

Werner Bisschoff

EMBEDDED SOFTWARE ENGINEER

Cape Town, Western Cape, South Africa

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Summary

Adaptable and dedicated developer with a strong background in embedded and embedded linux systems. Proven proficiency in C++ and Python, with a passion for continual learning and a demonstrated ability to swiftly adapt to evolving project requirements.

Experience

Ingénics Digital GmbH (through ViVa Outsourcing)

Remote Work

EMBEDDED SOFTWARE ENGINEER

Mar 2023 - Present

- Architecting an *event-driven finite state machine* for a I2C-based system using C++ and FreeRTOS
- Developing applications for an Espressif microcontroller using embedded C/C++ and ESP-IDF.
- Utilizing a highly configurable BLE stack for communications in the ESP environment for low-energy data transmission
- Leveraging Python to manage serial and BLE communications for seamless device interaction; also creating executable programs for client-side testing, enabling application functionality verification
- Setting up mock implementations of hardware functionality using Python. This simulated environment allowed for quick testing and development without the need for physical hardware
- Managing specified data interchange through a lightweight, compact binary framing protocol, ensuring fast and compact data transfers
- Implementing asynchronous development practices using promises and event listeners
- Implementing an *active object* in the QP RTOS framework to allow for deviceless testing of the application

UMAN Technologies

Century City, Cape Town

SOFTWARE DEVELOPER

Mar 2021 - Dec 2022

- Creating and maintaining Docker containers for development and CI/CD testing
- Implementing and testing new client 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

Expandrand

Remote Work

FREELANCE FULL STACK DEVELOPER

Nov 2020 - Dec 2020

- Architecting a full stack content management system to allow viewing and editing of client information and status, by leveraging Django and Django Rest Framework to create a REST API, and ReactJS to create a front end user interface

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. IN COMPUTER AND ELECTRONIC ENGINEERING

2020

- Developed microcontroller logic with C and the STM32 system as well as utilizing STM32CubeMX to generate code
- Developed an *Android* app with Kotlin to emulate a ISO 14443 protocol-based NFC payment system
- Cleaned and analysed data from large spreadsheets by use of Python and Pandas, utilizing linear regression, correlation and machine learning

Skills

Embedded	C/C++ ESP32 ESP-IDF FreeRTOS NimBLE Event-Driven Finite State Machines QP RTOS
Web	Django REST API ReactJS JavaScript TailwindCSS ParcelJS Netlify
Data	Python Pandas NumPy Matplotlib Jupyter Notebook
Tools	Git Docker VSCode Devcontainers Homebrew WSL2 Linux Ubuntu Windows