Werner **Bisschoff**

Software Engineer

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Summary

Software engineer who builds the foundations teams need to ship reliable software fast. B.Eng. Computer and Electronic Engineering. I add testing infrastructure, development tooling, and system architecture that lets teams move fast confidently. Experienced in embedded systems (C++, event-driven FSMs), web development (ERPNext, Expo), and introducing AI-assisted workflows that improve team productivity.

Experience

FARO Africa

Cape Town

Full-Stack Software Engineer — *Aug 2024 – Nov 2025*

- Extended ERPNext using Python/JavaScript to improve workflows, pricing logic, and operational reporting (SQL) → **reduced manual reporting time and improved data accuracy**
- Built mobile features in Expo, including NFC (ISO 14443-4 APDUs) for e-paper price tags and card operations → **enabled real-time price updates with fewer tagging errors**
- Migrated internal Retool workflows to Expo → **improved performance and enhanced long-term maintainability**
- Developed and maintained C# APIs supporting internal systems.
- Provisioned AWS infra with Pulumi and deployed services including Inngest and PayloadCMS.
- Diagnosed and resolved issues in a large existing ERPNext installation.
- Introduced LLM-assisted development workflows → **improved debugging speed and code review throughput, enabling faster iteration**

Ingenics Digital GmbH *(through ViVa Outsourcing)*

Remote Work

Embedded Software Engineer — *Mar 2023 – May 2024*

- Designed an event-driven finite state machine for an I2C-based embedded system using C++ and FreeRTOS → **created maintainable in-house architecture leading to fewer bugs and quicker development**
- Developed ESP32 applications using C/C++ and ESP-IDF
- Integrated a configurable low-energy BLE stack for device communication
- Built Python-based tooling for serial/BLE communication, including client-facing test executables → **accelerated testing and debugging workflows**
- Created Python hardware mocks for rapid iteration and early-stage testing → **enabled faster development cycles with fewer hardware dependencies**
- Managed fast, reliable data interchange using a compact TinyFrame binary protocol
- Implemented asynchronous communication workflows with Python and Pytest
- Developed an active object within the QP Real-Time Embedded Framework (with QSPY) to simulate device behaviour

UMAN Technologies

Century City, Cape Town

Software Developer — *Mar 2021 – Dec 2022*

- Creating and maintaining Docker containers for development and CI/CD testing → **improved development environment consistency**
- Implementing and testing new services using RPC based on the SOME/IP protocol, as well as using *perf* to reduce performance bottlenecks
- Implementing IPC/RPC in existing C++ programs and Python scripts using Cap'n Proto and pycapnp
- Implementing a node tree to expose process-related variables and function calls to the IPC interface
- Analysing TCP/UDP traffic with Wireshark
- Leading a small team using AGILE development practices, including onboarding and mentoring new software developers

Education

North-West University

Potchefstroom

B.Eng. Computer and Electronic Engineering — *2020*

- Focus on embedded systems, software engineering, and electronic design
- Developing an Android app with Kotlin to emulate an ISO 14443 protocol-based NFC payment system
- Developing microcontroller logic with C and the STM32 system as well as utilizing STM32CubeMX
- Implementing a PID controller with an Arduino to control a DC motor's voltage and speed
- Cleaning and analysing data from large spreadsheets with Python and Pandas, utilizing linear regression, correlation and machine learning

Skills

Systems Architecture	Event-driven finite state machines | RPC/IPC (Cap'n Proto, SOME/IP) | State machines | Node trees
Testing & Quality	Unit testing (Pytest) | Hardware mocks | Test executables | Code coverage analysis
Development Infrastructure	Docker | CI/CD | AWS (Pulumi, Inngest, PayloadCMS) | Linux | WSL2
Workflow Automation	ERPNext | Python tooling | LLM-assisted development | Retool → Expo migration
Languages	C/C++ | Python | JavaScript/TypeScript | SQL
Embedded Systems	ESP32/ESP-IDF | FreeRTOS | NimBLE | QP RTOS | TinyFrame protocol
Web Development	ReactJS | AstroJS | Django REST API | TailwindCSS

Projects

Ingenics Digital GmbH

Event-Driven FSM for Embedded Systems — *Mar 2023 – May 2024*

- Designed event-driven finite state machine for I2C-based embedded system using C++ and FreeRTOS
- Solved complex state management challenges in real-time embedded environment
- **Outcome**: Maintainable in-house architecture leading to fewer bugs and quicker development cycles

FARO Africa

Development Workflow Modernization — *Aug 2024 – Nov 2025*

- Migrated Retool workflows to Expo for better performance and maintainability
- Introduced LLM-assisted development workflow for debugging and code review
- Enabled faster iteration cycles without sacrificing code quality
- **Outcome**: Significantly improved performance, maintainability, and debugging speed

UMAN Technologies

Test Infrastructure from Scratch — *Mar 2021 – Dec 2022*

- Built Python tooling, hardware mocks, and test executables for rapid iteration
- Implemented testing infrastructure where none existed previously
- Reduced deployment risk through comprehensive testing approach
- **Outcome**: Faster iteration cycles and fewer production bugs