Fabio Slika Stella

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Summary — Driven and collaborative Computer Engineer with a strong foundation in embedded systems and low-level development for industrial and automotive environments. Experienced in firmware design, real-time communication protocols (CAN, I²C, RS-485), and hardware-level debugging. Skilled in Linux-based development, including kernel-level work and custom device drivers. Passionate about clean, maintainable code and systems that just work. Known for being a reliable team player who thrives on feedback, enjoys tackling complex technical challenges, and is always eager to learn and grow. Seeking remote opportunities to contribute to meaningful, technically rich projects—especially those rooted in Linux or embedded innovation.

Skills

Languages C/C++, Python, Bash
Embedded UART, I²C, CAN J1939, RS-485, FreeRTOS
OS Arch Linux (BTW)

Tools Git, Docker, Ceedling, Unity Test, Qt, Simulink

Experience

Progress Rail (a Caterpillar Company) **Dec 2024 – Present**
Development Engineer — R&D Department

- Designed and implemented new features in embedded systems for railway control units, focusing on modular, maintainable code with backward compatibility for legacy platforms.
- Integrated and maintained communication stacks (CAN J1939, I²C, RS-485), ensuring robust interaction with sensors, actuators, and peripheral devices.
- Diagnosed and resolved critical low-level firmware issues, including hard faults on production hardware, improving reliability of field-deployed systems.
- Contributed to architecture discussions, refactoring efforts, and R&D planning to drive future-proof embedded solutions.

Zeentech (Contracted to Stellantis) **Jul 2024 – Dec 2024**
Software Analyst — Automotive Systems

- Developed and validated embedded control algorithms using Simulink for safety-critical ECUs in compliance with automotive industry standards.
- Participated in model-based testing, simulation, and requirement tracing workflows to ensure functional safety and performance.
- Collaborated with cross-functional engineering teams to improve system reliability and testing coverage.

Inobram — Aviculture Automation **Oct 2022 – Jun 2024**
Embedded Systems Developer

- Architected and deployed an over-the-air (OTA) bootloader for STM32 platforms, enabling secure remote firmware updates and easing field maintenance.
- Maintained and modernized legacy firmware for automation systems deployed in real-world poultry environments, improving uptime and robustness.
- Integrated various digital and analog sensors, optimized control loops, and collaborated closely with hardware, mechanical, and field teams.
- Promoted code reuse, modularity, and testability in new feature development, reducing future maintenance effort.

Xpert Automação de Postos **Nov 2021 – Jun 2022**
Embedded Systems Intern — R&D Department

- Developed embedded software for automation systems in gas stations, focusing on reliability and integration with existing infrastructure.
- Implemented mesh networking using OpenWRT on embedded Linux devices, improving communication range and fault tolerance.
- Built desktop automation tools using the Qt framework for internal use and client diagnostics.

UTFPR — Undergraduate Research Project **Jun 2021 – May 2022**
Researcher — Control Systems

- Designed and implemented a simulation tool for Brushless DC motor control using an Extended Kalman Filter (EKF) for state estimation.
- Migrated the original MATLAB model to Python, enabling open and license-free distribution for academic use.
- Research outcomes formed the foundation of the undergraduate thesis, bridging theory and practical embedded control applications.

UTFPR — Undergraduate Research Project **Jun 2020 – Jun 2021**
Researcher — Motor Control

- Investigated advanced control strategies for Brushless DC motors, focusing on dynamic response and stability improvements.
- Simulated and benchmarked multiple control approaches, contributing to the development of more efficient drive systems.

Education

Federal University of Technology – Paraná (UTFPR) **2018 – 2022**
Bachelor's Degree in Computer Engineering *Pato Branco, Brazil*

- Graduation project: Developed and simulated an Extended Kalman Filter for Brushless DC motor control using Python.
- Focused research on control systems, BLDC motor modeling, and embedded systems development.
- Engaged in multiple academic research projects involving applied control strategies and signal processing techniques.

Graduate Coursework: Signal Processing (Aluno Externo) UTFPR – PPGEE 2020

- Completed 4-credit postgraduate course in signal processing as an external student.
- Topics included frequency-domain analysis, filtering, and digital signal modeling.

Certifications

CCNA Routing and Switching: Introduction to Networks Cisco Networking Academy – UTFPR Dec 2019

- Acquired practical knowledge on IP addressing, routing, switching, and device configuration for small and medium business networks.
- Developed hands-on skills in deploying and monitoring basic connectivity between networked devices.

Cybersecurity Essentials Cisco Networking Academy – UTFPR Aug 2020

- Studied digital security principles including CIA triad (Confidentiality, Integrity, Availability), attack methods, countermeasures, and legal frameworks.
- Learned how to apply technologies and procedures for defending network infrastructure.

Bare-metal C Programming for Microcontrollers Internal/External Study 2021

- Focused on programming STM32 and ARM Cortex-M microcontrollers without RTOS.
- Covered startup files, linker scripts, peripheral registers, and interrupt vectors.

Projects

Homelab Server **Mar 2015 – Present**

- Personal server running Unraid OS, used as a platform for continuous experimentation with virtualization, networking, VPNs, and self-hosted services.
- Hosts local backups and media storage for personal and family use, reinforcing data safety and hands-on sysadmin skills.

ESP32 OTA Bootloader **2024**

- Implemented an OTA firmware update mechanism for ESP32 using custom socket communication and the ESP-IDF bootloader.
- Designed the update pipeline with socket streaming, image validation, and dual-partition memory layout.

Stock Portfolio CLI Tool **2023**

- Developed a terminal-based tool for real-time tracking of personal investments and dividends using Python and public APIs.
- Features include portfolio cost basis analysis, profit/loss monitoring, and dividend tracking.

IPv6 Python File Transfer **2023**

- Designed a lightweight file transfer system over IPv6 using Python sockets, focusing on simplicity and portability across systems.
- Implemented sender/receiver roles with basic error handling, compatible with CLI workflows and embedded testing.