Gabriel dos Santos Schmitz

Backend Engineer (Go) | Distributed Systems | Applied Cryptography
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About

Backend Developer focused on Golang, distributed systems, and performance-oriented software engineering. Professional experience in SaaS application development, automated testing, modular architecture, and CI/CD pipelines.

Additional work in low-level systems, applied cryptography, and post-quantum security research, including implementation of cryptographic primitives, blockchain, and integration with ecosystems such as Hyperledger Fabric.

Highlights

- Professional backend experience with Golang applied to SaaS products
- Applied research in post-quantum cryptography and blockchain integration
- Implementation of low-level systems in C/C++ focused on performance
- Public open-source projects with real adoption and technical visibility
- Experience with automated testing, CI/CD, and distributed architecture

Professional Experience

NeticShard
Junior Software Developer

April 2024 – March 2025
Remote – LATAM

- Backend development of a SaaS platform for IT incident response using Golang.
- Implementation of unit, integration, and E2E tests to improve product reliability.
- Structuring CI/CD pipelines and Git workflows in an international collaborative environment.
- Application of Domain-Driven Design principles and modular architecture.

Academic Research

National Education and Research Network (RNP)
Scientific Research Scholarship

November 2024 – November 2025
Toledo, PR

- Research on integrating post-quantum cryptography into blockchain, focused on efficiency analysis and signature-size optimization for long-term security.
- Integration of post-quantum cryptographic algorithms into the Go language.
- Integration of modified Go language into Hyperledger Fabric.

Institutional Program for Scientific Initiation in Technological Development and Innovation (PIBITI)
September 2024 – November 2024
Scientific Research Scholarship
Toledo, PR

- Research in post-quantum cryptography applied to lattices and quantum-resistant systems.
- Study and implementation of cryptographic primitives focused on security, efficiency, and practical applicability.
- Study of KEMTLS and post-quantum TLS protocols.

Paraná Federal University of Technology (UTFPR)
Scientific Initiation

2023 – 2024
Toledo, PR

- Research in post-quantum cryptography focused on lattice-based primitives.
- Implementation of the Goldreich-Goldwasser-Halevi (GGH) cryptosystem and experimental analysis of computational properties.

Projects

Tomato.C 2022 – 2025
C, NCurses, Makefile, Shellscript

- Pure C terminal application with more than 400 public stars on GitHub and international adoption by developers.
- TUI interface with ASCII animations, notifications, and ncurses-based modular architecture.
- Cross-platform deployment across Linux, MacOS, and WSL.

ProofVote 2026
Blockchain, Cryptography, C++ / Distributed Systems

- Experimental electronic voting system based on blockchain with verifiable integrity and cryptographic traceability.
- Implementation of block structure, hashing, vote validation, and record chaining.
- Practical exploration of distributed consensus, fault tolerance, and blockchain architecture from scratch.

BibInject 2026
Python, Text Parsing, Academic Automation

- Tool for automating insertion and manipulation of LaTeX bibliographic references in HTML pages.
- Developed with TDD, test coverage above 90%, including unit and E2E tests.
- Complete CI/CD pipeline with GitHub Actions, including linting, type checking, and automated validation.

Motrix 2026 – Present
C++, Raylib, ECS Architecture

- Own implementation of a minimalist Entity Component System aimed at graphics engines.
- Explicit separation between components, systems, and entities focused on performance.
- Architectural foundation for visual experiments and real-time simulations.

Pendulum Tracker 2024
Python, Flask, Dash, OpenCV

- Full-stack application for real-time experimental pendulum tracking via computer vision.
- Automatic extraction of angular position and generation of dynamic oscillation graphs.
- Integration between OpenCV and interactive web dashboard for experimental physics analysis.

Education

Federal University of Technology – Paraná 2022 – 2027
Bachelor's Degree in Computer Engineering *Toledo, PR*

State University of Western Paraná 2020 – 2022
Language Teaching Program – English *Cascavel, PR*

Harvard University & Princeton University 2024
CS50x: Introduction to Computer Science | Algorithms, Part I & II *Remote*

Technical Skills

Languages: Go, C, C++, Python, JavaScript, Java, SQL
Backend: REST APIs, Concurrency, Distributed Systems, Testing
Infrastructure: Docker, CI/CD, Linux, AWS, Git
Frameworks: Flask, Node.js, HTMX
Specialties: Cryptography, Systems Programming, Software Architecture

Languages

Portuguese: Native
English: Advanced (professional experience)