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|  | **Fabio Slika Stella**  Curitiba PR  fabioslikastella@gmail.com  /  +55 46 991068741 |

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| **Summary** |

Embedded Systems Engineer with hands-on experience in firmware development, real-time communication protocols (CAN, I²C, RS-485), and hardware-level debugging for industrial and automotive applications. Skilled in C/C++, Python, FreeRTOS, and Simulink, with a strong background in Linux-based development, including kernel-level work and custom drivers. Proven track record of delivering reliable embedded solutions, optimizing legacy systems, and implementing secure OTA updates. Recognized for problem-solving, cross-functional collaboration, and building maintainable, future-proof systems.

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| **Skills** |

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| ****Technical Skills****   * C/C++ * Python * Embedded Systems * Real-Time Operating Systems * Simulink (Model-Based Design |  | ****Soft Skills****   * Attention to Detail * Effective Technical Communication * Collaboration * Analytical Thinking * Problem-Solving |

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| **Experience** |

**Development Engineer** / Progress Rail  *12/2024 - Current*

* Designed and developed new features for embedded systems in railway control units, ensuring modular, maintainable, and scalable code, while maintaining backward compatibility with legacy platforms.
* Integrated and maintained communication protocols, including CAN (J1939), I2C, and RS-485, enabling reliable interaction with sensors, actuators, and peripheral devices.
* Diagnosed, debugged, and resolved critical firmware and hardware issues, including hard faults on production systems, which significantly improved system reliability and uptime in field deployments.
* Contributed to software architecture design, code refactoring, and R&D initiatives, supporting the development of future-proof embedded solutions aligned with the company's objectives.
* Collaborated with cross-functional teams to enhance system performance, safety, and compliance standards for embedded applications in railway systems.

**Software Analyst** / Zeentech  *07/2024 - 12/2024*

* Designed, developed, and validated embedded control algorithms using MATLAB/Simulink for safety-critical Electronic Control Units (ECUs) in compliance with ISO 26262 and ASPICE standards.
* Conducted model-based testing, simulation, and requirement tracing, ensuring accurate implementation of system requirements and adherence to functional safety guidelines.
* Collaborated with cross-functional engineering teams across software, hardware, systems, and validation to improve overall system reliability, performance, and compliance.
* Enhanced test coverage and defect detection by optimizing model validation workflows and applying structured debugging techniques to reduce failure rates in production environments.
* Supported continuous improvement initiatives, streamlining development and testing processes to align with automotive quality standards and accelerate project delivery timelines.

**Embedded Systems Developer** / Inobram  *10/2022 - 06/2024*

* Architected and deployed an over-the-air (OTA) bootloader for STM32 microcontrollers, enabling secure remote firmware updates and simplifying field maintenance.
* Maintained, optimized, and modernized legacy firmware for industrial automation systems in poultry environments, increasing system uptime, reliability, and robustness.
* Integrated and calibrated digital and analog sensors, refined control loop performance, and collaborated with hardware, mechanical, and field engineering teams to deliver stable solutions.
* Implemented modularity, code reuse, and testability practices in new feature development, reducing future maintenance effort and improving software scalability.
* Contributed to system validation, debugging, and performance optimization efforts, ensuring compliance with embedded software best practices and supporting field-deployed solutions.

**Embedded Systems Intern** / Xpert Automac¸˜ao de Postos  *11/2021 - 06/2022*

* Developed embedded software for automation systems in gas stations, with a focus on reliability, scalability, and seamless integration into existing infrastructure.
* Designed and implemented mesh networking solutions using OpenWRT on embedded Linux devices, enhancing communication range, redundancy, and fault tolerance.
* Built desktop automation and diagnostic tools using the Qt framework, supporting internal engineering teams, and improving client troubleshooting efficiency.
* Conducted system integration, debugging, and validation of embedded and desktop solutions, ensuring robust performance in real-world operational environments.
* Collaborated with cross-disciplinary teams to align software development with hardware constraints, customer requirements, and industry compliance standards.

**Researcher** / UTFPR  *06/2021 - 05/2022*

* Designed and implemented a simulation tool for Brushless DC motor control, applying an Extended Kalman Filter (EKF) for advanced state estimation and control accuracy.
* Migrated the original MATLAB-based model to Python, enabling open-source, license-free distribution for broader academic and research use.
* Conducted simulation experiments and performance analysis, validating the accuracy of EKF-based state estimation under various operating conditions.
* Documented research findings in a comprehensive undergraduate thesis, bridging theoretical control concepts with practical embedded applications.
* Collaborated with faculty and peers to present and review outcomes, contributing to the advancement of model-based control research in academic settings.

**Researcher** / UTFPR  *06/2020 - 06/2021*

* Investigated advanced control strategies for Brushless DC (BLDC) motors, emphasizing dynamic response optimization and stability improvements.
* Simulated and benchmarked multiple motor control approaches, providing comparative analysis to guide the design of more efficient drive systems.
* Applied model-based design techniques to evaluate controller performance under varying load and operating conditions.
* Documented findings in research reports and technical presentations, strengthening the link between theoretical control methods and practical applications.
* Collaborated with academic mentors and peers to refine methodologies, contributing to ongoing research in electric motor control and drive efficiency.

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| **Education and Training** |

**Bachelor's Degree** : Computer Engineering  *01/2022*

Federal University of Technology - Paraná (UTFPR) - - 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  *01/2020*

UTFPR - PPGEE

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

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| **Websites, Portfolios, Profiles** |

* linkedin.com/in/fabio-slika-stella
* github.com/Gedankenn

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| **Certifications** |

* CCNA Routing and Switching: Introduction to Networks, Cisco Networking Academy - UTFPR, 12/01/19, 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, 08/01/20, 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, 01/01/21, Focused on programming STM32 and ARM Cortex-M microcontrollers without RTOS., Covered startup files, linker scripts, peripheral registers, and interrupt vectors.

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| **Projects** |

Homelab Server, 03/01/15 - 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.

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