

# Werner Bisschoff

## SOFTWARE ENGINEER

Cape Town, Western Cape, South Africa

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## Summary

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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

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### 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

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

## Projects

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### 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

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### GitHub

CLAUDE-TASK-MASTER (FORK)

- Maintained and improved fork of claude-task-master, a CLI task management tool
- Enhanced functionality and fixed bugs in TypeScript-based task tracking system

### GitHub

PAGESCMS (FORK)

- Contributed to pagescms, an open-source content management system
- Addressed issues and improved codebase functionality

SIDE PROJECT 1 (ACTIVE DEVELOPMENT)

- Active development in progress - details to be added
- Exploring new technologies and solving interesting problems

SIDE PROJECT 2

- Concept phase - exploring potential side project opportunities
- Focusing on practical solutions to real-world problems