Curriculum Vitae

Martin Raabe

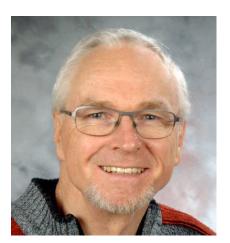Mühlweg 24
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Born on: November 25th, 1960 in Worms/Germany

Education and Professional Training

1975 – 1977	Junior High School **Karmeliterschule** in **Worms** **General Certificate of Secondary Education**
1977 – 1980	Training as **information electronics engineer** with the company **BASF AG** in **Ludwigshafen** **Apprenticeship diploma**
1980 – 1981	Technical College of **electrical engineering** in **Worms** **High School Diploma**
1981 – 1983	Federal German armed forces (**air force**) in **Pferdsfeld** as **radio technician**

1983 – 1987	**University of Applied Sciences** in **Worms**, **general computer science**
	 Diplom-Informatiker (FH) – Grade B
	 Diploma thesis – Grade A
	      Quality control in manufacturing of tooth brushes
	      by an image processing system

Professional History

07/1987 – 06/1989	**Opsis GmbH, Speyer** Industry: Manufacturer of hardware, software and systems for image processing in the automation industry
07/1987 – 06/1989	**Development and application engineer** • Development and commissioning of control plants for industrial image processing projects based on the real time operating system OS-9/68k.

09/1989 – 03/1996	**ELTEC Elektronik GmbH, Mainz** Employees worldwide status 03/96: ca. 100 Employees in Germany status 03/96: ca. 80 Industry: Manufacturer of hardware, software and systems for image processing and industrial automation Technology
09/1989 – 09/1991	**System software development engineer** • Driver development for real time operating systems in the industrial environment for national and international markets.
10/1991 - 06/1992	**Technical support engineer (hardware and software)** • Handling of technical customer inquiries in the post sales area.
07/1992 - 03/1993	**Technical support manager (hardware and software)** Team sizes up to 3 members • Set-up and development of a call center for handling customer technical inquiries. • Improvement of the information flow between hotline, product development and project development to shorten hotline response times, to reduce the product error rate and to improve the resulting quality of the results in customer projects.
04/1993 – 11/1994	**Manager of the software development department** Team sizes up to 12 members • New and further development of software products for industrial automation engineering with special consideration of the latest market trends. • Introduction of software development processes for flexible deployment of employees and decisive quality improvement followed by ISO9001 certification.
11/1994 – 03/1996	**Department manager for development of industrial automation technology (hardware and software)** Team sizes up to 12 members • Definition and development co-ordination of new market-oriented product lines on the basis of industrial PCs and PowerPC. • Establishment of development capacity for customized products fulfilling the requirements of special market segments.

04/1996 – 08/2002	**Wind River Systems GmbH, Mainz**
	(formerly **TakeFive Software** GmbH and **Integrated Systems** GmbH)
	Employees worldwide status 08/02: ca. 1600
	Employees in Germany status 08/02: ca. 50
	Industry: Manufacturer of embedded systems software and
	real time operating systems
04/1996 – 11/1998	**Application engineer (Integrated Systems GmbH)**
	Team sizes up to 4 members
	• Organization and technical equipping of a newly founded sales branch, and establishment of the technical pre and post sales customer advisory service on the sector of embedded systems and real time operating systems for Central Europe.
	• Checking of the concept and implementation of application software and development tools with special consideration of the customer viewpoint to reduce complaints and incorrect behavior.
12/1998 – 11/1999	**Technical department manager (Integrated Systems GmbH)**
	Team sizes up to 10 members
	• Establishment and development of a capable team distributed between two sites, as technical customer and sales support for Central Europe.
	• Extension of the range of products with training and project care for software projects on the embedded sector with increase of the service turnover.
	• Establishment of a global network of FAEs for setting up and utilizing joint knowledge to intensify customer proximity and to boost turnover.
11/1999 – 09/2001	**Project manager (TakeFive Software GmbH)**
	Team sizes up to 6 members
	• Integration of the embedded tools "pRISM+" and "TornadoII" in SNiFF+ to speed-up customer projects and to reduce errors.
	• Consulting service and accompaniment for 15 customer projects to enhance team efficiency for the software development environment "SNiFF+".
	• Execution of open and on-site product training courses and workshops for "SNiFF+" with team-building effect.
	• Securing of a development location with 50 employees by new placement of the main product within the management, the sales department and with respect to the customers.
10/2001 – 08/2002	**European pSOSystem Migration Manager**
	Team sizes up to 4 members
	• Initiation, development and market introduction of tools for migration of customer projects from "pSOSystem" to "VxWorks" for customer allegiance.
	• Management of an international time-critical project for customer specific adaptation of network protocol software.
	• Establishment of team and organizational development for customer projects as performance supplement.

Since 08/2002	**BaSystem Martin Raabe, Bechenheim**
	Own business
	Freelancing Consultant, Trainer, Coach and Developer
	Industry:
	Embedded software / real time operating systems
	Software development organization in a team
	Hardware related software
	PC- and Web-based software
	Here only the big projects are listed.
	A complete list of all projects of BaSystem Martin Raabe is available as a separate document.

07/2003 – 03/2008	**Software developer at Sirona Dental Systems – GBE, Bensheim**
	https://www.dentsplysirona.com
	32 hours per week – two days on site – two days remote
	Reference: Mr. Roland Bonk, Development Imaging Systems Embedded, Sirona, Bensheim
	• Design, implementation and test of a network protocol for a 2D X-Ray device for dentists (VxWorks PowerPC Diab 5.4 C++ / Win32 VC6 C++).
	• Development, implementation, maintenance and test of a network protocol for a 3D X-Ray device for dentists (VxWorks PowerPC Diab 5.5 C++ / Win32 VC6 C++).
	• Development, implementation, maintenance and test of a network protocol for an Intra-Oral X-Ray sensor device for dentists (VxWorks ColdFire Diab 5.5 C++ / Win32 VC6 C++).

09/2003 – 07/2004	**Software developer and consultant at IBM Deutschland, Mainz**
	https://www.ibm.com/de-de
	16 hours per week – one day on site – one day remote
	Reference: Mr. Andreas Voigtmann, Project lead, IBM Deutschland
	• Design, implementation, maintenance and test of the real time operating system layer of a C++ framework for a telemetric device for trucks (pSOSystem ARM C/C++).

07/2004 – 01/2005	**Software developer, trainer and consultant at Siemens PSE, Wien**
	https://new.siemens.com/at/de.html
	20 hours per week – two days on site – one day remote
	• Design, implementation, maintenance and test of a memory manager for a telemetric device for trucks (pSOSystem ARM C/C++).
	• Evaluation of an alternative compiler suite for the ARM SDT 2.5.1 for pSOSystem (Diab 5.2, RVCS 2.1 ARM C/C++).
	• Evaluation, selection and introduction of a debugger solution for JTAG-ARM with pSOS awareness (Lauterbach Trace32 ARM C/C++).

12/2005 – 07/2006	**Software developer and consultant at IBM Deutschland, Mainz** https://www.ibm.com/de-de 16 hours per week – one day on site – one day remote • Evaluation of the real time operating system smx and the file system smxFile for a telemetric device for cars (CPU Philips (NXP) LPC2292 /ARM 7). • Consulting and adaptation for the real time operating system embOS and the file system embFile for a telemetric device for cars (CPU Philips (NXP) LPC2292 /ARM 7).
4 months in 2007	**Software developer at Tektronix, Cambridge, UK** https://www.tek.com/en 8 hours per week – most the time remote Reference: Mr. Allan Reid, Tektronix, Cambridge, GB • Adaptation of a very complex C++ embedded application to a new version of C++ compiler/ STL library (Wind River Compiler PowerPC 5.5, Nucleus 1.1.2, Lauterbach Trace32).
4 months in 2008	**Software developer at Sirona Dental Systems – GIE, Bensheim** https://www.dentsplysirona.com/ 16 hours per week – one day on site – one day remote Reference: Mr. Bernd Oehme, Development Instruments, Sirona, Blenheim • Creation and maintenance of a style guide – including the definition of the software development environment - for C programmers for medical devices (supersonic) (ATMega128, Eclipse, Subversion).
07/2008 – 06/2010	**Software developer at Bombardier Transportation, Mannheim** https://de.wikipedia.org/wiki/Bombardier-Transportation-Werk_Mannheim 35 hours per week – two days on site – two days remote • Development and maintenance of data acquisition software (data base) for trains - onboard firmware and PC software (multi-platform: VxWorks 5.4, VxWorks 6.x, µC-Linux, Linux, Wind River Linux, Windows - IA32, PPC, ARM, 68K).
07/2010 – 12/2010	**Software developer and researcher at BaSystem Martin Raabe, Bechenheim** https://BaSystem.de • Development and research on new visualization of mathematical issues around tetrahedrons. PC software and electronics. (Windows, Qt, AVR, LED, Light effects).
01/2011 – 02/2011	**Software developer at Bombardier Transportation, Mannheim**https://de.wikipedia.org/wiki/Bombardier-Transportation-Werk_Mannheim 20 hours per week – one day on site – one day remote • Handling of review and release meetings and processes of software (data base) for trains - onboard firmware and PC software (multi-platform: VxWorks 5.4, VxWorks 6.x, µC-Linux, Linux, Wind River Linux, Windows - IA32, PPC, ARM, 68K).

Seit 04/2011	**Software developer at Innomedic, Phillipsburg-Rheinsheim (DePuy Synthes, a Johnson&Johnson company)** http://Innomedic.de 32 hours per week – one day on site – three days remote
04/2011 – 2014	• Developer (Software) – pre-market Development and migration software (Algorithm for calculation of 3D visualization of medical systems from 2D X-ray images). PC software and Web application. (Visual Studio 2008 and 2012, C++ (unmanaged and managed code), C#, DirectX, OpenGL, vtk, Qt, .Net, WFC).
2014 – 06/20216	• Chief Developer (Software) – pre-market Release responsibility Further development of software incl. Unit tests (Algorithm for calculation of 3D visualization of medical systems from 2D-X-ray images). Integration into a web application ASP.Net MVC (MAXFRAME). (external supplier: Web application based on IIS) (Polarion, svn, Visual Studio 2012, C++ (managed und unmanaged code), C#, .Net, Parasoft C++)
07/2016 – 12/2017	• Chief Developer (Software) & DevOp – pre-market Release responsibility Further development of software incl. Unit tests (Algorithm for calculation of 3D visualization of medical systems from 2D-X-ray images) ready for production. Takeover of the web application (MAXFRAME – five languages) Software-Design and Development, Error analysis and repair, Requirement management, Creation and execution of system and unit tests, risk management, Accompaniment of the validation. (AWS, IIS, Windows Server 2012, Polarion 2018/2021, svn, Visual 2012, C++ (managed und unmanaged code), C#, ASP.Net, Parasoft C++, Unity, JavaScript, CSS, jQuery, KendoUI)
12/2017– heute	• Chief Developer (Software) & DevOp – pre-market / post-market Release responsibility Further development of software incl. Unit tests (Algorithm for calculation of 3D visualization of medical systems from 2D-X-ray images) ready for production. Further development of the web application (Windows / MacOS) ready for production (MAXFRAME – five languages). Update of Unity 3D rendering subsystem to Unity 2017. Software-Design and Development, Error analysis and repair, Requirement management, Creation and execution of system and unit tests, risk management. (AWS, IIS, Windows Server 2012, Polarion 2018/2021, svn, Visual 2012, C++ (managed und unmanaged code), C#, ASP.Net, Parasoft C++, Unity 2017, JavaScript, CSS, jQuery, KendoUI, ReSharper, TeamCity)
2019 – heute	• Developer (Software) – pre-market / post-market Support of the algorithm and web application in follow-up product (MAXFRAME II). (AWS, IIS, Windows Server 2019, Polarion 2021, svn, Visual 2017, C++ (managed und unmanaged code), C#, ASP.Net, Parasoft C++, Unity 2021, JavaScript, CSS, jQuery, KendoUI, ReSharper, TeamCity)

Lectureships and Trainings

Since 1996	**Lectureships and Trainings** as an employee and as a freelancer.

1996 – 1999	**Customer education for the real time operating system pSOSystem, Europe wide**
	
	• Organization and execution of regular open training in German and/or English language.
	Topics:
	    Developing pSOSystem Applications
	    Developing pSOSystem Board Support Packages
	    Architectural Design of pSOSystem Applications
	    SNMP Network Management with pSOSystem
	
	• Adaptation of the open trainings according to customer requirements.
	• Train the trainer for the open trainings.

1996 – 2002	**Customer education for the development environments SNiFF+ und Wind River Work Bench, Europe wide**
	
	• Organization and execution of regular open training in German and/or English language.
	Topics:
	    User's training – Software Development System SNiFF+
	    Administrator's training – Software Development System SNiFF+
	    User's training – Development Environment Wind River Work Bench
	
	• Adaptation of the open trainings according to customer requirements.

02/2008 – 08/2008	**Training of a complete development department (36 persons) for a manufacturer of building automation equipment, Germany**
	seven events (two days each event)
	
	• Consulting and analysis of training requirements for methods of hardware related software development.
	
	• Development of the concept and manual of the training.
	Topics:
	    C-Programming of micro controller for beginners
	    Advanced C-Programming of micro controller
	    Introduction into Real Time Operating Systems
	    Introduction into UML-Embedded
	• Execution of the seven trainings.

07/2008
07/2009
02/2010
07/2010
	Lecturer for the Summer School of the department of computer science of the University of Applied Science, Mannheim
	four classes (two days each class)
	• Free arrangement and execution of the classes.
	Topics:
	    Introduction into real time operating systems, leadership and communication
	    Introduction into non-violent communication and leadership

10/2011 - 03/2012 10/2012 - 03/2013 10/2013 - 03/2014	**Teacher for University of Applied Science Bingen,** **Electrical Engineering** Industrial Automation Lecture and exercises (6 hours per week)
03/2012 - 10/2012 03/2013 - 10/2013	**Teacher for University of Applied Science Bingen,** **Electrical Engineering** Microprocessor Technology Lecture and exercises (6 hours per week)
03/2014 - 10/2014	**Teacher for University of Applied Science Bingen,** **Computer Science / Electrical Engineering** Real Time Operating Systems Lecture and exercises (4 hours per week)
2014	**Beginners Workshop Qt for Embedded Devices held in English** **language** Lecture and exercises Participants: 3 Software Developers (One Thai and two Chinese)
2015	**Beginners Workshop UML Design** Workshop at the customer's site Participants: 8 Software Developers (Junior and Senior level)

Miscellaneous

Foreign language
English business fluently

Programming languages
C, C++, C#, Assembler (68k, IA32, PowerPC, ARM, u. a.), ObjectiveC, Java, Python, Perl, php, shell scripting (bash, ash, cash, the), etc.

Other languages
UML, HTML, XML, JSON, SVG, etc.

Operating Systems
VxWorks, pSOS+, Linux, Embedded Linux, WRS-Linux, µC-Linux, Android, iOS, embOS, FreeRTOS, smx, OS-9/68k, VxWin, RTOSWin, Windows 9x/NT/2000/XP/7/8.x/10/11, QNX, Solaris, CP/M68K, etc.

CPU-Families
PowerPC, ARM, PIC, AVR, MIPS, STM, Renesas, IA32, IA64, etc.

Development Tools
Polarion, Eclipse, WindRiver Workbench, Visual Studio, IAR Embedded Workbench, AVR Studio, MPLAB, Keil µVision, Qt, Qt Creator, Ethereal/Wireshark, ClearCase, PVCS, git, Subversion, CVS, RCS, AccuRev, Tornado, pRISM+, SNiFF+, QAC/QAC++, PC-Lint, Parasoft C++, ReSharper, Jenkins, TeamCity, etc.

Telecommunications and **Network Protocols**
TCP/IP, CAN, Routing, ISDN, etc.

Graphics and GUI
vtk 3D-Graphics-Framework, Qt, OpenGL, OpenCV, Unity, etc.

Rules and Conventions
ISO 9001, MISRA-C, DO-178B, IEC 61508, IEC 62304, MDR, etc.

Trainings
Various **Seminars and trainings** for leadership, project management, coaching, training, Non-Violent Communication (NVC).

Bechenheim, June 9th, 2022