

Werner Bisschoff

SOFTWARE ENGINEER

Cape Town, Western Cape, South Africa

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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 Ingest 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

North-West University

Potchefstroom

JUNIOR LECTURER

Feb 2020 – Dec 2020

- Lecturing Python and C++ programming for *Introduction to Programming* for first year IT students in both remote and in-person settings

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

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|-----------------------------------|---|
| 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 Elixir |
| Embedded Systems | ESP32/ESP-IDF FreeRTOS NimBLE QP RTOS TinyFrame protocol |
| Web Development | ReactJS AstroJS Django REST API TailwindCSS Phoenix |

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

Open Source & Side Projects

CLAUDE-TASK-MASTER (FORK)

- GitHub - Added GLM 4.7 model support to AI task management CLI tool
- Implemented skip parameter for task selection workflow, enabling easier parallel task management

MEEPLEINN

- Phoenix/Elixir web application for board game catalogue and event organization
- Comprehensive development tooling: Makefile workflow, git hooks for quality checks, automatic migrations, Docker deployment

DIVERGENT TABLETOP COMMONS

- Elixir LiveView application for community wiki/knowledge base with collaborative editing
- Phoenix LiveView architecture with OTP supervision trees, context isolation, and modular wiki_web components