Werner **Bisschoff**

EMBEDDED SOFTWARE ENGINEER

Cape Town, Western Cape, South Africa

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Summary

Adaptable and dedicated software engineer with a strong background in embedded and embedded linux systems. Proven proficiency in C++ and Python, with a curiosity to expand expertise in various disciplines. Passionate about continual learning and able to swiftly adapt to evolving project requirements. Keen to solve problems with an analytical and detail-oriented approach, ensuring high quality solutions.

Experience

Ingenics Digital GmbH *(through ViVa Outsourcing)*   *Remote Work*

EMBEDDED SOFTWARE ENGINEER   *Mar 2023 - May 2024*

- 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 allowing for quick testing and development
- Managing specified data interchange through a lightweight, compact binary framing protocol (TinyFrame), ensuring fast data transfers
- Implementing asynchronous development practices over serial communication with Python and Pytest
- Implementing an *active object* in the QP RTOS framework with QSPY support to serve as device simulation

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 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*

- 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
- Utilising object oriented programming to create a tower defence game using Qt C++, including pathfinding and network communication with the TCP/IP protocol
- Cleaning and analysing data from large spreadsheets with 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