Curriculum Vitae - Robert Scott

Date of Birth: 18th October 1979

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Taunton (Somerset, UK)	Full clean car/bike license

Remote contract work preferred

Professional Summary

Multi-talented, friendly embedded contract software engineer with two decades of experience. I specialize in real-time safety-critical embedded applications. Expertise in C/C++/Assembler, Python, Java, and JavaScript. Linux advocate. Exceptional analytical skills and engineering proficiency. Systematic and methodical approach to engineering, software architecture and product testing. Excellent time management.

I favour Manjaro Linux with AWM personally but will work efficiently on any current or historic platform on-site or remotely with any IDE/toolchain as required.

Key Skills

- Expert in embedded C/C++/Assembly. Comfortable in Python and Perl. Passable JS and Java
- Expert in FreeRTOS/SafeRTOS/Contiki/RTX multi-threading and low-level porting of RTOS to all platforms
- All common toolchains (deep knowledge of GCC, IAR, Keil, Sourcery, Eclipse, Xilinx SDK, etc.)
- Cryptography code. Security silicon (Maxim USIP) expert
- Extensive automotive knowledge, including CAN, MOST, K-line, BMS
- Low-level OpenGL, Vulkan, Direct2D, Direct3D 10
- Agile/Scrum and V-cycle. Agile in a safety-critical environment
- Deep experience with testing suites, including LDRA, PC Lint, QAC, VectorCAST
- Unit testing with GoogleTest, usual xunit tools, IDE plugins
- Experience with softcore processors (Xilinx MicroBlaze, Synopsys ARC600, BA22)
- Porting experience of TCP/IP (Nichestack, LwIP). USB/OTG (HCC), and FAT32
- Very experienced working to strict coding standards, including MISRA
- Design knowledge of GSM and GPS systems. Also Zigbee, Wifi, and Bluetooth/BLE
- Shell/Scripting; bash, fish, powershell, and python scripting
- Excellent general technical know-how (hardware, design suites, OTA debuggers, Jenkins, DOORS, etc.)
- Expert in embedded C/C++/Assembly, Python, and Perl
- Expert in FreeRTOS/SafeRTOS/Contiki/RTX multi-threading
- Exceptional documentation and general computing skills, including Microsoft Office and LaTeX

Career History

Embedded Software Engineer (Quell)

Jul '23–Present: Biometric work and resource/performance balancing for an innovative gaming platform. Expressive ESP32 microprocessor, measuring heart rate and SpO2,

Software Consultant (Gems Sensors-Fortive)

Nov '22–Jun '23: Port of existing LPC43xx RTX project to NXP MiMXRT1064/1160 boards for team development.

Engineer (KBR)

Nov '20–Aug '22: Identifying medical, security, network equipment, and documentation of importance while assisting non-technical teams. Forensic analysis of hardware, medical and environmental monitors. Reverse software engineering as required.

Software Engineer (D-Tech Steering)

Oct '19-Aug '20: Embedded C, ensuring quality in working procedures for advanced steerable drilling systems. Design of IP protection. I implemented licensing on a product especially prone to fast off-shore cloning.

Huntleigh Healthcare/Arjo

Mar '19-Oct '19: Bug hunting of a prenatal ultrasound monitor for triplets. Unit test coverage completed prior to FDA certs. C#, .NET on WEC2013.

RTOS Engineer (Wittenstein High Integrity Systems)

May '17–Jul '18: Test design for the pre-eminent SafeRTOS industry-standard SIL 3 version of FreeRTOS. SafeRTOS is the industry standard for medical, automotive, avionics, rail, self-driving vehicles, and military coding standards. Faultless work is obligatory.

Software Engineer (US Startup)

May '16-Feb '17: Mesh network design running 6LoPAN and IPv6, Nordic boards, Bluetooth. Contiki OS. I also wrote example apps for consumer devices in JS. The work heavily influenced IoT and smart technology used today.

Software Engineer (TomTom)

Oct '15-May '16: ARM core processors for next-generation sports-related wearable products. I improved code metrics, power management and added the OTA bootloader. Continuous testing was important. The products are a large commercial success.

Software Engineer (Powa)

Nov '14-Oct '15: QA/QC/Security/Pentesting for a payment device. QC was implemented to a hard deadline. C, PHP/CodeIgniter, and usual automation tools. I integrated Bluetooth and menu-driven systems. Maxim USIP processor with complex tamper-proof security systems. Travel between China and the UK was necessary.

RTOS Engineer (Wittenstein High Integrity Systems)

Apr '13-Nov '14: I provided a porting service for FreeRTOS and SafeRTOS. Demonstration code was written for most existing processors and new exotic platforms. FreeRTOS, Nichestack, and all usual embedded tasks and peripherals are demonstrated. Core RTOS embedded work is done at the lowest software level to impeccable standards.

Software Engineer (Triteq)

Apr '11-Apr '12: Embedded C in high-quality prototypes for medical and industrial monitoring devices. Care to appropriate standards regarding software quality and ATEX environments. STM32 family for low-power devices communicating over Zigbee.

Software Designer (Traffic Master)

Aug '10-Mar '11: Design and implementation of a GPS tracker, real-world event logger. Information passed through the mobile network via SMS datagrams.

System Design (McLaren)

Feb '10-Aug '10: Automated test rig design and test case implementation for F1 engine and simulation management.

Systems Design (Delphi/General Motors)

Nov '08-Jan '10: Design of diagnostics handler for a General Motors vehicle as part of a Delphi project for GMDAT. I implemented an automated test harness to work as a regression test for future releases.

Systems Design (Jaguar Land Rover)

Sep 07-Nov 08: Coding for body computers and immobilisation looms for the Jaguar XF.

Systems Reviewer (FT Technology)

Jun '07–Sep '07: Reviewing and reporting issues with a port between assembler and C for a wind turbine prototype.

Formula One Race System Design (Formula One Management)

Oct '06-May '07: Design of the race control system and starting lights that currently (2022) control the F1 and GT2 cups. QNX, the protocol pushed CAN to the full limit.

Energy Saving Device Design and Management (UK Startup)

Mar '06-Oct '06: I designed the hardware and software for a device that reduces energy consumption. Used UK-wide on residential and commercial premises. The project was extremely successful.

Communications Bridge Design (Jaguar Land Rover)

Nov '05-Feb '06: I modified production and prototype vehicles with individual tech solutions to make the cars appear with glitch-free instrumentation as engines shut down in drive cycles, specifically CAN bridges and live message simulation.

Diagnostic Interfaces (Ford/Visteon)

Jan '05-Nov '05: Diagnostics feature implementation for a diesel engine developed for Ford and PSA. K Line interface (for the PSA module) CAN interface (for the Ford module). Off-site vehicle and security testing.

Automotive Software (Ricardo Tarragon)

2003-2005: Powertrain control. Embedded software engineering, in addition to designing code test harnesses in LDRA. Work included the Bugatti Veyron, Ford Racing, and RAC teams as well as Aston Martin among other prestige brands.

Education

3 A-Levels, ABB · 10 GCSEs A*-A

BEng Electronics (University of Hull)

2003-2004: BEng Electronic Engineering · The University of Hull

MEng Electronics (University of Hull)

2004-2005: MEng Electronic Engineering · The University of Hull

PhD Anthropology (MIT)

2021: Linguistic Models with Software · Massachusetts Institute of Technology

Certifications and Voluntary Work

- Cryptography levels I and II, Dan Boneh with Stanford University
- HUET, BOSIET (Air safety; oil, gas and wind farm)
- Geprüfter Taucher/Gepruüfte Taucherin. UK D1. PADI DM (Diving)

- I assist in system architecture, coding, electronics, and biotech at London and Bristol Hackspaces
- I help with a group on AI uses for prosthetics and implantable microprocessors
- I volunteer as a Christmas worker with The Pilion Trust charity for homeless teenagers

Other

- I am a keen app developer for time management tools, computer games, crop planning and automation
- I am interested in machine learning for industrial applications working with cloud templates

End