Curriculum Vitae

Name:	Thomas Boor
Education:	electrical engineering studies education as business programmer
Methods:	Objektorientierte Analyse und Design mit UML und Coad & Yourdon, Strukturierte Analyse und Design, ISOTEC, Datenbankdesign (ER-Modellierung) und -Normalisierung
Hardware:	IBM DataBlades, Sun Fire, Sun Netra, SNI RM- & MX-Serie, IBM RS/6000, SUN SPARCstations NIXDORF TARGON /35, IBM /370, PCs
Operatiungsystems:	AIX (bis 6.1), Sun-Solaris 10, Linux (Ubuntu., SuSe. Arch-Linux, Mint), SINIX SVR4 (bis Rel. V.4.3), UNIX SVR3, DG-UX 5.4, SCO-UNIX 3.2, SunOs 5.4, MS-DOS/WINDOWS, VM/SP, MVS/ESA
Programming-Languages:	C++ up to v14, C, Python (2. & 3.), C#
Networks:	TCP-UDP/IP, BSD-Sockets, ONC-RPCs, RMI/JNDI, CMX
Protokolls:	SIP, SDP, RTP, RTCP, Radius, SNMP, http, Soap
DB-Systems:	REDIS v5, DB2V9-Vista, Informix Online bis 10.0, Oracle 7.3, Postgres, mySQL, ddb4, CICS, VSAM, MS-SQLServer, MS-Access
Development-Tools: Rose,	PyCharm, Eclipse-SDK, Sun-Forte-IDE, Together, Rational dia (UML-Tool) div. UNIX-Shells & tools scons, git, gerrit, jenkins, redmine, confluence/draw-io omniORB, omniORBpy
Publications:	PolarPlot - Plotten von Funktionen in Polarkoordinaten mit Sharp PC-1500/CE-150 Würzburg, 1987 (Vogel-Verlag, NE: T.Eikenkötter) vi-Referenzhandbuch - Das Lehr- und Nachschlagewerk zum UNIX-Standardeditor München, 1996 (Verlag Prentice Hall, NE: Hutter/Pribas)

Executive Summary

(projects related to customers)

Duration	Client	Alt. customer(s)	Doing
06.2021 – 06.2025	IBM Frankfurt	DTAG	Support on Deployment & Operations
06.2020 – 06.2021	RM Electronics		SW-Development C++
06.2006 – 02.2020	IBM NGN CC	DTAG, TSI, terravoice, IBM	SW-Design a. - development in C++, C, Python, Teamlead
05.2004 – 09.2006	Ticketcorner		SW-Design a. Development in C++, Python
04.2002 – 03.2004	Qivive		SW-Design a. Development in C++
09.2000 – 03.2002	START-Informatik		SW-Design a. Development in C++
10.1998 – 08.2000	START-Ticket		SW-Design a. Development in C++ QS f. SW-department
01.1998 – 09.1998	IBM Frankfurt	otelo	Regressiontest
02.1992 - 12.1997	START-Ticket		SW-Design a. Development in C++

Small projects done in parallel are not listed

Detailed list of projects

(in rerverse chronological order)

Support on Deployment and Operations of a nationwide ip-platform

Duration	06/2021 - 06/2025
Trade	**Telecommunication**
Role	**Consulter & Operator**
Customer	**DTAG / IBM**
Task(s)	Support on DevOps-based Deployment-Toolchain, developing ansible-playbooks for automatic validation of deployment-results and for automation. Python-Scripts for nationwide n:m Connection-Tests. Training of advanced usage of the git-versioning-system. Consulting for Canary-Deployment. Writing of Wiki-Documentation to all tasks incl. Graphics. AI (with machine-learning and NaturalLanguageProcessing) based python scripts to validate daily reports delivered per week with current week validated by previous weeks and to do a prediction for next week incl. Confidence ranges, presented as a triple-graph
Methods	scrum
Programming-Language	Python 3, bash, ansible, Jinja2
OS	Suse-Linux
IDEs	MS VisualStudio, ansible-tower
Tools	git, gitk, gitlab, ansible-tower, artifactory, Vault, BIG-IP F5. jira, gerrit, confluence, guard, topedia, OpenOffice. CheckMK, Kibana, anritsu
Etc.	Webex, Slack

Software-Development of driving simulation systems

Duration	06/2020 - 06/2021
Trade	**Simulation-Systems**
Role	**Developer**
Customer	**RM Electronics**
Task(s)	Development of Software-Components for large Driving-Simulation-Systems controlling Bosch-Rexrodt-Motion-Systems, Dell 180° Monitoren, force-feedback seats & wheels - Driver f. Logitech-Wheel 920 - Gateway-Prozess to convert UDP-Sensordata to SHMs - Codegenerator for fragments according to Device-List - Logik-Process to maintain vehicle's state.
Programming-Language(s)	C++ V11
Operating-System(s)	Suse-Linux, CentOs, Azure-Linux, Ubuntu
IDEs	PyCharm, Eclipse
Tools	SonarQube, gitlab, git, gitk scheme, tk, jira, gerrit, confluence, draw-io
Etc.	webex, mattermost

IoT-Monitoring and Control system for autonomuous energy solutions (solar & wind)
project in parallel

Duration	01/2019 - 03/2020
Trade	**Energy**
Role	**Designer / Developer**
Customer	**thovid.com**
Task(s)	Concept and implementation of a raspberry-bases monitoring systems for PV and wind-energy systems. Collecting data from a AD-Controllor to measure analogue values (Volts/Amps) and a hall-sensor to measure the RPMs of a windturbine to send it as Json-object to the DCA. In addition, the data of a nearby weatherstation is retrieved via WiFi-http. The data is stored continuosly in a REDIS database. All the data collected is displayed on a HTML-5 website using google-gauges. The envertec injector is controlled by the DCA to limit the outpoing power to 600W,
Programming-Language(s)	python 3
Operating-System(s)	Debian-Linux, Ubuntu-Linux
IDEs	PyCharm, Atom
Tools	Git, gitk, git-gui, confluence, draw-io
Etc.	REDIS, google-developer-tools

CI/CD (Continuous Integration / Continuous Deployment)

Duration	11/2019 - 02/2020
Trade	**Telekommunications**
Role	**Developer**
Customer	**IBM Frankfurt**
Task(s)	Writing of ansible-playbooks and ressource-files to deploy application o an internet-access-platforms to a farm of virtual systems managed by kubernetes. Applications to be deployed fetched per REST form an artifactory-instance.
Methods	scrum
Programming-Language(s)	Ansible, python 3
Operating-System(s)	Suse-Linux, CentOs, Azure-Linux, Ubuntu
IDEs	Eclipse, PyCharme, Atom
Tools	Gitlab, ansible, ansible-Tower, jfrog Artifactory, checkmk, Kubernetes, curl Slack, The Box, git, gitk, gitlab jira, gerrit, confluence, draw-io
Etc.	webex, slack

Redesign / rewriting of an Accounting-Transfer-Service

Duration	07/2019 - 10/2019
Trade	**Telekommunications**
Role	**Developer**
Customer	**IBM NGN CC**
Task(s)	Developing of an accounting gateway feaded by REDIS- and UDP Sources, dispatching to remote systems via UDP or filebased storage. REDIS-Client and -Server written in C, IPC via shared memory and REDIS. Testsystem as REDIS and UDP source or target written in python 3.6
Methods	UML
Programming-Language(s)	C, python
Operating-System(s)	Suse-Linux, ubuntu
Tools	umbrella, plantuml, redis-5.0.2
Sonstiges	

Systemtest of a cf-engine based Deploy-Tools on a VM-Farm

Duration	05/2019 - 07/2019
Trade	**Telekommunications**
Role	**Developer**
Customer	**IBM NGN CC**
Task(s)	Deployment of a number of applications developed at the NGNCC of the IBM on a VM-cluster. Writing of installation guides using confluence and drawIo Defect tracking with cq-web. Writing of python scripts to easy multiple execution of similar steps and to verify the deployment.
Methods	
Programming-Language(s)	Python 2.7
Operating-System(s)	Suse-Linux
Tools	confluence, cq-web
etc.	cf-engine

Extension of an Accounting-Gateways by daily statistics stored in SHM and DB

Duration	10/2018 - 04/2019
Trade	**Telekommunications**
Role	**Developer**
Customer	**IBM NGN CC**
Tasks	Extension of an existing accounting gateway by daily statistcs stored up to 1 month in a database or up to 7 days in the shared memory. A C++-program generates CSV-files on demand containing the data of the last 31 days. Testsuite in python to generate data for severla days and py-scripts to verify the day-specific counting.
Methods	UML
Programming-Language(s)	C, C++ Version 11, python 2.7
Operating-System(s)	Suse-Linux
Tools	umbrella, plantuml, confluence, cq-web
etc.	Scrum

Design and Implementation of a generic SNMP-Requestor

Duration	06/2018 - 09/2018
Trade	**Telecommunication**
Role	**Developer**
Customer	**IBM NGN CC**
Task(s)	Tool, to read via bulkwlk partial SNMP-trees and have an abstaction-layer with tables, rows and scalars on that data. Der Customercqan use the API of the tool in self written templates to have a look according to own reuirements with no softwware-changes needed. Mass-oprators, lambda functions and arithmetic basics for tables-data. Programmdocumemntation with pydoc, Users manual with confluence and draw-io.
Methods	UML
Programming-Language(s)	Python 2.7
Operating-System(s)	Suse-Linux
Tools	umbrella, plantuml, confluence, draw-io, cq-web
/etc	Scrum

Extension of a CallLimitingServers with Call-Attempt Limit

Duration	03/2018 - 06/2018
Trade	**Telecommunication**
Role	**Developer**
Customer	**IBM NGN CC**
Task(s)	Extension of a Call-Limiting-Servers by callrate-limiting. So, the number of established calls of a principal can be limited to the ordered number. Design-Documentation with UML-V2, Interface-Design documented with AsciiDoc, coding using C++ V14. Regression test suite to check reliabiliy and memory usage on massiv call requests of lots of users in parallel.
Methods	UML
Programming-Language(s)	C++
Operating-System(s)	Suse-Linux, ubuntu
Tools	umbrella, plantuml
/etc	

Accounting-Gateway for Telecom-Provider, project in parallel

Duration	03/2018 - 09/2018
Trade	**Telecommunication**
Role	**Entwickler (LeadDeveloper)**
Customer	**IBM NGN CC**
Task(s)	Extension of an existing accounting-gateway by multicasts conrolled by configuration. So, dependend on the content, accounting pakets are sent to several backend-systems via UDP (usual for RADIUS-protocol). Async-response-handling via epoll.
Methods	UML
Programming-Language(s)	C, C++, python, perl,
Operating-System(s)	Suse-Linux, ubuntu, omvs
Tools	umbrella, plantuml, mq-series, db2
/etc	

Access-Platform for Telecom-Provider

Duration	04/2017 - 03/2018
Trade	**Telecommunication**
Role	**Developer**
Customer	**IBM NGN CC**
Task(s)	Refactorierung of an Online-Provisioning-Solution of an Access-Platform with IP- und QOS-settings for ip accessors. Integration of different input sources, like XML-file, MQ-Series-Requests or udp-requests. Using IBM-DB2 and IBM-MQ-Series in C++, Version 11, different UNIX-Systems and Open-MVS. New Outlet of provisioned principals via XML/SPML to store data at a LDAP-Database (Nokia C-NTDB).
Methods	UML
Programming-Language(s)	C++,
Operating-System(s)	Suse-Linux, ubuntu, omvs
Tools	Git, umbrella, gerrit, jenkins, mq-series, db2
/etc	scrum

Business-Telefone-Platform for SIP-Trunks and PBXe

Duration	10/2016 - 03/2017
Trade	**Telecommunication**
Role	**Developer**
Customer	**IBM IP-Factory**
Task(s)	**Distributed Build-, Distributions- und Testsystem** python tool to establish a distributed deploy- and Test-System auf linux-Rechnern inkl. verschiedenen, virtuellen Systemen (docker, lxc, virtual-box, vm-ware). Integration of scons, git, gerrit und jenkins in den workflow. Configuration of load-sets per json files. Visualising progress with generated websites, using flask und ajax. Componententest with CORBA-Environment (omniorb for python), to control all parts of a test suite from a single, local control-file. **Re-engineering of an account-spoolers** Refactoring an existant account-spooler, sending RADIUS-Pakets with UDP from spool-files of different clients. Housekeeping of respondeed or timed-out requests. Integration of a snmp-Interfaces to establish Remote-control. Adjustements in code to meet C++-Version 11
Methods	UML
Programming-Language(s)	C++, python
Operating-System(s)	Suse-Linux, ubuntu
Tools	umbrella, gerrit, jenkins, confluence/draw-io, redmine
/etc	

IOT (Internet of things)

Duration	10/2015 – 09/2016
Trade	**Environment**
Role	**Architect of development, Team with 3 developers**
Customer	**Kontip GmbH**
Task(s)	**I**ntegration of a SIP-Stack within the Bridge, development of an Applicatzion-Server-Proxy which delegates all messages decoded by the Stack to the IOTF and proceeds the message flow with the response from the IOTF. So, sensors and actors connected via a SIP-Gateway (e.g. an Internet-Router) can be handled, too (beside Art/LORA messages). Software-Design with UML, Development in C++ under Linux of an application-server for the "internet of things", acting as a bridge between the LORA-Network-Server – talking JSON via Websockets – and the IBM-IOT-Foundation (BlueMix), talking REST and MQTT. Designed for some 100000 Devices acting as Sensors and/or as actors. Multithreaded-Solution. Software-Design with UML, Development in C++ under Linux of an application-server for the "internet of things", where up to 100.000 sensors/actors are connected to via gateways (fritzbox, raspberry, LORA-wireless net) and can be monitored via SIP-SUBSCRIBE oder controlled via SIP-MESSAGE by an arbitrary number of clients. Communication with sensores/actors encoded in JSON, communication with monitoring clients using XML-Bodies in SIP-NOTIFYs. Multithreaded-Solution.
Methods	UML
Programminglanguage(s)	C++
OS	Suse-Linux, ubuntu
Tools	umbrella, gerrit, jenkins, confluence/draw-io
/etc	

Telefone-Provider-Platform for SIP-Trunks and PBXs

Duration	08/2014 - 09/2015
Trade	**Telecommunication**
Role	**Developer**
Customer	**terravoice.eu, managed by KONTIP / TSI GmbH managed by IBM**
Task(s)	**Application Function for the feature ClosedUserGroup (CUG)** Internal Apllication-Function to realize the "Closed User Group"-feature in a SIP-Telefone-Provider-Plattform. Parse MultiPart-Bodies i XML-Format, evaluate content and check against configured values to result to an acceptance or a decline **Enable DS-Field-Support (QoS) in some Communications-Libraries** Enabled setting of DSCP/TOS once on newly created communication-connections or as Ancillary-Data for Per-Paket-Qos, with IPv4 and IPv6. For ancillary-Data detection code on receiver-side (IPV6_RECVTCLASS, IP_RECVTOS) by parsing the cmsghdr. Applied libraries for TCP, UDP, Radius, Diameter, http, MGCP **Re-writing of a phone-number-porting-server for up to 200 millions of numbers** Re-Design and re-development of a porting-server, which was based on DB/2 before. Because of the huge number of entries to be managed and the required performance-boost a BigData-solution (totally InMemory instead of a rel. DB) was choosen. Servers are cascaded in a tree to act as a cloud. Functional and regression-tests written also in C++, part. using the boost-library
Methods	UML
Programming-Language(s)	C++
Operating-System(s)	Linux
Protocols	Diameter, SIP, RTP, SDP, protobuf, TCP/UDP
Tools	Git, Confluence, phabricator, ClearQuest, umbrella, gerrit, jenkins

/etc

Design, Implementaion and maintenance for a MRF (Media-Ressource-Function)

Duration	10/2009 – 03/2011 and 03/2012 – 07/2014
Trade	**Telecommunication**
Role	**AD (Architect of development) mit 4 Entwicklern**
Customer	**IBM NGN Center of Competence / terravoice.eu**
Task(s)	**Design and Implementation of an IMS-Media-Ressource-Function (MRS)** IMS-conformant MRF to stream audio- and video-assets, Detection of DTMF-Events, Evaluating incoming RTCP-Responses and to Proxy voice-Rtp-data to an Voice-Recognituion-System (IVR). Beside streaming single streams to single receivers, the MRF can stream to multiple receivers like a video-installation with an array of screens. Assets to stream can be read at once or partially on demand. With a tool all the assets ar deployed to all instances of the MRS. Multiplexing of Live-Streams with a ringbuffer as Asset-Quelle. According to the IMS-Modell the MRF is realizes as a Controller and a process, which act in n:m-relation. Jobs-submitting per SIP-INVITE or via library-Funktion. Multithreading-Solution.. **Rework of an existing MRF with lots of new features** IPv4 & IPv6 Streams from one application process dynamic memory management for local media files Proxiing Unicast-Live-Streams IGMP-Multicast-joins to proxy T-Home-Entertain-Media as Unicasts Writing of RADIUS-Accounting Packets Handling of Pinhole-Requests, to open Firewall-Connection (local IP/Port and remote IP/Port) Test-Website using webrtc, ajax, javascript and Java-applet to send a pinhole request from users machine DSCP (Differentiated services code point) settings per configuration to fulfill QoS requirements. **Design and Development of a dynamic memory Management for the MRS** For the new Media-Resource-Server (MRS) a dynamic Memory-Management has been requested, to minimize the ressource at partial access for any asset for multiple users. Slice-oriented read-aheads, advising assumed next requested areas via posix_fadvise, to have the data in parallel read into the disk-cache to make the next read seamless.
Methods	UML
Programming-Language(s)	C++, python

Operating-System(s)	Ubuntu-Linux, SuSe-Linux, IBM-AIX
Tools	Git, scons, OpenOffice, asciidoc, doxygen, ClearQuest/Case, gstreamer, vlc
Protocols	SIP, RTP, SDP, TCP/UDP
/etc	

Launch of an Onlineshop for a Bicycle-Store

Duration	08/2013 – 09/2013, project in parallel
Trade	**Retail**
Role	**Designer and Developer**
Customer	**Radhaus Bürgstadt**
Task(s)	Evaluation of some free CMS. Final decisions to use *Shoppingcart* (opensolution.org). Translation (from en to de), Code-maintaining, versioning. New Graphic-themes, Payment-Types, Administration-Tool and more. Editing of Diashows for retailers youtube-channel.
Methods	
Programming-Language(s)	php
Operating-System(s)	Ubuntu-Linux, MS-Windows-7
Tools	shoppingcart, gimp, Typo-3
/etc	Google+, youtube and facebook-Presentation for the dealer.

Internet-Access-Plattform

Duration	01/2013 - 09/2013
Trade	**Telecommunication**
Role	**Entwickler**
Customer	**IBM Deutschland GmbH**
Task(s)	**Evaluation of nested Virtualization using vmware hypervisor ESXi and Platform-Deployment** Evaluation of vmware-Hypervisors (ESXi-5.0 and 5.1) to check their ability to run nested. The reason for nesting: to deploy a complex platform wirh n-locations and m-hosts on one physical machine to reduce hardware expenses. Branches of the nesting tree: ESXi-5.0 -> ESXi-5.1 -> VM(with SuSe-sless11/64) ESXi-5.0 -> ESXi-5.0 -> VM(with SuSe-sless11/64) ESXi-5.1 -> ESXi-5.0 -> VM(with SuSe-sless11/64) Deployment of applications on the Vms at the leafs. **Extension of Application-Monitoring for a distributed Internet-Access-Platform** Design and development of monitoring components for new applications and hosts of the platfrom. Central components interacting with TIVOLI-NETVIEW (for graphical presentation of the platform-status) written in C and Rexx, running under IBM z/OS. Remote components written in perl, running under z/OS, zOS-UNIX, zLinux, AIX and SuSe-Linux, which invoke snmp-commands to retrieve MIB-OIDs or which invoke requests of the monitored applications to measure avalability, rúntime & latency and failure rates. Definition of new Views and groups in TIVOLI for the new monitorng-components.
Methods	
Programming-Language(s)	C, Rexx, perl
Operating-System(s)	vmware ESXi, SuSe-sles11, AIX, z/OS-UNIX,
Tools	ClearCase, git, IBM IMM
/etc	