



Matthys Bezuidenhout

SENIOR SOFTWARE DEVELOPER
EMBEDDED SYSTEMS /
CYBERSECURITY

CONTACT

MAIL mjbez@outlook.com
BASE Bladel, Netherlands
LANG AF / NL / EN
STATUS Open to roles

CAPABILITY

LANGUAGES C++ · Python · PHP ·
Bash · SQL

EMBEDDED NXP S32 · STM32 ·
Yocto · U-Boot · ISO-TP · CAN ·
UDS

SECURITY ISO/SAE 21434 · TOTP ·
OpenSSL · PKI · ECDSA · IPsec

SYSTEMS Debian · FreeBSD · KVM
· Debian packaging / CMake

TOOLING CANalyzer · Wireshark ·
Qt · Git · Doxygen

CREDENTIALS

2026 EXIN Information Security
Foundation (ISO 27001) — 90%
2024 ISO/SAE 21434 Level 1
2023 TOGAF 10 Practitioner
2021 PSM1
2020 Advanced C (training)
2018 B.Eng Computer and
Electronic Engineering

01 // PROFILE

SUMMARY

I build and secure the software that diagnoses and updates vehicles: a UDS diagnostic tool for production and workshop, seed-and-key for three ECUs, TOTP-protected diagnostics, and a CAN gateway in production. Before that I built secure messaging for the military. Linux and security are where my heart lies, and I like teaching colleagues to work with both.

02 // PROFESSIONAL EXPERIENCE

04 RECORDS

OCT 2021 — PRESENT

Senior Software Developer

CIMSOLUTIONS, PLACED AT VDL BUS & COACH

Diagnostic tool

2022 — PRESENT

UDS · OTX · VUE.JS · DEBIAN

Built and maintained the UDS/OTX diagnostic and maintenance tool for the Citea bus: fault codes, parameter calibration, software updates and I/O monitoring. Four releases shipped.

Fixed a production blocker the same day: the tool now connects on battery voltage alone, and the signal script that found it is still in use.

Implemented seed-and-key for three ECUs — battery management (BMS), immobiliser (ISA) and secure gateway (SGW) — which made the security-gated functions available in the tool and in production flashing.

For new ECUs, decided to roll keys out at runtime with OpenSSL instead of baking secrets into the software.

Automotive cybersecurity

2023 — PRESENT

ISO/SAE 21434 · TOTP · CSMS · IDS

Gave the technical input to the UN R155 and ISO/SAE 21434 risk analysis.

Completed ISO/SAE 21434 Level 1 and helped implement the cybersecurity management system that passed its audit in early 2024.

Designed TOTP-protected diagnostics with a cybersecurity consultant and implemented the client side myself.

The intrusion detection system is running; integrating it with the Security Operations Center is in progress.

Secure gateway

2025 — PRESENT

NXP S32 · YOCTO · U-BOOT · ISO-TP · ECDSA

Investigated a cyber-secure CAN gateway on NXP S32 with embedded Linux: configured the LLCE CAN drivers through debugFS and tested routing between networks at different baud rates.

Integrated the chosen gateway: key provisioning, the client side of an ECDSA handshake, and production monitoring while further features are built.

03 // EDUCATION

2013 → 2018

2013 — 2018

B.Eng Computer and Electronic Engineering — North West University

2008 — 2012

High School — Die Afrikaanse Hoër Seunsskool . Distinctions in Mathematics, Physical Sciences and Afrikaans.

JAN 2019 – OCT 2021	Software Developer NANOTEQ APPLIED C++ · QT · POSTGRESQL · FREEBSD · IPSEC · PHP · PYTHON Helped design end-to-end encryption on XMPP: Diffie-Hellman key exchange, rolling keys for forward secrecy, and windowed decryption so only the visible messages are decrypted. Ported one-to-one messaging from SIP to XMPP with the mobile team; group chat went live in early 2020. Built a solo Jitsi proof of concept with end-to-end encryption, reusing the group-key work, then handed it to a sysadmin for internal use. Maintained the SIP and XMPP system, server and Qt configuration front-end; prototyped SIP, GNU Ring and XMPP, then chose ejabberd after testing servers for extensibility and FreeBSD compatibility. Worked inside an air-gapped build system, which is where I learned qmake, Clang, SVN, GNU Make and the FreeBSD ports system.
AUG – NOV 2018	Engineer in Training HATCH APPLIED PYTHON · SQLITE · EXCEL Ran a Day In The Life Of study at the Amandelbult platinum mine — minute-by-minute data collected underground with the mining captain, shift boss, mining engineer and section chief — and wrote the Python and SQLite pipeline that served it as Excel, CSV or SQL.
JUN 2017 – JAN 2018	Internship DENEL AEROSPACE APPLIED CAN · STM32 · ARM MBED · C++ Built a low-cost, universal CAN node on an STM32F303K8 with a custom transceiver PCB as a proof of concept for avionics networking, and wrote the ARM mbed libraries teammates used to join the same network.

04 // PRACTICE

HOW I WORK

Made most of the team's choices on packaging software for Debian, automated the packaging, and helped other developers add that automation to their CMake projects.

Agile with acceptance criteria and a review on every ticket; for junior colleagues the reviews are learning moments.

Onboarded a colleague who works from Belgium, and presented the sprint demo to the wider team.

05 // COMMUNITY INVOLVEMENT

05 RECORDS

2020 – 2021	Bass Guitarist — Dutch Reformed Church of Africa . Played bass guitar in my church band.
2018	Lecturer's Assistant (Demonstrator) — North West University . Gave facilitation lectures and evaluated practical and written assignments for Web Programming and Database Design.
2016 – 2019	High School Tutor — Potch Tutoring . Tutored Mathematics, Engineering Science and Machining Theory, including students with maths anxiety.
2013 – 2018	Deacon — Dutch Reformed Church of Africa . Organised church and community projects alongside my responsibilities as deacon.
2011 – 2015	Violinist: Unisa grade 4 with honours (2011), Simfonia Yuventi youth orchestra (2012), North West University Symphony Orchestra (2013–2015).