Curriculum Vitae

Residence
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The Netherlands

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Date of birth
June 28, 1974

Marital status
Married

Hobby
Mountaineering and Mountain biking

Life motto
At least 1 new experience every day.

Interest
New technology, nature/environment

Ambition

- Adding value in a structural way for customer and company through projects, actively giving direction, beyond pure technical challenges.
- Operate at technical system level in a role that connect customers and the team that will make it happen (the linking pin).

Martijn van der Cruijsen

Senior Software Architect

Experiences

Ability to assess technology regarding feasibility for specific application domains. Open communication attitude. Clear sense of direction while flexible dealing with changing circumstances and risks.

Relevant education

- HTS Technical Computer Science, Fontys Eindhoven
  Subjects: Digital IC design, system design, computer architectures, programming techniques, telematics and electro magnetic compatibility (EMC)

- 2009 8D problem solving training (NXP)
- 2009 3D advance Thinking / Performance training (Performance Company)
- 2009 MS .NET Technology Overview Part 1 and Part 2 (Twice IT Training)
- 2008 System Modelling - Matlab / Simulink / RT workshop (Fonty's Hogeschool)
- 2008 Advanced German course
- 2007 Requirements engineering (Volere) (ICT-NoviQ)
- 2007 Handel-C FPGA modelling (Celoxica)
- 2006 INTEGRITY RTOS and MULTI IDE Training (Green Hills Software)
- 2005 Training Doors – A practitioner Approach (NXP)
- 2005 Boundary Scan -Demystified (Q-Star)
- 2005 Handel-C FPGA modelling (TASS)
- 2005 The Seven Habits of Highly Effective People (FranklinCovey)
- 2005 Microsoft XP embedded development kit in-depth (PTS/Trident)
- 2004 SYSARCH System architect(ing) (Philips CTT/ESI)
- 2004 PSP, Personal Software Process (TASS)
- 2001 Basic course hydraulics (Bosch Rexroth)
- 1999 Continuus Buildmanager training (QA-systems)
- 1999 Workshop Software inspections (Improve quality service)
- 1998 Safer-C (Les Hatton)
- 1998 Basic course Unix (AT-computing)
- 1997 SA/SD for real-time systems (IBM)

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Relevant skills

- Languages
  Dutch, English, German

- Programming Languages
  8051, ADA, C, C shell, C++, Java, PHP, VHDL

- Methods
  DSM (Design Structured Matrix), IEC 61508, ISO 26262, ISO/IEC 15504 (Automotive SPICE), MIL-Std-498, MISRA, Rhapsody, UML

- Tools & Applications
  Apache HTTP Server, Borland Pascal, Continuus Configuration Management, Cradle, Cygwin, Doors, Doxygen, Eclipse, Enterprise Architect, greenhills compiler, Lattix, Simulink, Subversion

- Databases
  Microsoft Access, MySQL

- OS & Platform
  AUTOSAR, QT, RedHat Linux, RTAI, Windows XP Embedded

- Network & Protocol
  CAN, CANopen, FlexRay, LIN (Local Interconnect Network), MOST, SAE J1939

- Hardware & Computers
  ARM 7, ARM 9, DSP, FPGA, Intel 8051, Intel 80x86, Motorola 68000, Oscilloscoop

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Experience overview

Client	Function	Description
DAF Trucks 02-2011 until today	System Architect	System architecture and integration of several Truck cabin functions eg. radio, telephone, instrument cluster.
NXP ITEC 11-2009 until 02-2011	Software Architect	Enhancements and maintenance on the latest range of test systems from ITEC and its infrastructure in various production plants.
Infineon 07-2008 until 02-2010	Senior Software Architect	Requirements engineering and software architecture definition for a functional safety library for IEC61508 SIL-3 compliment development of safety critical automotive systems
Bosch Nefit BV 10-2009 until 11-2009	Consultant	Make or buy assessment of possible CAN implementations, which finally let to a make-decision.
TNO automotive 09-2009 until 11-2009	System Architect	Development of a platform that can easily connect to the existing car infrastructure (based on CAN). This platform should be configurable with Matlab/Simulink and usable by a TNO systems-engineer without in-depth programming knowledge.
TRW Cognitive Safety Systems (Radolfzell, Germany) 05-2008 until 06-2008	Consultant / Senior software architect	Analysis of the dynamic behaviour of an air bag control unit. The results are used to enhance the software- and system architecture documentation of the air bag system. The processes and documentation where successfully audited on Automotive Spice Level 2 (ISO 15504).
Bosch (Leonberg, Germany) 12-2007 until 04-2008	Lead Architect	Platform architecture analysis for instrument clusters. This resulted in architecture documentation of all existing products and a roadmap for evolving these products into an AUTOSAR based platform architecture.
TRW automotive (Solihull, UK) 11-2007 until 01-2008	System architect / consultant	CPU load analysis for a power steering system, identifying performance bottlenecks in the architecture and implementation. This resulted in a list of improvement recommendations with minimal impact on the total system.
Rialtosoft 09-2007 until 11-2007	Designer	Redesign and maintenance of the Rialtosoft knowledge base. This system is based on a MySQL database running on a Linux server.
NXP Automotive business line 08-2003 until 06-2007	Software architect	NXP Automotive business line (NXP-ABL) develops ARM-core microcontrollers with a large number of peripherals. These SoC's can be used as gateways for in-vehicle networking. As a software architect I was involved in several concept studies and developments.

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Philips TASS 06-2004 until 06-2004	Software designer	The FPGA equalizer application is completely integrated in a single FPGA including its UI generation, no (soft)core is used on the FPGA.
Scansoft / Philips Speech Processing 08-2002 until 06-2003	Software designer	Universal platform for speech controlled applications in the automotive industry. It can be used for controlling navigation, mobile phone, air-conditioning, radio etc.
Bosch Rexroth Hydraudyne 07-2000 until 07-2002	Software Engineer	Development of a Linux based real-time control system for motion systems used in e.g. theme park rides, flight simulators and test equipment. The project was a pilot project for a MIL-STD-498 based quality system.
Océ Technologies 07-1997 until 06-2000	Software engineer / Configuration Manager	Control system design for the paper flow of width-format printing systems.

Curriculum Vitae

Experience

11-2009 until today

Function

Description

Tasks and responsibilities

DAF trucks

System Architect

DAF XF/CF

System architecture and integration of several Truck cabin functions eg. radio, telephone, instrument cluster.

Responsibilities/Achievements

- Decomposition of functionality over various systems.
- Requirements engineering
- Planning and tracking of implementation and integration activities
- Team lead for radio and telephone system
- Liaison for tuck cabin supplies.

Keywords
SAE J1939, CAN

Curriculum Vitae

Experience

11-2009 until 02-2011

NXP ITEC

Function

Software Architect

Description

Parset Test equipment

Tasks and responsibilities

The latest range of test systems from ITEC combine high speed with high precision and high flexibility.

There are two types of testers available build on the same revolutionary architecture. These are the µParset (Micro Parset) and PµParset (Power Micro Parset). The architecture of these testers is the basis for real best in class performance.

Responsibilities/Achievements

- Resolving issues with real-time operation in combination with XPe.
- Architecture and deployment of security software strategy for several production sites in Europe and Asia.
- Requirements specification and planning of Job editor enhancement project.

Keywords
ADA, XP embedded

Curriculum Vitae

Experience

07-2008 until 02-2010

Infineon

Function

Senior Software Architect

Description

SafeTcore-II

Tasks and responsibilities

Infineon develops microcontrollers with a large number of peripherals. These SoCs can be used in several automotive applications, including safety related applications. Special measures are needed to guaranty that the software/electrical solution stays in a defined state in all cases; even when single parts of the SoC break down or are disrupted by an external source (eg Magnetic/electric field).

A multi-core approach is usually applied in these situations; the individual cores monitor each other's behaviour and set the entire system to a defined safe state when one of the cores doesn't react as expected.

To support Infineon's end customers in setting up such a system, development of a 'Safety driver' was needed. This driver performed all health-checks during startup, runtime and shutdown and performed the communication and reporting to the counterpart cores. The entire driver is 100% Misra-C compliant and test with 100% code and condition coverage.

The project was executed by 5 team members. Acceptance test development was done by a third party in the UK. System integration is done by Infineon in Germany. The entire system and development process complied with IEC61508 SIL-3 and Automotive Spice Level-3. All documentation was managed with Doors (including designs and test specifications).

Responsibilities/Achievement

- Requirements engineering of the Safety driver, close cooperation with Infineon was needed for this.
- Architecture definition of the Safety driver. Special actions for data redundancy and handshaking between software modules were needed due to functional safety.
- Coaching of engineers. Engineers were responsible for designing and implementing various software units.
- Review of unit design documentation.
- Review of acceptance test specification and support of test development.

Keywords
IEC61508, Automotive Spice, Doors, Tessy, C, Misra-C, Visual Studio, Testwell CTC++

Curriculum Vitae

Experience

10-2009 until 11-2009

Bosch Nefit BV

Function

Consultant

Description

Central Heater Controller

Tasks and responsibilities

Bosch Nefit is developing the next generation heater control. The central heater is more and more an important part or the total energy and power system of modern homes (including electricity, heat-pumps etc). Safety is an important issue for opening and closing gas-valves. For controlling proprietary equipment in a distributed way Nefit had selected CAN for communication and started development of a proprietary CAN implementation. During this development doubts arose whether an implementation could be bought from a third party or not.

Important benchmark points where: Cost per unit, Lead time, development time, acceptance by governance bodies (with respect to safety) etc. Only a very short time was available to assess the possibilities since the own development was already started.

Responsibilities/Achievements

- Definition of benchmark criteria
- Selection of possible CAN implementations
- Quick assessment of all implementations with respect to criteria.
- Reporting to Nefit project management

Keywords
NEC V850, CANopen, Functional safety

Curriculum Vitae

Experience

09-2009 until 11-2009

TNO automotive

Function

System Architect

Description

MOVE: Methode Ontwikkeling Voertuigregelaar Evaluatie

Tasks and responsibilities

TNO automotive is involved in a large number of automotive research and development projects. Most of these projects mainly focus on algorithm development for various automotive applications like ABS and cruise control. These algorithms are tested by modifying a currently available car. This is a time consuming and costly process. For projects that are researching the possibilities of car-to-car communication this approach is not suited, since a large number of cars are involved in these experiments.

TNO is developing a platform that can easily connect to the existing car infrastructure (based on CAN). This platform should be configurable with Matlab/Simulink and usable by a TNO systems-engineer without in-depth programming knowledge.

Responsibilities/Achievements

- Definition of system architecture
- Defining component selection criteria
- Requirements engineering
- Coaching of TNO on the AUTOSAR and Functional safety topic

Keywords
IEC 61508, ISO 26262, ISO/IEC 15504 (Automotive SPICE), CAN, OS/Platform, AUTOSAR, Simulink, Matlab

Curriculum Vitae

Experience

05-2008 until 06-2008

TRW Cognitive Safety Systems (Radolfzell, Germany)

Function

Consultant / Senior software architect

Description

Airbag control unit

Tasks and responsibilities

TRW Cognitive Safety Systems in Radolfzell (Germany) develops airbags for various car manufacturers. These airbags are controlled by an airbag control unit; each car contains a single unit that controls all airbags. Depending on the vehicle speed and the G-forces in all directions, the unit decides to 'blow' one or more airbags. The controller software is continues development used in several generations of units. One car manufacturer performed a project audit based on Automotive Spice Level 2 (ISO 15504); the result was not as expected.

One important improvement point was documentation of the software architecture; especially the dynamic runtime behavior. The documentation should show that the controller operates deterministically and executes his action in time. The updated working instruction and updated documentation package where successfully audited on Automotive Spice Level 2 (ISO 15504).

Responsibilities/achievements

- Reverse engineering of interfaces between several modules.
- Measurements of runtimes of various modules.
- Design of flowcharts of all modules.
- Times line creation of all module interaction.
- Documentation of the working-instructions regarding dynamic modeling, resource budgeting and flowchart/state-diagram design.

Keywords
UML, Automotive-Spice (ISO 15504), Enterprise Architect, C, DSM (Lattix), Doxygen

Curriculum Vitae

Experience

12-2007 until 04-2008

Bosch (Leonberg, Germany)

Function

Lead Architect

Description

Car instrument cluster

Tasks and responsibilities

Bosch located in Leonberg (Germany) develops several automotive parts including instrument clusters. An instrument cluster is the central part of the car's dashboard showing speed, temperature etc. Bosch designs these clusters for several car manufactures. More synergy between the versions results in reduced development cost of the individual instrument clusters.

An AUTOSAR-alike architecture was required by one of the Bosch customers, therefore it was used as a base for the architecture roadmap. Analysis of the current code base was needed to define the steps needed for evolution of the current implementation to an AUTOSAR architecture. A large part of the interface used in the legacy code could be extracted by using scripts; this information is processed automatically. A special Eclipse plug-in (developed in JAVA) was created to generate the interfaces implementation in C (MISRA compliant) for the new architecture, editing capabilities where added to easy extend/change the interfaces.

The team consists of 3 architects and 3 engineers in Poland for development of the Eclipse plug- in.

Achievements/Responsibilities

- Analysis of the current code-base by using the DSM-method. Doxygen and Lattix were the tools used for these steps. Analysis showed the coupling and amount of interfaces between the software modules. Some results could immediately be used to quick fix some issues in the current implementation.
- New architecture was defined based upon the analysis, requirements provided by the Bosch customers (provided in DOORS) and the requirements of AUTOSAR. Enterprise Architect was used to model it; a large part of the interface was generated automatically. This architecture documentation is used by Bosch in the next project phases.
- Requirements specification of the Eclipse plug-in.
- Bi weekly reporting to BOSCH project management.
- Coaching other architects.
- Tracking of engineering activity in Poland.

Keywords
AUTOSAR, DOORS, DSM, Lattix, Eclipse, JAVA, C, MISRA, Enterprise Architect, CAN

Curriculum Vitae

Experience

11-2007 until 01-2008

TRW automotive (Solihull, UK)

Function

System architect / consultant

Description

Electronic power steering

Tasks and responsibilities

TRW automotive based in Solihull develops control systems that are used for electric power steering in passenger cars. These control systems are a safety critical part of car since malfunctioning can lead to injuries or worse and therefore developed according several standards including IEC61508 and MISRA-C. The algorithms are designed by using Matlab and Rhapsody, the hardware itself is a microcontroller running an AUTOSAR alike software stack and a dedicated proprietary OS. The control communicated with other parts of the vehicle by using the CAN-protocol.

During the initial development TRW encountered some CPU load issues.

Responsibilities/Achievements

- Measurement and analysis of the software to determine the cause of the high CPU load. Several causes (both in the algorithms and in the OS) were found in this exercise.
- Defined several recommendations to reduce the CPU load. In these recommendations implementation time, risk and impact on safety where considered.
- After successful implementation of some of the recommendations the CPU load was within budget.

Keywords
Matlab/simulink, Rhapsody, Target link, Uml

Curriculum Vitae

Experience

09-2007 until 11-2007

Rialtosoft

Function

Designer

Description

Knowledge base

Tasks and responsibilities

Rialtosoft has large number of documents containing regulations, guidelines and standards related to the automotive industry. A database system is used to quickly find the relevant guidelines and design patterns. Maintaining this system was cumbersome work, due to the large amount of manual actions.

Responsibilities/Achievements

- Redesign of the internal search engine.
- Concept for automatically indexing of a large number of documents base on extracted keywords.

Keywords
MySQL, Apache, Linux, PHP

Curriculum Vitae

Experience

08-2003 until 06-2007

NXP Automotive business line

Function

Software architect

Description

32-bit automotive micro controllers

Tasks and responsibilities

NXP Automotive business line (NXP-ABL) develops ARM-core micro controllers with a large number of peripherals. These SoCs can be used as gateways for in-vehicle networking.

To facilitate a fast integration by end-customers, NXP provides a support package for these devices. Such a support package consists of peripheral drivers, tools, plug-in and documentation.
Development of the support package was outsourced to several parties. Driver development was done by NXP-RTG (in Eindhoven and India) and as an in-house project. Demo applications where developed by the automotive innovation centre in Hamburg. All SoCs are first prototyped on FPGAs before actual silicon is made.

Responsibilities/Achievements

- As a software architect I was involved by the automotive vision concept sketch project. In this project I was responsible for data-flow modelling. Output of these models is used to select a suitable image processor (XETAL, Trimedia or SCIP).
- Definition of several automotive innovation projects together with external partners like TNO.
- Team lead for the in-house driver development. I was responsible for planning and tracking of these activities.
- Software architecture of support package. With a focus on reuse and complying with standards like MISRA and AUTOSAR.
- Driver design
- Managing support package development activities, 3 engineers in Eindhoven and a team in Bangalore.

Keywords
CAN, LIN, Flexray, Greenhills Multi 2000, ARM Realview Developer Suite, ARM, Doors, AUTOSAR, MoReUse, SDE2, Perl, FPGA

Curriculum Vitae

Experience

06-2004 until 06-2004

Philips TASS

Function

Software designer

Description

FPGA Equalizer

Tasks and responsibilities

The FPGA equalizer application is completely integrated in a single FPGA including its UI generation, no (soft)core is used on the FPGA. This application was originally designed for the Celoxica RC100 evaluation kit and needed adaptations for running on the new RC200 evaultion kit.

Responsibilities

- Investigation of possible timing problems
- Architecture changes needed for using the Programming Abstraction Layer (PAL) that is introduced on the RC200
- Creating a work breakdown and initial planning that can be executed by gradation students that will implement the actual changes.

Keywords
Celoxica DK-2, Xilinx FPGA, Handel-C

Curriculum Vitae

Experience

08-2002 until 06-2003

Scansoft / Philips Speech Processing

Function

Software designer

Description

Vocon Communicator

Tasks and responsibilities

The goal of the Vocon Communicator project was a universal platform for speech controlled applications in the automotive industry. It can be used for controlling navigation, mobile phone, air-conditioning, radio etc. The project was a collaboration between Nokia and Philips Speech Processing in Aachen.

The platform was based on dedicated hardware with multiple processors and contained several interfaces like MOST (MLB), Bluetooth, CAN.
My focus was on the internal and external data path for audio signals. The project was executed by an international team (German, Belgian, English and Dutch).

Responsibilities/Achievements

- Architecture design of the Vocon Communicator. I focused on the audio data-path and reduction of delays caused by the path and the algorithms.
- Design, implementation and testing of the data-path.
- Performance measurements of the algorithms on the actual hardware. For this I introduced software that visualized several critical timing signals together with an oscilloscope.
- Design, implementation and test of drivers for InterIC Sound (I2S) and Synchronous Serial Interface (SSI) on the TI 54xx DSP platform.
- Implementation of a sample-rate conversion algorithm. A floating point reference implementation on windows was available and I created a fixed-point DSP version with similar performance.
- Test support in the audio-laboratory of Nokia.

Keywords
Texas Instruments TI TMS320c54x DSP, Code Composer Studio, DSP/BIOS, Clear case, Microsoft Visual C++.

Curriculum Vitae

Experience

07-2000 until 07-2002

Bosch Rexroth Hydraudyne

Function

Software Engineer

Description

Linux based control system for Motion control

Tasks and responsibilities

The motion control software is used as the user interface and control for electric and hydraulic motion systems. These motion systems are used in the research and entertainment industry (flight-simulators, wave/earthquake simulators, theme park rides). As an OS Red Hat linux with a RTAI real-time extension is used. The QT toolkit is used for the design of the user interface. The entire architecture is designed to facilitate development of customer specific (one of) version of the control software.

The software development team consists of 4 engineers.
During the project a software process improvement (SPI) program was introduces. The goal of these activities was to comply to the MIL-STD-498 quality standards that are typically used n military applications.

Responsibilities/Achievements

- Requirments engineering and architecture definition of the control application and user interface.
- Feasibility study of dynamic user interface generation based on the QT toolkit.
- Design of a mechanism to transfer data from linux kernel space to linux user space without hampering real-time performance.
- Designed an abstraction layer to facilitate C++ integration in the linux kernel.
- Part of the SPI team. I was responsible for configuration management, this finally lent to the introduction of a configuration management system based on Razor.
- Integration of various modules.

Keywords
Red Hat linux 7.0 kernel 2.2.18, RTAI real-time linux, QT, GNU C++, Codewarrior, Razor, shell-scripts, doxygen, Visio, Turbo Pascal.

Curriculum Vitae

Experience

07-1997 until 06-2000

Océ Technologies

Function

Software engineer / Configuration Manager

Description

Wide format printer/copier

Tasks and responsibilities

Wide format printers are suited to make prints on various paper formats ranging from A4 to A0. The total system consists of a printer, scanner and a Windows NT based controller.

An important part of the printer is the finishing-equipment (folders, punchers, stackers etc). The embedded software of the finishing-equipment was responsible for routing and representation of the print-outs. Functionality was added to both printer and scanner, to facilitate future embedded software updates without hardware exchange.
The total projects consisted of 40 engineers, of which 10 embedded software engineers.

Responsibilities/Achievements

- Design and engineering of the finisher control. An imported part of this control was the calculation of the exact folding moments and the optimal distance between consecutive prints. For this I worked in a small multi-disciplinary team.
- Design and engineering of the embedded software upgrade functionality. A major challenge was the limited amount of memory resources for this function. This upgrade function is successfully integrated in both scanner and printer.
- Build and configuration management: CM planning and instruction of new engineers.
- Coaching of 3 temporally engineers.

Keywords
HP-UX, dedicated motorola 68000 hardware, Lauterbach in-system emulators, Cradle, C, Continuus, SA/SD, QA-C