Dr. Ir. Bram De Wachter

Software Architect, Analyst and Developer
11 Years of Experience (Jan 2012)

PERSONALIA

Name	Bram De Wachter
Contact	Solvaĵo BVBA Verbrand Nieuwland 49 8000 Brugge – Belgium
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Date of Birth	2nd February 1978, Bruges, Belgium

COMPETENCIES IN SOFTWARE ENGINEERING

Technical lead, architect and mentor. Analysis and development of software systems, both low level (embedded systems) and high level. Experienced in Windows Application development (Client-Server), Real-Time operating systems, distributed systems, formal methods and compilation techniques.

Target platforms:	Linux (Intel/PPC/ARM), Windows (Intel), µC-Linux(Coldfire), µCOSII (µC552)
Languages:	C# (3.5), EF, WPF, C/C++ (GCC/MS-Visual), Java 2 (SE/EE/Eclipse Plugins/GEF), Perl, Bash, VB, Assembler (Intel/µC552), UML (Use Cases/Class Diagrams/Sequence Diagrams/State Charts), WSDL (SOAP/XML/XSD)
Distributed systems:	WCF, CORBA, RMI, RPC, MPI, IPTrain Communication (TCP/IP UDP)
Database Systems:	SQLServer (2008), MySql
Compilation tools:	Lex, Yacc, Bison, ANTLR (C/C++/C#)
Development tools:	Visual Studio (2005, 2008, 20120), Eclipse, Rational Rose / Clearquest / Clearcase, TFS, QT, Infragistics, Enterprise architect
Formal Verification:	Spin, SMV
CMS	TFS, Clearcase, SVN, CVS

EDUCATION

2004	Ph.D. – Design and development of a language and environment for distributed process control
2002	Diplome D'étude Approfondie – Distributed Embedded Systems
2001	Civil Engineer / Computer Science, ULB, Graduated Magna Cum Laude Master thesis: "Porting of a real-time operating system on a microcontroller architecture and development of a visual debugger", ULB, received Special Honors

LANGUAGE

Dutch	Mother tongue
French	Fluent (studied 10 years in French, gave courses at the university, worked 3 years in Quebec)
English	Fluent (worked 2 years in India, read and wrote many scientific articles, talked at international conferences)
German	Passive knowledge

PROFESSIONAL EXPERIENCE

03/11–Now
India

Technical Lead, International coordination Interface.
Consultant at Bombardier Transportation India, Hyderabad

Technical lead for a 30+ offshore team for the ORBIFLO suite of applications developed in Hyderabad India for Bombardier Transportation.

Supervising the development activities in C# using Microsoft technologies (SQLServer, WCF, EF, WPF) by providing training, guidance, and improving the performance and quality of the team. Injecting technical knowledge, business knowledge and industry's best practices.

End quality gate for development coming out of the offshore team. Establish architecture, initial design, code review, detailed design review, code review, test review and release gate.

International interface between Canada, United Kingdom, France and India. Bridging the communication and cultural gaps, detecting deviations as soon as possible in the development cycle.

05/08–03/11
2y 10m
Canada

Software Architecture and Development.
Consultant at Bombardier Transportation North America, Montréal

Responsible architect and integrator for all non-safety critical functionalities on Bombardier's embedded Train Control and Monitoring System (TCMS) for TTC project: High level design, technical follow up and lead developer in a team of 4 persons.

Development and adaptation of Generic Passenger Information System (PIS) developed at Bombardier Transportation Europe to North America Requirements (Chicago Transport Authority and Toronto Rocket).

Elaboration of software architecture, documentation and testing of customer specific requirements using C++ on Linux PowerPC, using IPTCom (UDP based protocol), in collaboration with former European team.

Achieve cost effectiveness finding optimal balance between software reuse, new development and requirements coverage.

Collaboration with off-shore team in India: synchronization of requirements (using UML use cases), design (using UML sequence diagrams and state charts) and implementation (elaboration of coding standards and code reviews).

01/06–05/08
2y 5m
France

Research and Development, Passenger Information System.
Consultant at Bombardier Transportation.

High level design of the next generation Passenger Information System.
Study of the current generation PIS (Virgin, Shuttle, AGC trains).

Implementation of the generic PIS software, using C++, Bombardier's IPTCom, incorporation into BT's framework (Component Manager) and integration into embedded target (Linux on PowerPC).

Assistance in the design and implementation of BT's embedded framework (a C++ modular framework). Training inside and outside Bombardier of the Component Manager Framework.

Assistance in the developing concept of Train-to-ground communication, design and implementation of the Train-Wayside communication techniques using Web Services (SOAP/XML/XSD).

Negotiation with Bombardier's customers involving customization of the Generic PIS solution (requirements handling and implementation) : Nederlandse Spoorwegen (SprinterLightProject), Metronet (SubSurface Line Project) and Société Nationale de Chemin de Fer (Ile de France Project)

Technical follow-up and coaching of the PIS team members (4 people).

The Generic PIS Software has become Bombardier's Standard PIS Application and used by over 15 different customers.

06/01–12/05
5y (50%)
Belgium

Research and Development, External Expert – Macq Electronique
Integration of formal academic solutions into industrial supervision Software

Definition of the language dSL, an extension of the proprietary language SL (based on IEC-1131 industrial standard) to allow automatic distribution i.e. to enable a single program to be automatically distributed amongst a network of PLCs.

Integration of formal academic solutions into Macq Electronique's current design and development tool-suite.

Enable formal verification by studying the ability and implementing a prototype translator establishing functional correctness of dSL programs using Model checking techniques (LTL, Promela and Spin)
Study algorithmic difficulties induced by the automatic distribution.

Functional analysis, design and development of an Automatically distributing Compiler, using UML, C/C++ (GCC), MS-Visual C++, Lex & Yacc

Design and development of a Virtual Machine for PC (Intel/PPC) & PLCs running µC-Linux with TCP/IP & UDP communications.

06/01–12/05
5y (50%)
Belgium

Teaching assistant Distributed Systems
Université Libre De Bruxelles

Create an overview of all topics concerning Distributed Systems
Select interesting topics, with an eye for academic values, students' expectations and industrial interests retaining MPI, Java RMI, Java/C++ CORBA

11/00–6/01
Belgium

Research and Development
Université Libre De Bruxelles

Study of the technical feasibility to port real-time operating system (µC-OSII & RTXC) to the µC552 micro-controller

Adaptation of µC-OSII (C and Assembler source codes) for the µC552
Implementation of low level drivers for Serial I/O, CAN, and analog/digital I/O in C and Assembler