

# Werner Bisschoff

## EMBEDDED SOFTWARE ENGINEER

Cape Town, Western Cape, South Africa

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### Summary

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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

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#### Ingenics Digital GmbH (through ViVa Outsourcing)

Remote Work

EMBEDDED SOFTWARE ENGINEER

Mar 2023 - Present

- Architected an event-driven finite state machine for a I2C-based system using C++ and FreeRTOS
- Developed applications for an Espressif microcontroller using embedded C/C++ and ESP-IDF.
- Utilized a highly configurable BLE stack for communications in the ESP environment for low-energy data transmission
- Leveraged Python to manage serial and BLE communications for seamless device interaction; Python was also used to create executable programs for client-side testing, enabling application functionality verification
- Set up a mock implementation of hardware functionality using Python. This simulated environment allowed for quick testing and development without the need for physical hardware.
- Managed specified data interchange through a lightweight, compact binary framing protocol, ensuring fast and compact data transfers.
- Implemented asynchronous development practices using promises and event listeners.

#### UMAN Technologies

Century City, Cape Town

SOFTWARE DEVELOPER

Mar 2021 - Dec 2022

- 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 small software development team using *AGILE* development practices, including onboarding and mentoring new software developers

#### Expandrand

Remote Work

FREELANCE FULL STACK DEVELOPER

Nov 2020 – Dec 2020

- Architected 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

- Lectured 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. 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

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**Embedded** C/C++ | ESP32 | ESP-IDF | FreeRTOS | NimBLE | Event-Driven Finite State Machines

**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

### Projects

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TEX RESUME

2020 - Present

- Set up a TEX CV based on the *Awesome-CV* template
- Set up an SSH server on a Windows machine to allow access to the WSL environment and Docker containers
- Set up Cloudflare Zero Trust tunnel and Cloudflare WARP to allow remote access to the Windows machine