

## Volker Floeder

### Senior Software Consultant

Project Manager + Team Lead + Architect  
Developer + Analyst

Specializing in Cross-Platform & -Architecture, high performance, high availability secure and reliable systems.

Broad experience in commercial software architecture and development; experienced in all stages of the software development lifecycle.

Experienced team and project lead, excellent working with customers; agile and eXtreme Programming practitioner and mentor.

Quality advocate, self-motivated, excellent verbal and written communication skills.

Mainly working on system improvement and optimization regarding embedded systems, especially concerning stability, performance and maintainability.

#### Personal Details

**Name** Volker Floeder

**Address** Haydnstraße 22  
D-27570 Bremerhaven, Germany

**Education Details** 1980 – 1986 University of Hamburg, Germany

Mathematics: Combinatorics, Design Theory, Graph Theory, Numerical Methods

Computer Science: Software Design, Operating System Design, Programming Languages, Compiler Design, Optimal Algorithms

**Areas of Specialization** Software Design especially Cross-Platform & -Architecture including Validation & Verification, Object Oriented Design, Multi-Threading, Compiler Construction, System Programming, Digital Maps / Navigation, Transport Protocols

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## Selected Skills

**Project Management** Team Building & Mentoring, Project Scheduling, Client Relations & Presentations, Risk-Management, Assessments, Greenfield Projects

**Coaching** Introduction of Cross-Plattform Tools (CMake, GNU, LLVM), Libraries (wxWidgets, GigaBASE) and Methodologies for Binary and Sourcecode compatibility (Dynamically Loadable Modules with Standardized Interfaces vs. Conditional Compilation and Generic Programming)

Software Architecture regarding Cross-Platform Development, i.e. Layered Design, Functional Programming, Message-based Communication, Client-Server Architecture for Distributed Systems.

Hardware in the Loop / Software-Simulation to test and analyze early.

Software-Metrics, Code-Reviews. Audits and Assessments.

**Architecting** **Requirements Analysis:** Rapid elicitation of System Requirements through Use-Case Analysis and Non-Functional Prototypes; creation of Software Requirement Specifications; Story-Cards; Refactoring

**System Design:** Data Modelling, System Design Specification, Interface Control Specification, Performance Analysis, Algorithm-Complexity, Pattern-Driven Design, Domain-Driven Design, Intention-Revealing Interfaces

**Software Engineering** **Languages:** C++11/14 (with MISRA C++), C, Assembly Languages, Python, Shell-Script, UML, XML, JSON

**Systems:** Linux, Windows, QNX, VxWorks, RTOS-Kernel

**Libraries:** C++ Standard Lib (STL), Boost 1.6x (asio), wxWidgets 3.x, TinyXml 2.x, GigaBASE 3.9, MySQL 5.x, QT 4.x, wpa\_supplicant 2.x, Procol Buffers 2.x, nanomsg

**Tools:** Visual Studio, gcc, clang, MinGW, VTune, Parallel Studio, Purify / Quantify / Coverage, Insure++, Valgrind, Dr. Memory, Clang-Sanitizer, Subversion, Git, CMake, Hudson/Jenkins, BugZilla, Trac, TestRail, Polarion, Enterprise Architect, CLion, Coati, Wireshark, Understand 3.x, Typora

**Protocols** TCP/IP, UDP, HDLC, RLP, CAN, ADASIS, NMEA 0183

**Methods** Agile Software Development, Scrum, Extreme Programming / Pair Programming, Test Driven Development, V-Model, Generic Programming

**Languages** German: Native  
English: Full professional proficiency

**Hobbies and Interests** I am a Hovercraft enthusiast and licensed pilot for a **Small Sized Commercial Hovercraft** carrying up to 12 people in near-shore coastal waters.

## Professional Experience

- Since 1999**      **Floeder IS GmbH**  
**Founder and CEO**
- Field**            Mobile Communication, Advanced Driver Assistance Systems, Digital Maps, Car Navigation, Embedded Linux, Windows Tools, Software Reviews
- Customers**     Audi, Blaupunkt, BMW, DKS-Köln, Daimler, Ford, HarmanBecker, Höft&Wessel AG, Ibeo AS, Intermap, MAN, Nokia(Navteq), Opel, Porsche, TomTom(Tele Atlas), Vorwerk, ZF
- Projects**
- Since 2016    Pre-Series Kitchen Appliance  
 Next generation Kitchen Appliance.  
*Role: Senior Consultant - Embedded Linux Developer and Architect.*  
*Embedded Software, Wireless Communication, Software Specification, Implementation and Verification. Consulting and Mentoring.*  
 Embedded-Linux (4.x) + Yocto + Jenkins + C++11/14 + Boost + JSON + protobuf + doxygen + Crank Storyboard Suite + Git + Polarion + Clang sanitizers + CppUTest + CLion + Sourcetrail + Cppcheck + Valgrind + DrMemory + Understand + Enterprise Architect + Lua + Shell-Scripting
- Since 2015    Kitchen Appliance  
 Twelve Functions Kitchen Appliance that can mix and cook all at the same time, featuring recipe chips, touchscreen, Wifi connectivity with a unique Guided Cooking function.  
*Role: Senior Consultant - Embedded Linux Developer and Architect: System improvement especially regarding Wifi-Connectivity and other Low-Level functionality.*  
*Embedded Software, Wireless Communication, Software Specification, Implementation and Verification. Consulting and Mentoring.*  
 Embedded-Linux (2.6.35) + LTIB + Yocto + Freescale-Toolchain + Jenkins + Shell-Scripting + C/C++ + Guiliani + ARM9 (Freescale MX28EVK) + Subversion + Polarion + GoToMeeting + Google Test + Understand + Enterprise Architect + UMLet + wpa\_supplicant
- 2014 - 2015    Video Monitoring for Public Transportation Systems  
 Video streaming and recording system for train systems, featuring in- and outside camera systems, alarming and more, letting the driver oversee what is going on.  
*Role: Senior Consultant - Embedded Linux Developer and Architect: System improvement regarding stability of the various communication channels between the different components of the distributed system.*  
*Consulting, Mentoring, Embedded-Software, Wired Communication, Software-Specification and Verification*  
 Embedded-Linux (2.6.32) + Yocto + Angstrom-Toolchain + Shell-Scripting + C/C++ + QT4 + dbus + ARM7 + U-Boot + Subversion + Video-Streaming
- 2013 - 2014    Mobile Communication Device  
 Mobile communication device for shunting to replace analog radio by GSM-R. The implementation was already 24 months behind schedule in spring 2013.  
*Role: Senior Consultant – Principal Software Architect: System improvement and optimization, especially regarding stability, performance and maintainability.*  
*Consulting, Mentoring, Embedded-Software, Mobile Communication, NAND-Technology, Metrics, Software-Specification, Verification and Reviews*

20 MM: Embedded-Linux (2.6.38) + Kernel-Driver + Angstrom-Toolchain + Shell-Scripting + C/C++ + Windows Embedded + QT4 + JFFS2 + UBIFS + dbus + ARM9 + U-Boot + Multi-Threading + Subversion + GSM-R + BugZilla + Trac + TestRail

2006 - 2012 RAPS, ADAS, digital maps

Low latency / real time electronic-horizon provider to be used in map-based driver assistance systems. One of the first available systems worldwide and still the only one that works with all available maps. Runs on several operating systems and implements unique features like **Context-Based Road-Matching**, **Turn-Prediction** and dynamic length of the predicted path. Used by Daimler, Ford, MAN and ZF.

**RAPS obtained a funding of € 700,000 in 2009 by Innovationsstiftung Hamburg.**

*Role: Principal Software Architect – Project-Manager: Multi-Platform Build-Environment, User-Interface, Positioning, Road-Matching, Route-Prediction, Inter-Process and Network-Communication, GPS and CAN-Bus Interface, Client-Server Protocols*

48 MM: Project Management + Mentoring + Software Metrics + Windows / Linux, 32 / 64 Bit + C++ + STL + wxWidgets + GigaBASE + Intel + Atmel AVR32 + Multi-Threading + Purify/Quantify/Coverage + Subversion + Git + CAN + ADASIS V2 + NMEA 0183 + TCP/IP + UDP + MISRAC++ + Extreme Programming + Rapid-Prototyping + Digital Maps + ADAS + Navigation + Client/Server + Ultra High Performance + Templates + Exception Handling + Linux + Windows + Windows CE

GDF-Import

The **fastest available map compiler**. Two hour compilation time on a single workstation, where others need two weeks on a server farm.

*Role: Principal Software Architect and Developer – Project-Manager: Multi-Platform Build-Environment, User-Interface, Optimized File I/O, Digital Map Format, Multi-Threaded Pipelined Backpatching Compiler-Engine, Lexical Analyzer, Parser, Plugable Code Generators*

36 MM: Project Management + Windows/Linux, 32/64 Bit + C++ + STL + wxWidgets + GigaBASE + Multi-Threading + Compiler-Construction + Purify/Quantify/Coverage + Subversion + Git + Digital Maps + Optimal Algorithms + Templates + Exception Handling

2007 - 2008 Wireless rear view camera for trucks (prototype only)

*Role: Principal Software Architect*

Since 2004 Software Reviews: SCSI driver, kernel driver, software architectures

*Role: Principal Software Architect and Consultant*

2003 DoUndel: A Windows undelete / secure deletion tool

*Role: Principal Software Architect and Project Manager*

2001 - 2006 Car Navigation / Digital Maps

*Role: Principal Software Architect*

Mobile Data Communication

DieGue: A quality measurement tool for mobile data communication

*Role: Principal Software Architect and Project Manager*

2000 - 2001 Lizsy

A Windows Copy-Protection- / Licensing-System. Provides various possibilities for software-protection and to make sure that only a certain number of copies are active or installed.

*Role: Principal Software Architect and Project Manager*

10 MM: Project Management + Mentoring + Software Metrics + Windows 32 / 64 Bit + C++ + Multi-Threading + Purify/Quantify/Coverage + Subversion + MFC + MS SDK + COM/DCOM + Client/Server + Templates + Exception Handling

Since 1999 FISTools

A Windows extension library

LibPP

A template based C++ library that implements several trees like AVL, Red-Black, B-Tree, R-Tree along with a couple of supporting data structures like linked lists, queues, variable sized arrays etc..

*Role: Principal Software Architect and Project Manager*

8 MM: Project Management + Mentoring + Software Metrics + Windows / Linux, 32 / 64 Bit + C++ + Intel + Atmel AVR32 + Purify/Quantify/Coverage + Subversion + Git + Optimal Algorithms + Low Latency + Templates

1999 - 2001 Windows Tools: Cleaner-Suite, Internet Privacy-Suite, Internet Smart-Cache, Mail-Checker, PowerArc

**1998 - 1999**

**Self Employed Software Engineer / Architect**

**Field**

Windows Tools: CleanEx for Windows

**Customers**

Buhl Data , Data Becker, Micro Application

**Projects**

CleanEx

A Windows (95...XP) uninstaller/cleaner. The first cleaner that needed less than one second to remove even complex software packages instead of many minutes.

*Role: Software Architect and Developer*

8 MM: Project Management + Mentoring + Software Metrics + Windows 32 Bit + C++ + Multi-Threading + Purify/Quantify/Coverage + Subversion + MFC + MS SDK + MS DDK + VToolsD + Kernel Programming + System Programming + Windows GUI + Templates + Exception Handling

**1986 - 1998**

**Dr. Neuhaus Telekommunikation GmbH**

**Role: Software Engineer / Architect**

**Field**

Design and implementation of protocols, operating systems, development tools

**Customers**

Compaq, Ericsson, German Telecom, HP, Nokia, Sierra Semiconductors, Siemens

**Projects**

1998 Modem emulation for a GSM adapter - Windows kernel driver

Device drivers:

Implemented several drivers, mostly for I/O controllers on Windows (both lines, 9x and NT) and dedicated hardware as well.

*Role: Software Architect and Developer*

36 MM: Windows 32 Bit + Intel + AMD + Atmel + Motorola + Zilog + C + Assembler + CVS + MS DDK + VToolsD + SoftICE + IAR C/C++ + Interrupt-Handling + Direct Memory Access + Memory Mapped I/O

1997 Direct Disc R/W - Windows 16/32 bit

Nokia mobile phones: Several data protocol adaptations

Transport Protocols

Several different protocols in the telecom domain, for both wired and wireless connections like SDLC, HDLC, X.25, X.225, X.75, X.400, X(Y, Z)-Modem, T.30 (fax), TCP/IP, HTTP, POP3, IMAP, SMTP, RLP and others.

*Role: Senior Software Developer*

24 MM: Intel + AMD + Atmel + Motorola + Zilog + C + Assembler + IAR C/C++ + Interrupt-Handling + Direct Memory Access + Memory Mapped I/O + European Countries + Middle East

1996 GSM: RLP protocol for various Siemens/Ericsson devices

CAPI 2.0 Win95 for GSM-ISDN

Protocol tracer to interpret and verify protocol implementations

Protocol-Tracer

A system to help implement and debug various data communication protocols like SDLC, HDLC or RLP.

*Role: Senior Software Developer*

12 MM: Windows 32 Bit + C++ + MFC + MS SDK

1995 Unix system console: Virtual terminals for BSD Unix variants (FreeBSD, NetBSD...)

1994 Software QMVA: Certification according to DIN/ISO 9001

1993 Connection Monitor: Checking and visualization of modem connections for commercial modem networks using Unix and Motif

PCMCIA modem: Adaption of modem firmware to new hardware

1988 - 1992 A68: Assembler on CP/M-68k, MS-DOS, ROM, Windows, Unix

A **single-pass back-patching** assembler for the Motorola M68K line of microprocessors. It was used to cut the compile time of a project from several hours down to a couple of seconds. Implemented a machine-code optimizer to choose the most performant code. Minimal code size could be achieved by using an optional Multi-Pass-Mode using an incremental optimization strategy to generate both, the fastest and the smallest possible code.

15 MM: CP/M-68K + MSDOS + Linux + FreeBSD + C + Compiler-Construction

D68: Debugger on CP/M-68k, ROM

A Motorola M68 debugger, available as a CP/M-68K and standalone version as well. Beside the normal features, it was capable to handle **conditional breakpoints**, back trace, assembly, loading modules and more.

12 MM: Proprietary OS + CP/M-68K + Motorola M68000 + Assembler + Interrupt-Handling + Single-Step + Breakpoint-Handler + Backtrace/Trace-Buffer + Stack-Frame-Analysis

1986 - 1992 TEMEX: Hard disk subsystem, user console(MS-DOS), SDLC, HDLC, X.25... protocols, system core, device drivers

Hard disk Subsystem

Intelligent data storage subsystem of a distributed multi processor system (TEMEX, Telemetry Exchange) used for data over voice communication. Introduced **command queuing** and **command reordering** to optimize throughput.

8 MM: Proprietary OS + Motorola M68000 + Assembler + C + Optimal Algorithms + Interrupt-Handling + Direct Memory Access + Memory Mapped I/O