

# Michael Hornung

Independent Embedded Systems & Security Expert | 100% Remote Freelancer

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## Professional Summary

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Independent Linux, embedded systems, and security expert with over 15 years of experience, increasingly leaning into AI/IoT-adjacent freelance work. Delivered automotive security engineering for OEM programs — Daimler (NTG6, NTG7) as a Harman Becker employee, then BMW via AOX (part of Accenture) as a 100% remote freelancer through Hornung Frilans & Handel AB — and currently serves AllRead (Machine Learning Technologies), an AI/ML company, as a client for technical project management and applied engineering, positioning for further AI- and IoT-adjacent freelance work.

## Experience

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**Independent Embedded Systems & Security Expert | Technical Project Manager,** Jan 2025 – present  
Hornung Embedded Engineering

- Serve AllRead (Machine Learning Technologies), an AI/machine-learning company, as a client for technical project management and applied engineering — coordinating cross-functional delivery of product initiatives and contributing applied software engineering support to the product roadmap, drawing on 15+ years of embedded and Linux systems expertise.
- Previously served Laudius GmbH, an established training provider, as a client, running the online "Python Coding" course to roughly 30 participants.

**Senior Software Engineer / Freelancer,** Hornung Frilans & Handel AB Feb 2022 – Jan 2025

- Operated as a 100% remote freelance Senior Software Engineer via an own Swedish company, delivering automotive security and embedded engineering for AOX (part of Accenture) on BMW projects: reviewed threat models and ran security assessments for Linux and Android systems and third-party applications, ongoing and modest in scope.
- Test-drove a communication protocol for the head-unit and display ecosystem; built a Linux kernel driver and user-space app logging a proprietary protocol to DLT.
- Co-developed a head-unit and display simulation platform — startup, base communication, AUTOSAR E2E functional safety, DLT non-verbose logging — with a Python RPC library for remote control, module-tested via Robot Framework and Xray.

**Functional Owner / Technical Lead IO Controller Security (Daimler NTG7/MBUX project),** Jan 2019 – Oct 2021  
Harman Becker Automotive Systems GmbH

- Served as Functional Owner and Technical Lead for IO Controller Security on Daimler's NTG7/MBUX head-unit program — the second of two head units delivered, following NTG6 — leading a multicultural offshore development team that peaked at 7 engineers.
- Led the team that became the first ECU to fully implement Daimler's Security Suite (SSA), a team achievement delivered under his technical leadership.
- Owned security architecture and implementation for a Renesas RH850 microcontroller on AUTOSAR (IO Controller, VCPU), covering HSM integration, Secure Boot, Secure Software Download, Secure Onboard Communication, and Secure Diagnostics.

**Lead Software Developer IO Controller Security (Daimler NTG6/MBUX project),** July 2016 – Dec 2018  
Harman Becker Automotive Systems GmbH

- Led IO Controller Security software development for Daimler's NTG6/MBUX head-unit program — the first of the two head units delivered — directing a multicultural offshore development team.
- Owned project planning, scheduling, and supplier coordination for the NTG6 security workstream, establishing practices later carried forward into the NTG7 program.

- Solely designed the embedded hardware for 2 platforms end-to-end, from concept through production.
- Owned the Linux BSP — kernel, U-Boot bootloader, and userland — across 5 devices spanning x86, ARM, and PowerPC architectures.
- Developed final production device test software and ARM9 microcontroller firmware in C, Python, and Bash.

## Skills

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**Languages/RTOS:** C, C++, Python, Bash, Lua, AUTOSAR Classic

**Embedded HW/Protocols:** Renesas RH850, ARM9, x86/ARM/PowerPC platforms, Intel Atom BIOS bring-up, AUTOSAR E2E, DLT, RPC

**Security:** Threat modeling, secure software development, penetration testing, HSM, Secure Boot, Secure Software Download, Secure Onboard Communication, Secure Diagnostics

**Linux/Infra:** Embedded GNU/Linux (kernel, U-Boot, userland), mainline kernel drivers, Yocto, Git, Subversion, Jenkins, Bamboo, Linux/BSD server administration

**PM/Tools:** Technical project management, requirements management (DOORS), Robot Framework, Xray, CppUTest

**Training & Mentoring:** Led a multicultural offshore team that peaked at 7 engineers on Daimler's NTG7 programme via Harman Becker, and delivered an online "Python Coding" course for Laudius GmbH to roughly 30 participants.

**IoT/Edge:** Automotive IO Controller security across 2 Daimler head units (NTG6, NTG7) via Harman Becker, plus BMW connected-vehicle security via AOX

## Certifications & Education

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**University of Applied Sciences Offenburg**, B.Eng. in Mechatronics

Aug 2005 – Apr 2009

**Security-Specific Training**

May 2017 – Aug 2021

- Software Security Training - Threats, Mitigations and Secure Development
- Crypto Attacks and Defenses
- Foundations of Software Security Requirements
- C/C++ Security
- Introduction to Cryptography for Developers and Architects
- Fundamentals of Secure Embedded Software Development
- Linux Privilege Escalation for OSCP & Beyond
- Linux Privilege Escalation for Beginners

**LFC103: A Beginner's Guide to Linux Kernel Development**, Linux Foundation

May 2019

## Personal Projects (Non-Professional)

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### Remote-Control Power Socket Protocol Reverse Engineering

- SDR-based capture and oscilloscope analysis of consumer RF remote-control power sockets, followed by full reconstruction of the proprietary control protocol.

### Linux Kernel Contribution — IIO Light Sensor Driver

- Co-developed with a colleague, and co-signed (Signed-off-by), a merged upstream Linux kernel patch enabling interrupt-less operation for the TI OPT3001 ambient light sensor driver in the IIO subsystem (drivers/iio/light/opt3001.c), submitted to the kernel mailing list and merged into mainline Linux in January 2016.