CURRICULUM VITAE

Dr. Andrae Behrens

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Development Skills

C	system, network and device driver development
C++	stable, sophisticated, high-performance OOD cross-platform apps, incl. STL and BOOST, templates, exception handling, multithreading
UNIX	Solaris, HP-UX, AIX, DEC OSF, SuSE, Red Hat, KDE, Gnome, tcl, tcsh, bash, make, …, pthreads
Delphi/Pascal	GUI programming based on VCL, BDE
Win32 API	GDI, Winsock, Multi-Threading, …
Tcl/Tk	Scripting and software interface extension
DataBase	Oracle: PL/SQL (procedures, triggers), native OCI API dev. MS-SQL: T-SQL, ODBC, BDE, ADO.NET MySQL, Sybase, Paradox
Visual C++	MFC, Win32 API (VC++ 6.0 … VS 2017)
Borland C++	Win32 API, VCL (C++ 5.0 ... CBuilder 6)
GNU gcc	UNIX, posix, pthreads, Eclipse/MinGW
C#/.NET	Service, WinForms & WPF programming based on .NET
Network, TCP/IP, UDP, Sockets	Networksoftware-Development; Client-Server-Dev. based direcly on Berkeley Sockets API / resp. Winsock 1&2; IPv4; DHCP, DNS, SMTP, FTP, iptables configurations
Linux Driver	Linux kernel 2.6.x driver (PCI / PROFIBUS)
Automation, Control, PLC	CoDeSys, Simatic S5/S7, Multiprog, Bombardier-MITRAC-Systems, Numerik MRS, Programming with IL, FBD, SFC, ST according EN 61131-3, Z80, Assembler
Modelling & Simulation	development of simulator Poses++, UML/SysML-Modelling with Enterprise Architect, V-Model in der Entwicklung sicherheitsrelevanter Steuerungssoftware
Process Optimization	analysis and optimization of industrial production and logistic processes by means of simulation
Miscellaneous	Perl, PHP, Python, Java, Swing, Java Script, Lua, Tcl/Tk, HTML, XML, UML/SysML/EA, VBA, Sybase, Accurev, Subversion, Installshield, NSIS, AutoCAD, FORTRAN, PLZ

Soft Skills

- team leading, responsible, moderator in team conflicts
- even under working pressure: objective, self-composed, concentrated, purposeful, steadied

Education

1980 – 1983 general qualification for university entrance combined with an **apprenticeship for Electronics** at Fernmeldewerk Leipzig (Saxonia)

1983 – 1987 **diploma** study of **automation & control** at TU-Chemnitz (Saxonia) "development and test of the control software for a dyeing machine", PLC, Software: IL, SFC, Z80 Assembler

1987 – 1992 completed by an additional research study – finished with an engineering doctor **EngD / Dr.-Ing.** with the thesis "predicate transition nets to control processes"

Languages

German (native), English, Russian (many years not used)

My own Limited

Gesellschaft für Prozessautomation & Consulting mbH (GPC mbH)
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Project Examples

period:	01/2019…
sector:	vehicle manufacturing, railway passenger trains
customer:	Bombardier Transportation, Germany
role:	requirement and software design, software development and testing in lab and on trains
project:	services and development, system design and engineering, implementation, testing and start-up of safety-related control software according to EN50128 & EN 50657 for TCMS-Systems in passenger trains (BR430)
tools:	MITRAC development tool chain (C, C++, C#, EN 61131-3, VxWorks), V-Model

period:	11/2017-12/2018
sector:	Automation & Control, Drive Axes Motion Control
customer:	Lenze Automation GmbH, Germany
role:	software architect, software development and testing
project:	design and develop of PLCopen conform motion control and robotics software
tools:	CoDeSys V3.5, SVN, C, C++

period:	05/2017-11/2017
sector:	vehicle manufacturing, railway passenger trains
customer:	Bombardier Transportation, Germany
role:	requirement and software design, software development and testing
project:	services and development, system design and engineering, implementation, testing and start-up of safety-related control software according to EN50128 for TCMS-Systems in passenger trains (Talent 3)
tools:	MITRAC development tool chain (C, C++, C#, EN 61131-3), V-Model

period:	11/2016-04/2017
sector:	vehicle manufacturing, AGVs
customer:	SEW Eurodrive GmbH & Co KG, Germany
role:	concept and software development
project:	collision prediction algorithms, transport task optimization, data base communication to superior production control systems
tools:	threaded C# .NET service/application, MS Visual Studio 2015/2017, MS SQL Server 2014

period:	2014-2016
sector:	production and warehouse logistics
customer:	Europlan Systemtechnik GmbH for Queisser Pharma GmbH & Co. KG / Nintendo of Europe GmbH
role:	concept, architecture, software development, commissioning remotely
project:	logistic material flow controller software coordinating S7 PLCs and communicating with SAP and/or AS400

	systems
tools:	massively threaded C# .NET service/application, MS Visual Studio 2010/2012, MS SQL Server 2014

period:	03/2010 – 09/2016
sector:	vehicle manufacturing, railway passenger trains
customer:	Bombardier Transportation Germany
role:	requirement and software design, software development, task- and teamleading
project:	Services and development, system design and engineering, UML/SysML modeling, implementation, testing and start-up of safety-related control software according to EN50128 for TCMS-Systems in passenger trains
tools:	UML/SysML/Enterprise Architect, MITRAC development tool chain (C, C++, C#, EN 61131-3), V-Model

period:	12/2009 – 02/2010
sector:	mecanical engineering, marine gearboxes
customer:	Reintjes GmbH, Hameln
role:	development
project:	porting of FORTRAN based engineering calculation software to C/C++
tools:	FORTRAN, C++/VS2008, Eclipse (cygnus, mingw, gfortran)

period:	11/2008 – 11/2009
sector:	industry
customer:	GPC mbH
role:	development
project:	development of a new Poses++ animation client; additional Client-API modules for C# and Java; software; preparation of Poses++ release 2.1
tools:	C#/VS2008, C++/VS2008, Java, Eclipse, Tcl/Tk, VS2010, Windows7

period:	7/2008 – 10/2008
sector:	public authorities
customer:	German software house supervised by Computer Futures Solution Deutschland Limited
role:	software developer and management consultant
project:	software system for calculations of periodically settlements
detail:	a) substitution of a part of a complex software accounting system which caches Sybase/Oracle SQL results in corresponding C++ classes for fast internal request answers; b) Perl script to compare two database schemes with different layout; c) development of a Delphi □ XML □ C++ interface

tools:	C++ (VS 2005, STL, BOOST 1.36), Sybase, Oracle, Eclipse, Perl, Tcl, Solaris, HP-UX, win32, Delphi 7, Altova XML Spy, DbVisualizer, Toad

period:	2006-2008
sector:	industry
customer:	GPC mbH
role:	team lead and development
project:	further development of simulation system Poses++ up to release 2.0; simulation consulting projects based on Poses++
details:	– porting the simulation server (C++) to MS Visual C++ 9.0 (VS 2008) – XP/Vista – porting the simulation server to new GNU gcc 4.x releases (SuSE 10.x) – development of a new GUI for the main front end component (posdesk) with Delphi 2005 – development of a new GUI for the animation player (posplay) with C#/.Net WinForms coupled with unmanaged dll-code with multi-threaded “frame/sec” painting – optimization of simulation server performance for more detail see: What is new in Poses++ 2.0 ?
tools:	C++ (Microsoft, Borland, GNU) / Delphi / Tcl/Tk/ C#/ .NET

period:	2006
sector:	heavy machinery industry
customer:	GPC mbH
role:	development
project:	– linux kernel driver development for a PCI card (Woodhead SST-PBMS-PCI delivered with win32 drivers only) – emulation of PROFIBUS-slaves – as technical precondition for a simulation project with Poses++ to bring complex automation software (level I..III, PLCs S7 Simatic, HMIs with WinCC, ...) into operation in front of a simulated virtual machinery environment which serves up to 100.000 signals in real time. (see also: Plug&Work, SMS Demag AG)
tools:	SuSE Linux C++/gcc, Simatic S7

period:	04/2005 – 01/2006
sector:	steel making industry
customer:	Saarstahl AG, Völklingen
role:	consultant and developer
project:	– simulation model development for the whole material flow in a bar rolling plant to estimate and optimize modernization concepts (see also: MPT International, metalurgical plant and technology, 1/2008) – generating geometric data from AutoCAD by export

	via an own VBA AddOn – generating simulation validation sequences by means of MS-SQL database – model optimization
tools:	C++/ MS-SQL, Linux, Win32 (XP)

period:	2003-2005
sector:	mechanical engineering for metallurgical plants
role:	developer and team leading
project:	– development of a hybrid real time simulation system (Matlab/Simulink & Poses++) for a Hardware-In-the-Loop test of automation equipment
tools:	C++/ Linux, Win32 (2000,XP)

period:	2001-2003
sector:	automotive industry
customer:	Volkswagen Sachsen GmbH
role:	architect and developer
project:	– development of a model based material (car) tracking system – as base for a new JIT-request-generation-system which allows to request and manage all 3500 parts to be mounted to a car (Golf/Passat/Phaeton) as “just in time” parts – 2000 cars per day in two assembly lines with about 400 stations (about 20.000.000 Oracle transactions per day) – development of a fast C++ database interface based on Oracle/OCI to insert, update and delete state informations about cars and parts in production (structural similar but about 3 times faster than ODBC) – development of a multi threaded (linear scaling) algorithm on a four processor Compaq system to match 20.000 cars attribute specifications with 1.000.000 parts in real time and to throw match relations to Oracle tables (matching delay per car attributes: 15ms)
tools:	WinNT/ VC++ 6.0 / Oracle / OCI