

# JONATHAN TOBIAS DA SILVA

## Research & Development Engineer | Embedded Software and Systems

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Research and Development Engineer specializing in software engineering and embedded systems, focusing on operational and information technology domains. Dedicated to leveraging technology and engineering expertise to address real-world challenges and drive meaningful progress.

## EXPERIENCE

### R&D Embedded Software Engineer

#### Datacom

2024 – Ongoing    Remote

- Develop and maintain C/C++ and Python software, optimizing device performance and ensuring high reliability.
- Enhance code reliability through the design and execution of unit tests and automated integration tests using GoogleTest and the Robot Framework.
- Develop and debug embedded Linux systems, with a focus on performance tuning and system stability across various hardware platforms.
- Implement and maintain protocols at the Layer 3 level.
- Conduct code reviews following best practices in TDD, CI/CD, and Clean Code principles.
- Conduct in-depth troubleshooting on complex telecommunications systems, resolving critical issues and minimizing system downtime.

### R&D Electronic Intelligence Analyst

#### Nova Smar

2023 – 2024    Sertãozinho, SP, Brazil

- Coordinate a product development initiative, managing a team of 10 engineers and developers.
- Apply cybersecurity measures to ensure compliance with the IEC 62443 and O-PAS standards, enhancing the security and integrity of embedded systems.
- Orchestrate the migration of version control systems from CVS to Git for the R&D department, implementing CI/CD pipelines to streamline project workflows.
- Lead the development and maintenance of Linux operating systems and kernels using the Yocto Project for real-time operating systems (RTOS).
- Develop desktop and embedded software applications and internal tools to optimize workflows.
- Experience with hardware interfaces, networking protocols, and communication standards.

### R&D Electronic Intelligence Assistant

#### Nova Smar

2022 – 2023    Sertãozinho, SP, Brazil

- Research Cybersecurity and Artificial Intelligence for Industrial Automation, ensuring system security and efficiency gains of 76% in production processes through Machine Learning tools.
- Develop desktop and embedded applications for System302 in Linux environments, including firmware patches that have enabled updates for the largest installed base of the system.
- Apply a comprehensive set of Software Engineering and Computer Network concepts to development processes such as version control, clean code, and CI/CD.

## EDUCATION

### Master in Electrical Engineering

#### University of São Paulo (USP)

2022 – 2025    São Carlos, SP, Brazil

#### Thesis:

- Vulnerability analysis of industrial OPC UA networks.

### Bachelor in Electrical Engineering

#### Federal Institute of São Paulo (IFSP)

2017 – 2021    Sertãozinho, SP, Brazil

#### Final Paper:

- Cloud-based intelligent system for the detection of hydraulic pump failures.

### Certificate in Administration

#### ETEC Antônio de Pádua Cardoso

2014 – 2016    Batatais, SP, Brazil

- Acquired foundational technical knowledge essential for business and people management.

## TOPICS OF INTEREST

Embedded Systems    Convergence IT/OT    Linux  
Cybersec    Cloud Computing    AI/ML    Management  
Software Engineering    Communication Protocols  
Programming Languages    Data Science & Analytics

## PUBLICATIONS

### Journal Articles

- J. T. Da Silva and O. Paschoal, "Fortifying industrial automation: Best practices in cybersecurity," 2023.

### Conference Proceedings

- J. T. Da Silva, A. L. Dias, and I. N. Da Silva, "A survey on opc ua protocol: Overview, challenges and opportunities," in 15th IEEE International Conference on Industry Applications (INDUSCON), 2023.

- Manage System302 project milestones and quality assurance processes to ensure project success.
- Craft technical documentation in Portuguese and English.
- Develop and conduct internal training.

- High leadership ability;
- High adaptability;
- Deadline-Oriented;
- Eagerness for knowledge;
- Excellent teamwork skills;
- Always ready for a collaborative environment.