

PROFILE

Experienced real-time embedded software engineer with 10 years of avionics, telecommunication and automotive industry experience. Proficient in writing software applications as diverse as safety critical (DO-178B) avionics software, real time operating systems, device drivers for TETRA base stations, mobile phone handset software and Windows and Linux applications. Both professional and practitioner experience of several full product life cycles. Used to work to tight deadlines, whilst maintaining the highest quality in all aspects of my various responsibilities.

SKILLS / KNOWLEDGE

Languages: C/C++, Java, Assembler (PowerPC, Intel 80x68, Motorola 68000, 8051), ADA, UML, Scripting (Windows, UNIX & LINUX), Perl, Visual Basic

Technologies: Real time software development, RTOS, Windows system programming (Microsoft Visual Studio), MFC, COM (Component Object Model), ATL (Advanced Template Library), Internet programming, UML, HTML, SNMP, SQL, DirectX, JavaME, JavaSE, MIDlets, SWT, CAN, MOST

IDEs: Microsoft Visual Studio .NET, Eclipse, EclipseME

Configuration Management: GIT, ClearCase for Windows and UNIX, CVS, PVCS, Serena Dimensions, Continuus

Requirement Management: DOORS

Debugger: Lauterbach TRACE32, VisionIce debugger, SoftIce Debugger

Platforms: Windows, Linux, Android

Networks: Ethernet, CAN, MOST

Processes: RTCA/DO-178B, CMM Level 5 (Capability Maturity Model), V-Model, SCRUM

CAREER HISTORY

[AES GmbH](#), Senior Software Engineer

Jan13 – now

AES (Aerospace Embedded Solutions GmbH) is a 50/50 Joint Venture between Sagem (SAFRAN Group) and MTU Aero Engines. Airbus requires a new SW release for the A400M extending the redundancy concept and providing fault detection for new avionics components.

- Re-development of the Time Limited Dispatch functionality for the A400M airlifter according to Airbus specifications.
- Requirements analysis
 - Prototype implementation and engineering tests
 - Design and implementation of Time Limited Dispatch functionality
 - Creating a qualified tool to automatically transform the Airbus database into code data.
 - Development of a simulation environment for the A380 Network Server System

The qualified tool reduced the review activities providing a timely delivery of the functionality to Airbus. No issues have been reported.

Test environments for various avionics components require the emulation of the Network Server System (NSS), The NSS is the network backbone in the A380, A350 and A400M composed of redundant server and router.

- Cross compilation of Linux systems to execute on top of QEMU/KVM hypervisor
- Adapting the Linux build system to allow for execution under the hypervisor
- Writing shell scripts to emulate non existing hardware

MTU Aero Engines GmbH, Senior Software Engineer

Nov10 – Jan13

MTU Aero Engines GmbH is Germany's leading engine manufacturer. Together with international partners MTU develops an enhanced version of the Tiger helicopter engine. MTU provides the real time operating system of the Digital Electronic Control and Monitoring Unit (DECMU).

The hardware and real time operating system are developed by MTU Aero Engines GmbH. The hardware is a dual lane system using an MPC and an FPGA. The operating system software is proprietary software written in ADA and provides a real time system with a fixed time schedule.

- Designing operating system features in accordance with official development guidelines (RTCA/DO-178B)
- Responsible for software deliveries
- Responsible for design and implementation of the operating system development
- Technical lead of a team of 10 engineers
- Reporting to management
- Technical focal point for outsourcing companies

The external customer is running the control software on the DECMU provided by MTU.

MTU Aero Engines GmbH, Senior Software Engineer **(Consultant employed by TechConnect GmbH)**

Apr07 – Oct10

- Designing operating system features in accordance with official development guidelines (RTCA/DO-178B)
- Leading a group of 3 engineers working on low level device drivers (SPI, RTC, FLASH memory access)
- Developing embedded software features such as:
 - NVM access
 - diagnostic services
 - communication protocols (CAN, ARINC 429, RS442)
- Support of software verification activities on different levels:
 - Unit tests (white box)
 - system integration tests (black box)
 - system acceptance tests
- Support of customer requests
- Creation of documents:
 - Requirements
 - software architecture
 - detailed design

Robert Bosch GmbH, Senior Software Engineer

Oct 06 - Mar 07

(Consultant employed by ICT Embedded Software GmbH)

Robert Bosch GmbH is currently engaged in a process of targeting mass production and sale of a Head Up Display (HUD) based on recent LASER technology. A major part of this process consists of usability studies as well as comparison between the new LASER display and traditional LCD displays, which are currently used in upper class cars.

ICT Embedded Software GmbH provided a technical solution to estimate user's reaction times i.e. the time between the information is projected and visible on the car's windscreen and the user's reaction to it. The test environment renders the HUD information on a secondary display adapter to drive the LASER HUD via its VGA connector. The LCD HUD is controlled via a CAN and MOST connection. Connectivity and control of the latter were established through reverse engineering.

The test environment is based on a PC as control unit and contains sophisticated external measurement equipment and interfaces, which provide communication via RS232, CAN and MOST.

- Reverse engineering of existing Win32 project emulating an LCD HUD
- OO design and protocol stack development to drive LCD HUD via CAN and MOST
- Establish an in-house versioning system with CVS
- Responsible for software integration and test of software modules from other engineers
- Analysing and rectifying software defects in the areas of Windows API, MOST and CAN
- Project documentation

The customer is using the test environment to conduct various user reaction tests in scientific studies

BenQ Mobile GmbH & Co. OHG, Senior Software Engineer

Oct 05 - Sep 06

(Consultant employed by ICT Embedded Software GmbH)

Software for SGold2 mobile phone handsets platform (S75, SL75, EL71, E71, ...) has to be fit for the market

- Responsible for native widget library (GUI library) and native JavaME implementation
- Adapting native widget components to work on different screen resolutions (e.g. QVGA display)
- Fixing bugs in mobile phone handset software to tight deadlines
- Solving cross component issues in an increasingly complex software application
- Debugging and rectifying problems in native user interface implementation
- Feature development in C/C++ and JavaME
- Providing expert knowledge of native widget library and the JavaME implementation to external customers
- Evaluation of efforts to re-design software modules
- Assistance of low cost design centers with Java and user interface issues
- Debugging complex defects on mobile phone handset and within mobile phone emulator

All software problems were tackled and the products released on the market in time

Siemens AG (Siemens Mobile), Senior Software Engineer
(Consultant employed by ICT Embedded Software GmbH)

Apr 05 - Oct 05

Software for SGoldLite mobile phone handsets platform (CX75, ME75, M75, C75, CF75, ...) has to be fit for the market. Although development and test is done in China the original software platform was developed in Munich. Those developers in Munich went on to work on more recent mobile phone platforms. Someone with expert knowledge was needed to function as reference person for the low cost design centers and system test departments around the world.

- Liaise with Chinese software developer and software tester to identify and rectify software faults for SGold Lite mobile phone platform
- Providing expert knowledge in the field of JavaME native implementation to function as reference person for related issues
- Fixing various over-the-air (OTA) MIDlet provisioning problems
- Extending functionality of JAM (Java Application Manager) and GUI
- Speed optimizations for MIDP Java native implementation
- Debugging hard exists in mobile phone software
- Debugging and rectifying problems in native user interface implementation
- Performing TCK regression tests to ensure bug fixes have no side effects in the late state of the product development cycle

Mobile phone platform was released on the market and found customer and operator acceptance

Motorola UK, Software Engineer
Senior software engineer

2000 - 2005

2003 - 2005

Feature development on TETRA (TErrestrial TRunked RAdio) base station

- Complete life cycle of software development
- Creating software requirements specifications
- Creating test plans and test specification documents
- Software architecture and design in UML using OOA/OOD methodologies
- Implementing embedded software in C such as pSOS device driver, Zmodem, TFTP, statistic gathering software and virtual Flash File systems
- Participated in review of work products, process work
- Change management, requirement changes, bug fixes, enhancements
- Debugging complex embedded system with VisionICE debugger and various network analysers
- Support of internal customers in areas of feature knowledge such as base station behaviour in various scenarios

CM and Software Build Manager

- Responsible for departmental CM strategy using ClearCase, including several independent software products on different platforms
- Integration of work products from software engineers into single build
- Creating releases for customers

Graduate software engineer

2000 - 2003

Design and development of test environment software in C++ on Windows

- Development of ATL/COM modules in C++ emulating TETRA system components that interface with the site controller
- Debugging and maintaining the multi-process and multi-threaded server software emulating system components under control of test scripts (Server-Client environment)
- Implementation of protocols such as LAPD and TFTP with the capability to test those protocols
- Development of protocol stack emulation software with raw Ethernet packet grabbing software to be used on proprietary LAN

Software tester

- Writing, debugging, optimising and maintaining test systems in SDL and Perl
- Familiar with concepts such as code coverage, boundary checking and system design specification coverage
- Black and White Box Testing on various software modules
- Running overnight regression tests runs of whole test suite including test results analysis

EXPERIENCE PRE-EDUCATION

DSA Daten- und Systemtechnik, Hardware Engineer 1995 – 1996

This company supplies the car industry with electronic test equipment.

- Assembling and testing various car diagnosis tools
- Finding and fixing hardware faults

ELSA AG, Student Engineer 1998 – 1999

The ELSA AG is a renowned German company, producing Monitors, Modems and Graphic Adapters. As part of the "Mainstream Graphics and Tools" group, developed and maintained graphics device drivers on the Windows 95/98 platform. The work involved programming in Assembler and C/C++

- Speeding up and optimising algorithms in the graphic device driver
- Analysing and rectifying defects in games and office applications
- Creating an automatic test environment for various types of graphic adapters and their drivers
- Developing tools to execute different OpenGL applications and analysing their graphical output for correctness
- Setting up data base to stored results for test runs

Research Centre Jülich, Apprentice 1990 – 1994

My Apprenticeship years gave me the opportunity to acquire a broad knowledge of electrical circuits in the scope of scientific applications. In a challenging environment that provided education and the opportunity to work on real projects I went through the whole hardware life cycle. It started with the design of the electrical circuit on a workstation. Transferring these schematics into a printed circuit board (PCB) design was a semi-automatic process that required a sound knowledge of component specifications. Developing multi-layered boards in the chemical laboratory was the next step in the manufacturing process followed by putting the components into place. Good soldering skills were as important as the ability to work with surface mounted device (SMT) components. These boards were used in different scientific applications. One example is a fibre optic transmitter used in a hazardous magnetic environment.

EDUCATION

Coventry University, BEng Electrical Engineering 1999 – 2000

Direct entry to 3rd year. First Class Honours

Modules: Industrial Management, Automated Systems, Real Time Systems, Control Engineering, Advanced Electronics, Advanced Digital Systems

Final Year Project: Design and Implementation of Image Processing Tools

Aachen University Of Applied Science, Electrical Engineering 1996 – 1999

Diplom Ingenieur

Modules: Technology of Semiconductors, Programming in C/C++, Digital Systems, Microsystems, Control Engineering, etc.

OTHER DETAILS

Date of Birth: 9th September 1970
Nationality: German
Driving licence: Clean, since 1988