

# Profile and Project Track

<b>Name</b>	Bernhard Wagner
<b>Education</b>	Software Engineer (Diploma ETH Zürich)
<b>Professional Experience</b>	Software Development: 18 years (12 years in oo-projects) project management: 6 years Lead R & D: 2 years (4 associates)
<b>Emphasis</b>	<ul style="list-style-type: none"><li>• IT consulting, workshops and seminars</li><li>• software architecture, design (patterns) and frameworks</li><li>• object-oriented analysis and design with UML</li><li>• software development process USDP/RUP, XP</li><li>• software quality: "Design by Contract", refactoring</li><li>• software development</li><li>• object-oriented reengineering</li><li>• editing technological studies and concepts</li><li>• technical project management</li></ul>
<b>Languages</b>	<ul style="list-style-type: none"><li>• German (native tongue)</li><li>• English (very good oral and written)</li><li>• French (very good oral and written)</li><li>• Spanish (good oral and written)</li></ul>
<b>OO-Modeling</b>	UML
<b>OO-Processes</b>	Rational Unified Process (RUP) Unified Software Development Process (USDP) eXtreme Programming (XP), Agile
<b>Programming Languages</b>	Java, C/C++, OO-Perl, Python, JavaScript, awk, Shell script (sh/bash), XSLT, Regexp
<b>Frameworks/ Class Libraries</b>	C++: ET++/MET++/STL/Boost/Loki/TR1, Log4Cpp, CppUnit, Doxygen Java: JDK 1.0-1.7, AWT, JFC/Swing, JNI, JAXP, Junit, Play!, HttpUnit, JDOM, Jaxen, Apache: Ant, Jelly, Xerces, Xalan, Cocoon, UTF-X, Xspec, JMeter, Log4J, Tomcat, ORO, Regexp, Lenya, Canoo Webtest, Amazon Product Advertising API (bottlenose), Java DICT API, Text-Checking API for JAVA, interval-tree Perl: PerlUnit, Log4Perl Python: Django, Amazon Product Advertising API (bottlenose)
<b>Databases</b>	RDBMS: SQL, INGRES, MySQL, Oracle
<b>Internet/Protocols</b>	HTML/DHTML, Xdoc, CGI, JSP, XML, Sax/DOM, XML Schema, XML DTD, XSLT, XPath, Applet, Servlet, JavaScript, Microsoft Internet Client SDK, HTTP (Client, Proxy und Server), MIDI
<b>Operating Systems</b>	Software development: Unix (HP-UX, Irix, AIX, SunOS, Linux), Mac OS X, Microsoft Windows
<b>Development Tools</b>	CASE: Together IDE: Eclipse, oXygen XML Editor, Sun JDK, SlickEdit, MS Visual Studio (Visual C++, Interdev, Basic, Visual Assist X) JFace, SWT, PDE, sdcc (small device c-compiler), Arduino, PhpStorm CM: GIT, SVN, CVS Build: Ant, Make, Jenkins
<b>Other Products</b>	Microsoft Office, Outlook, Project, Word, Access, Excel, Visio, Cycling '74 Max/MSP, CSound, Atmel AT89C4051 microcontroller

## Project Track

- Since 2012 **Guidance of workshops for children, adolescents, and adults in electronics, programming, and music**
- ex-cathedra teaching
  - Soldering
  - Programming in C
  - Group workshops
- Since 9/2002 **Lectureship Software Engineering and object-oriented programming for Fernfachhochschule Schweiz (FFHS), Hochschule für Technik Zürich (HSZ-T), Zürcher Hochschule für Angewandte Wissenschaften (ZHAW)**
- ex-cathedra teaching, e-learning
  - Workshops
  - Short tests
  - Exam
- Visual C++, Java, eclipse, MOODLE, Luvit
- Since 9/2002 **Lectureship Software Engineering and object-oriented programming for Fernfachhochschule Schweiz (FFHS), Hochschule für Technik Zürich (HSZ-T), Zürcher Hochschule für Angewandte Wissenschaften (ZHAW)**
- ex-cathedra teaching, e-learning
  - Workshops
  - Short tests
  - Exam
- Visual C++, Java, eclipse, MOODLE, Luvit
- 09/2012 **Design & Implementation of an adhesive force calculation application, refactoring of legacy php code**  
- 03/2014
- Adhesive force calculation app for a magnet webshop: Lua Programming Language, PHP, PhpStorm, Beanstalkd Queue, Samba, Windows batch programming
- 06/2010 **Design & Implementation of a Plugin for oXygen XML Editor**  
- 02/2012
- Requirements Analysis, Design, Implementation, automated tests, automated deployment.  
Java, Swing, Eclipse, oXygen-XML-Editor, JUnit, Saxon, XSLT, interval-tree
- 06/2010 **Design & Implementation of a Plugin for oXygen XML Editor**  
- 02/2012
- Requirements Analysis, Design, Implementation, automated tests, automated deployment.  
Java, Swing, Eclipse, oXygen-XML-Editor, JUnit, Saxon, XSLT, interval-tree
- 04/2011 **Conducted a masterclass at music department of HSLU**
- Conducted a 1-day masterclass about Thelevi percussion instrument. Wah-wah shaker, thelevi, one-shot-shaker, polyrhythms.
- 06/2010 **Contributions to projects supporting blind, visually impaired and print disabled**  
- 02/2012
- Java-Bindings to a C-Library (liblouis), Saxon-Extension. XSLT-Test-evaluation and implementation for open-source-project "DAISY Pipeline 2". Implementation of backend of an ePub-check-web application using the Play! framework. Webservice as Python Django application, which retrieves meta-information about articles from the Amazon Product Advertising API (bottlenose). Port of open source projecten to recent Java versions: Java DICT API, Text-Checking API for JAVA, interval-tree. Improvements to an XSLT-Test-Framework "Xspec". Automation of build process using Jenkins Java, Eclipse, JUnit, liblouis, Saxon, XSLT, UTF-X, Play!, Python Django, Amazon Product Advertising API (bottlenose), Java DICT API, Text-Checking API for JAVA, interval-tree, Jenkins
- 05/2008 **Design and implementation of an automatic business rule converter**

- 05/2009 Analysis, design and implementation of an automatic business rule converter for a proprietary investment compliance rule language in a commercially successful asset management product. The source language is stored in a relational database and the result is an xml application. Tasks: Parsing of proprietary language into an abstract syntax tree, modification of the syntax tree, subsequent generation of target xml constructs.  
  
Java, Eclipse, JUnit, SQL, Toad
- 05/2006 **Introduction of Smart Pointers in a large scale asset-management project**
- 05/2007 Analysis, Evaluation and test-driven implementation of several smart pointer technologies (Boost, TR1, Loki) in a commercially successful asset management product. Complex environment (massive multithreading, proprietary code generator, client: Java, server: C++)  
  
Development of a cross-compiler plugin for Microsoft Visual C++ 2005 Enterprise Edition.  
Gcc 3.2.2, 4.1.1, Boost, Loki, TR1, Microsoft Visual C++ 2005 Enterprise Edition, Visual Assist X (Whole Tomato Software), CppUnit, Java, Eclipse, JUnit
- 09/2005 **Development of eclipse plugin for domain specific language**
- 02/2006 Development of eclipse plugin for domain-specific language with AST for syntax highlighting, hover help, etc.  
Eclipse 3.1.2 PDT, JDT, Java 1.4, ant.
- 08/2005 **Organization and implementation of courses in audio editing and programming**  
Two courses running in parallel: Multitrack audio recording and editing, and programming. For children Ages 8-13 (Employer: <http://ferien camps.ch>).  
Magix Music Maker, Visual Basic, didactics.
- 05/2005 **Organization and production of 3-day international music festival**
- 09/2005 3-day international music festival with 40 artists from USA, UK, Germany, Sweden, Italy, Croatia, Austria, Czech Republic, and Switzerland (see <http://loopfestival.com>).  
Press work, team motivation and coordination.
- 04/2005 **Development of a microcontroller programming tool for an art project**
- 05/2005 Excel-Sheet as "composition tool", allows time-driven toggling of 12 I/O-ports on an Atmel AT89C4051 for controlling four digital dictaphones.  
Microsoft Excel Macro, Perl, sdcc.
- 03/2005 **Coaching/Implementation in a Perl-Project Oracle-DB-connection**  
Redesign and implementation of the software-architecture of a Perl-Oracle-DB-connection.  
Perl, Oracle.
- 03/2004 **Software Architecture Redesign/Consulting Telecom Billing**
- 04/2004 Redesign of the software architecture of a JobManager (application launcher). Formulation of a common interface for existing applications for control, scheduling and supervision.  
JUnit, eclipse, jdk1.4, ant, Apache Quartz, Unix Processes.
- 02/2004 **Software Architecture, Consulting Audio/Realtime**  
Refactoring of two implementations (Steinberg VST, Soundart Chameleon) with the same functionality (Loop) into a common architecture. Portability between Mac OSX and Windows. Installation of a CVS-repository with ssh tunneling. Installation of a Wiki for the communication within the geographically distributed team.

Steinberg VST, Visual C++ 6.0, CodeWarrior 8.3, CVS, ssh tunneling.

10/2003 **GUI Application development using JFace/SWT**

- 1/2004 Analysis/Specification of the functionality of a data processing tool as a preliminary stage to import to SAP. Development of the GUI application using Eclipse JFace/SWT.  
JUnit, eclipse JFace/SWT, jdk, ant, XML, SAX, Apache Xalan.

1/2003 **Refactorings in the Open-Source Project "XPath Explorer XPE"**

- open ended XPE is a GUI Tool for debugging XPath expressions on XML and HTML documents. Since the translation from HTML to XML a level of flexibility was introduced that allows switching the HTML Parser used by XPE at runtime.  
JUnit, eclipse, javadoc, XPE, jdk1.4, HttpUnit.

1/2003 **Refactorings in the Open-Source Project "Muffin"**

- open ended Muffin is an open source proxy for filtering content of web pages. My contribution consists of simplifying the development of new filters by a stepwise migration of the software into a framework. This is done via structured refactoring. Introduced an abstraction layer to leave a free choice between independent Regexp Engines. The software remains functional during the whole migration.
  - JUnit-Tests for the existing functionality
  - Migration of the existing code into new architecture
  - JUnit-Tests succeedJUnit, eclipse, javadoc, Muffin, jdk1.4 Regexp, Jakarta Regexp, Gnu Regexp

12/2002 **Development of a live electronic system**

- 1/2003 The live electronic system collects the notes of three musicians and reproduces the notes according to a specific selection system triggered by acoustic stimulation. The system was used January 18. and 19. It has been reported by Tages-Anzeiger on January, 21., p. 50: "Performance im Boxring" by Dominik Dusek.
  - Programming Max
  - Configuration of MIDI network
  - calibration
  - testCycling '74 Max/MSP, MIDI

9/2002 **Contributions to Open Source Projects HttpUnit, Jelly, WebTest**

- 1/2003
  - Refactoring
  - Tests
  - DocumentationEclipse

9/2002 **website and application architecture**

- 12/2002 relaunch of the public website of a renowned finance company introducing Wyona CMS (now: Apache Lenya), Cocoon and integration of a database - backend.
  - Analysis & Design
  - Reengineering
  - Implementation
  - Build-System
  - Performance-Tests
  - Regression-Tests
  - Documentation
  - Internal Presentations for the technologies Apache Lenya, CocoonJava, Cocoon, xdoc, XmlSpy, Oracle-SQL, Perl, Ant, JMeter, Tomcat, Apache Lenya, Canoo Webtest

6/2002 **Java Programming course for Sun Educational Services**

- ex-cathedra teaching
- exercises

- 2/2002 **Application Development Telecom Billing**
- 5/2002 Application for financial calculations. method: Rational Unified Process.
    - Analysis & Design
    - Object-oriented reengineering
    - Implementation
    - Generating test data / tools for import/export
    - tests
    - documentation
    - Internal Presentations for the technologies testing, documentation, scripting and their non-intrusive integration into the client's existing environment
    - written concept for unified Exception-Handling C++

C++, STL, CppUnit, Doxygen, Oracle-SQL, OO-Perl, Microsoft Visio, Microsoft Word, Microsoft Excel
- 11/2001 **Ad Interim: Software-Company Network 24/7 AG**
- 5/2002
    - Business plan
    - CTO
    - COO
    - Buildup / Maintenance customer base (CRM)
    - Buildup technical infrastructure (firewall, Server Microsoft Windows 2000, CVS-Server, Backup-concept)
    - conception & implementation of a course "Design Patterns & Refactoring"
    - Consulting in the pilot phase of several internet projects
    - Course instruction Java (Sun Educational Services)
    - Course instruction Calculus (Fernfachhochschule Schweiz)
- 5/2001 **Sabbatical: Scientific Work**
- 10/2001 research, documentation, implementation of prototypes for PhD work in progress.
 

sub-projects:

    - scientific research
    - documentation (Microsoft Word, LaTeX, Visio)
    - implementation of prototypes (C++, MET++, SNIFF+)
    - Object-oriented Reengineering

C++, MET++, SNIFF+, LaTeX
- 1/2001 **XML/XSLT/HTML-Wizard**
- 4/2001 Project management (2 associates software, 2 associates design), analysis, architecture, design and implementation of a wizard for generating HTML and PDF from the same XML sources. Client: financial company.
 

Technical sub-projects:

    - design/architecture of a Java framework
    - definition of the information architecture (XML/Schema)
    - definition of the process for data acquisition and representation as XML
    - set up and document a system that can be operated autonomously by the client

Java, XML, XML/Schema, XSL, XSLT
- 5/2000 **Java-Web-Navigator**
- 12/2000 Head of Development (3 associates), analysis, architecture, design and implementation of a navigators based on a successful C++-implementation.
 

Auszeichnung: **TOP3- Award Industrie-Forum Deutschland 2001.**

Technical sub-projects:

    - design/architecture of a Java framework
    - definition of a generic and extensible data architecture (XML/Schema)
    - Object-oriented reengineering of a Junior's prototype
    - integration into the client's software architecture
    - set up and document a system that can be operated autonomously by the client

Java, XML, XML/Schema, HTTP

- 5/2000 **C++-Web-Navigator**
- 12/2000 Analysis, architecture, design and implementation of a navigators based on the ET++-framework.
- Technical sub-projects:
- design/architecture of a C++-framework
  - definition of a generic and extensible data architecture (XML/Schema)
  - integration into the client's software architecture
  - set up and document a system that can be operated autonomously by the client
  - CVS-Repository-Integration with SNIFF+
- ET++, C++, XML, XML/Schema, HTTP, cvs, SNIFF+
- 5/2000 **e-Catalog**
- 12/2000 Head of development (5 associates), analysis, architecture, design and implementation of an interactive e-Catalogs as front-end to a B2B-platform based on JSP/Servlets.
- Technical sub-projects:
- design/architecture of a Java-framework
  - integration into the client's software architecture
  - set up and document a system that can be operated autonomously by the client
- JavaBeans, Design Patterns, JWarp
- 11/1999 **Web-application**
- 3/2000 Head of development (2 associates), analysis, architecture, design and implementation of a configurable CGI-Perl-application for easy configuration of a Set-Top-Box.
- Technical sub-projects:
- design/architecture of a Perl-Framework
  - Definition of the information architecture
  - integration into the client's software architecture
- Perl
- 1/2000 **Chart Server**
- 6/2000 Head of development (2 associates), analysis, architecture, design and implementation of a Chart-Server for visualization of finance information (time series) in a variety of formats
- Technical sub-projects:
- design/architecture of a Java-Frameworks
  - evaluation and integration of a graphics-library (PGPlot)
  - integration into the client's software architecture
- JavaBeans, Design Patterns
- 10/1998 **Formation of the Company Perspectix-NOSE AG**
- 10/1998 **Time Series Visualization**
- 10/1998 Head of development (2 associates), analysis, architecture, design and implementation of a highly configurable (XML) Chart-Server for visualization of time series in a variety of formats (ubilab: research lab of UBS Zürich)
- Technical sub-projects:
- design/architecture of a C++-Framework
  - evaluation und integration of a graphics-library (PGPlot)
- SUN Solaris, Design Patterns, Perl, PGPlot, XML, SNIFF+
- 10/1997 **Time Series: Scripting Connection**
- 10/1998 Head of development (2 associates), analysis, architecture, design and implementation of a scripting connection to a database optimized for time series (ubilab: research lab of UBS Zürich)

Technical sub-projects:

- reproduction of the C++ class hierarchy
- implementation of a comfortable API

SUN Solaris, Design Patterns, OO-Perl

1996 **Art Project: Clarence Barlow: Automated Music Composition to Film**

Development, analysis, architecture, design and implementation of parameter extraction from animated film (Oskar Fischinger "Study No.6", 1930.)

Technical sub-projects:

- development of a User-Interface based on the multimedia-application-framework MET++.
- Shape recognition in film (API, dynamic configuration)
- Generation of geometric information

SGI IRIX, Design Patterns, MET++, IDE SNIFF+

10/1996 **Art Project: Realtime-Visualization of Music**

- 03/1997 Head of development (2 associates), analysis, architecture, design and implementation of a visualization of Music

Technical sub-projects:

- development of a User-Interface based on the multimedia-application-framework MET++.

Technical sub-projects:

- MIDI - Converter MIDI->control information
- 3D-geometry - development of a configurable 3D-object

SGI IRIX, Design Patterns, MET++, IDE SNIFF+

1996 **Formation of the Company Perspectix AG**

5/1996 **Web browser with its own visual programming environment**

- 12/1996 Development team (3 associates), analysis, architecture, design and implementation of a web browser

Award: **BYTE Magazine Award Cebit 1996.**

Technical sub-projects:

- Development of the user interface based on the multimedia-application-framework MET++.
- Own visual programming for creating interactive, multimedia (3D, Audio, Animation) Web-content.

SGI IRIX, Design Patterns, MET++, IDE SNIFF+

10/1995 **Visual Data Browser (Data Mining)**

- 03/1996 Head of development (4 associates), analysis, architecture, design and implementation of a data browser for finding hypothesis in large error-logfiles of a renown Swiss financial institute

business sub-projects:

- cost calculation, -controlling and project management

technical sub-projects:

- EBCDIC Converter EBCDIC->ASCII
- Unidata NetCDF Converter ASCII-> Unidata NetCDF
- Reverse Engineering of the proprietary data format
- Development of the user interface based on the multimedia-application-frameworks MET++.

SGI IRIX, Design Patterns, MET++, , IDE SNIFF+

10/1994 **PC remote maintenance**

- 05/1995 System for the network-batch-configuration of a PC-fleet based on a set of images and individual parameter (IP address, hostname, username, etc.)

10/1993 **Application Development Labour Mobility Policy**

- 10/1994 Analysis, Design, and Implementation of an end user application in the context of the Swiss Pool for Labour Mobility Policy. Design, Implementation

and Normalizing of an ER-model. INGRES-Database administration.  
Tools: INGRES, SQL, C, Windows4GL.

- 6/1985 **questionnaire analysis**
- 12/1985 TurboPascal-application for acquisition and statistical analysis of market-research-questionnaires.