Skills: C++, C, Python, GDB, Multithreaded programming, Bash, Matlab
Technologies: Git, GitHub, Bitbucket, Jira, AWS MQTT, HTTP requests
Tools: Unix/Linux OS, Neovim, Jenkins, Raspberry Pi, MSP430, ESP32, Kicad

Work Experience

Software Engineer, Onboard Mobility - Brazil — Aug. 2023 – Curr.

Main skills: *C++, C, GTest, CMake, Python, GDB, MQTT, Multithread, Linux, Git*

- Enhanced search efficiency in a denylist algorithm by upgrading from a linear to a constant time algorithm using Singleton Design Pattern and Hash table algorithms in C++. Validated performance improvements through testing with profiling tools.
- Proposed and implemented unit testing for C++ codebases using the Google Test framework. Ensured adherence to SOLID principles to enable seamless mocking for thorough testing, thereby enhancing code reliability and maintainability.

Embedded Systems Test Engineer, APTIV - Poland — Mar. 2022 – July 2023.

Main skills: *CAPL language, Python, DOORs, Vector CANoe, Plastic, Jenkins.*

- Developed a web application using Node.js and Python that integrated with Jira API, providing a faster form to create QA test tickets for my manager and external 15 teams within the company. Successfully implemented the application, resulting in at least 5 customer teams utilizing it within 2 weeks of launch, with the project now being used by multiple QA teams, and my manager planning to support additional requirements.
- Implemented a Jenkins server on my test bench and created a pipeline in Python that automated repetitive tasks This automation saved time, improved efficiency, and reduced errors, which was recognized during the annual performance review with my manager.

Embedded Software Engineer, Onboard Mobility - Brazil — Oct. 2019 – Mar. 2022

Main skills: *C++, C, Python, GDB, MQTT, HTTP, Multithread, Linux, Git, Bitbucket, Raspberry Pi, iMX8*

- Implemented a console application in C++ and MQTT to create remote access to the devices, reducing costs and increasing efficiency. The solution was widely adopted by the team and allowed the development a variety of commands in the Unix environment such as system status and health verification, OTA, and more.
- Implemented an optimized solution by the use of C++ instead of Python for MQTT communication. Also, improved the system structure making use of cron-jobs, resulting in a 70% reduction in resource consumption and consistent performance, as verified by tools such as HTOP.
- Developed an efficient MQTT system to replace HTTP requests for sending encrypted payloads from the tickets processed by the device to the AWS backend, resulting in minimized data packets and reduced network bandwidth in communication.

Hardware/Firmware development Engineer, E-lastic - Brazil — June 2018 – Oct. 2019

Main skills: *C++, C, ESP32/ESP8266, MSP430, Attiny84, Arduino, Kicad, Funsion360*

- Proposed and executed a redesign for the company's main product by replacing the Attiny84 MCU and Bluetooth module with an ESP32 MCU, resulting in cost savings and a more streamlined design. This resulted in positive customer feedback and successful sales of the first 100 units within a month of launching a marketing campaign.
- Developed an algorithm to optimize the calibration process of new products. Successfully reduced the time to one-third of the previous time, resulting in improved efficiency and productivity.

Education

Bachelor of Electronics Engineering — Dec. 2018.

University of Brasilia, DF - Brazil

International Exchange program by Ciências Sem Fronteiras — Aug. 2015 – Aug. 2016

Wayne State University, MI. - USA.
University of California, LA. - USA.