

# Curriculum Vitae

Michel René MEHL

## PERSONAL INFORMATION

### Civil information

📍 17 Impasse des Hirondelles  
67590 Wintershouse (France)

📅 3 May 1974

♂ Sex Male

🇫🇷 Nationality French

🚗 Driving-licence B (+25 years)

### Contact

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(SlashEtc)

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## PERSONAL STATEMENT

### Entrepreneur and Independent Software Engineering

Autonomous, versatile, committed and service-oriented, I provide IT and consulting services in software engineering on a wide panel of technologies. I also work as an individual entrepreneur (registered at Trade and Companies Register of Strasbourg) to develop my own ideas and products ([www.slashetc.fr](http://www.slashetc.fr)).

## WORK EXPERIENCE

2024  
present

📍 **SlashEtc, Wintershouse.**

2025

### PhotobookMaker product

PhotobookMaker enables to generate within minutes professional numeric and printable photo albums from a set of photos and videos files. 🔧BASH, awk, HTML5, CSS, Javascript, AsciiDoctor, Docker, vsftp, Ubuntu 24 server, Nodejs, Express LVM

Demo albums: <https://slashetc.fr/photobookmaker/demos>

2024  
2025

### Mountpilot product

Mountpilot is a Linux system administration tool which primary goal is to enable to mount on the local file system data devices of any technology, network resources of any protocol and disk files of any type from a common, simple and intuitive command line interface (CLI) and a text-UI interface.

Web page: [https://slashetc.fr/mountpilot/mountpilot\\_presentation.html](https://slashetc.fr/mountpilot/mountpilot_presentation.html).

🔧BASH, awk, findmnt, lsblk, udevadm, sgdisk, gdisk, parted, sfdisk, ethtool, ip addr/route, nslookup, host, lusb, nfs (nfs-kernel-server, nfs-common), ftp (curlftps), google-drive-ocamlfuse, cifs, ssh (fuse sshfs), overlay fs, luks (cryptsetup), VERA (veracrypt), qemu-utils (qemu-nbd), mkfs, wipefs, dd, dmsetup, pvs, lvs, vgchange, losetup, iwconfig, nmcli, df

2018  
2024

📍 **BENETT PORTAGE, Strasbourg (France).**

Multiple missions for **DEUTA-WERKE-GmbH, Bergisch-Gladbach, Germany**, a world-wide supplier of embedded systems for the Railways, among which safety-relevant terminals for the Drivers, safe onboard Recorders, odometer systems. A summary of main expertise acquired is available on the [online CV](#).



Recurrent tools/techniques applied for these missions are listed in a table supplied in annex. Only the very project-specific/most relevant are named later for each mission. The complete and comprehensive details are available (only) on the [online CV](#).

2023/11  
2024/10

### Requirements Manager and Documentation writer for HITACHI DMI for UK

Requirements, Software Design and traceability with respect to the EVC-DMI messages and their sending conditions were thoroughly completed in JAMA, in a reverse engineering process involving a code analysis as starting point. 54 Use Cases, 59 Sequence Diagrams, 30 issues open in bug tracking. 🛠️ JAMA, AsciiDoctor, PlantUML, Python.

2023/03  
2023/11

### Requirements Manager REDBOX 2K

In a pair work, creation of a central requirements database collecting and sorting all NNTRs (Notified National Technical Rules) applicable to recording devices for the following countries: NL, BE, FR, ES, UK, DK, SE, NO, FI, AT, PL, HU, CZ, SK. Hardware requirements collection from NTRs and national recording systems (Havarilog/DK, ATESS/FR,ARR/NL, TELOC).

🛠️ JAMA, AsciiDoctor, Python, Mermaid. 📖 EN 62625, EN 15746, GM/RT2472,RIS-2472-RST, TSI LOC&PAS, TSI CCS, TSI WAG, SUBSET-026, SUBSET-027, SUBSET-035. 🚗 PZB90, LZB, INDUSI I60, Crocodile, KVB, KVBP, TVM 300 & 400, NExTEO, KCVB, KCPV, DAAT TPWS/AWS, TBL, TBL1+, TBL2, MEMOR ZUB123 ATP-VR/RHK (EBICAB900) ATB-EG, ATB-VV, ATB-NG ATC/EBICAB700, ATC/L10000 (ATC2), SHP, PKP radio system

2022/04  
2023/07

### PROFINET Developer and Tester for REDBOX 2K

- REDBOX 2K recorder was extended with PROFINET according to Real Class 1, CC-B.
- Functional tests written and run for CODESYS test environment and soft PLC running Raspberry Pi.
- Passed certification with official test bundles V2.42 and V2.43 of the PI consortium.
- Documentation: PROFINET insights, GOAL stack, Howto's: testing with CODESYS, passing Certification.

📖 PROFINET specs V2.41, V2.42, V2.43. 🛠️ PLC script (Programmable Logic Controller), ethtool, ifplugd, tcpdump, wireshark, arp, route (Win), snmpget, snmpwalk, socat. REDBOX 2K (RB2ad), Raspberry Pi 3 Model B Plus Rev 1.3, NET-PowerControl power strip family, 2-wire RJ45 cabling. Test with CODESYS IDE V3.5 (Windows), SoftPLC Add-on for Raspberry Pi MC SL 4.4.0, Automatic RT Tester (ART) V2.42 and V2.43, Netload tester (SecurityLevel1-Tester), GSD checker. Protocols: 802.3, DCP, LLDP, UDP, VLAN, SNMP, I&M records. APIs and stacks: GOAL PROFINET stack V2.22, V2.23. Qualifications: PROFINET certificate for device RB2ad.

2022/10  
2023/01

### Fixed communication data redundancy and data loss bug in DTAF teststand BG\_30

DTAF is a robot-based integrated test stand which enables to stimulate a DMI system using a REDBOX as a CAN bus communication gateway. 🛠️ ethtool, tcpdump, DATS displays, REDBOX, CAN open driver.

2021/03  
2022/04

### Refactoring of the unit and module tests of the REDBOX App (MFR)

CxxTest tests were ported to doctest (493 tests, 18155 useful lines of code). Fix, completion, modernizing, refactoring and creation of new tests (GPS driver). Increased test coverage from 35% lines (22616 out of 64641) to 53% (41991 out of 79204) as of April 2022, and from 6% branches (19564 out of 328311) to 18.3% (72808 out of 398286). Bugs uncovering and documentation (~ 40 GitLab issues). 📖 NMEA 1083 (2.2), NAVMAN NMEA (2004). 🛠️ doctest (C++ test framework), CxxTest, Valgrind, kroki, Doxygen, landslides, JavaScript, HTML/CSS, RapidJSON, MFR application, ADS3 (DEUTA), ADS4, MFR configuration.

2021/09  
2021/09

### Code reviewer for the REDBOX 2K recorder app

Code analysis and review was carried out for proving no functional impact of changes induced by switching from an Influx database to a file ring solution for the data storing in the EN50128/SILO app. software. 🛠️ C++, Doxygen, mdspell.

2021/01  
2021/05

### Tester on the IconTrust first generation

The modified code parts (C language) of *SDATA* software module of IconTrust first generation, liable for processing the safe data within the SSF function (Safe Supervision Function), was thoroughly reviewed and tested according to EN50128 in the scope of a SIL2 assessment. 📄 EN50128/SIL2. 🔧 doctest (C++ test framework), gcov, lcov, genhtml, meld, Wftools (DEUTA internal), Swagger.

2020/05  
2021/01

### Author of the IVEN2 Handbook (English)

IVEN2 is the successor of IVEN1 as configuration framework for IconTrust® and SelectTrust®. IVEN2 builds upon a collection of specialized CLI-tools and a human readable YAML-based configuration format. The IconTrust and SelectTrust are subsystems which enhance terminals with respectively safe display output and safe data entry up to SIL 3 according to EN50129, as implemented e.g. for the DATS and the MFTS terminals.

📄 EN50128/SIL0. 🔧 YAML 1.2, IVEN2 YAML language, IVEN1 configuration (.ictspro files), SVG, PNG, 2 x DATS2080 displays, [DITA Open Toolkit](#), DEUTA DITA plugin, xxd, pngmeta, pnginfo, pngcheck, pngchunks, yq, rq, Umbrello, SQLite 3 (IVEN1), libpng-dev, Test: TurboVlen (DEUTA), ITS diagnostic tool, , SQLite browser, mysql-workbench, Umbrello UML Modeller, DBDesigner4, yamllint. DITA, mdsPELL, aspell, hunspell, <https://languagetool.org/>.

2019/01  
2020/05

### Requirements Manager and Developer on ALSTOM CRL DMI SW 1.2.0

Application requirements were updated to consider evolutions and new features for the ETCS DMI software version 1.2.0, incl. update of traceability. Bug fixes and some new features implementation (EN50128/SIL0). 🔧 JAMA, Eclipse+JavaJRE8+Birt plugin, DATS2080 displays, REDBOX 1, crossplatform ARM SDK, venv and virtualenv Python modules, DTAF.

2018/06  
2019/03

### Developer on ALSTOM CRL DMI SW 1.1.0

Participation to the development of the ETCS DMI software for ALSTOM (SIL0), part of the SIL2 ETCS DMI solution delivered by DEUTA to ALSTOM Charleroi for its ATLAS Trainborne system implementing the ETCS baseline 3 integrating TCMS and PZB. 📄 ERA DMI v3.6 🔧 DATS2080, REDBOX 1, crossplatform ARM SDK.

2018/02  
2018/05

### Developer on ESBO8.3 ETCS DMI

Development of the TTI (Time To Intervention) function in the ESBO8.3 DMI software (SIL0), the SIL2 ETCS DMI product family delivered by DEUTA to Siemens. 📄 ERA DMI 2.3 and 3, dual 8-inch (WVGA) display, MVB

2001  
2017

### 📍 ERSA SaRL, Haguenau (France)

ERSA, now a subsidiary of **Clearys**, is a leader supplier of simulation environments for ERTMS/ETCS (normalized European Railways) for both Trackside and Onboard. For example, [DLR](#) (Deutsches Zentrum für Luft- und Raumfahrt) uses the TrafficSimu in their laboratory. OPSIMU is also a popular ETCS onboard simulator featuring virtual cab desk. The company also delivers embedded ETCS DMI terminals at SIL2. A summary of main expertise acquired is available on the [online CV](#).



Recurrent tools/techniques applied are listed in a table supplied in annex. Only the very project-specific/most relevant are named later for each mission. The complete and comprehensive details are available (only) on the [online CV](#).

2004  
2017

### Project Leader - SIL2 ETCS DMI Systems (EN50129)

Management of ETCS DMI system projects (Driver-Machine Interface) at SIL2 according to EN50129/EN50126/EN50128 and ERA spec for DMI (2.3, 3.6), intended for ETCS and CBTC Onboards: Thales, ALSTOM, CAF, General Electric, Ansaldo. 10 projects have been completed for a total budget of approx. 2 millions euros and 2000 units sold.

2004  
2017

### Presales and Marketing DMI products

Writing of technical offers and product brochures, participation to client meetings, exhibitions (Innotrans) and UIC Conference.

2004  
2017

### **Safety Manager**

Establishment of the Safety Case and Safety Quality & Management Report (EN50129) based on a Safety analysis tailored to each ETCS Onboard using PHA, FMEA, FTA, CCFA, Hazard Log. Implementation of safety-insurance functions (video memory content check).

2004  
2017

### **Software Architect and Lead Developer for embedded and PC DMI software**

Development of DMI SIL2 software for industrial onboards: CAF (2 projects), Thales (2 projects), GE. Development of DMI software (PC or embedded) for ERSA simulators (at least 17 releases) for the OPSIMU and TrafficSimu products. Implementation of STM displays and transition management ETCS / STM display.

2001  
2010

### **Software Architect, Developer, Integrator on ERTMS TrafficSimu simulators**

The ERTMS TrafficSimu is a key product of ERSA which is used in major laboratories and projects across Europe for providing a comprehensive simulation of an entire ERTMS/ETCS railway network, including Onboard and Trackside simulation, virtual view per train, operational view of network, logging functions, offline scenario editing tool.

2001  
2010

### **Project Leader, Developer, Integrator on the ETCS OPSIMU Cabin simulator**

The OPSIMU is one of the key products of ERSA which counts numerous Railways companies, industrials and institutions as clients. It offers a virtual cabin with desk and DMI, virtual 2D view (lateral train view) or 3D view of the track and trackside signals, simulation data display, logging functions, offline scenario editing tool for trackside simulations and conditions. Multiple uses (CBT, tests ETCS etc.). 🐧 RedHat Linux 5/6. C/C++, Qt, SVN, CORBA/Mico, MySQL, phpmyadmin, RPM, HID, API Corystess

2001  
2003

### **Tester, Verifier and Validator of a 2oo2 SIL4 odometry system for DEUTA-WERKE GmbH**

Verifying and validating based on DOORS traceability and technical documentation review, black-box scenario-based testing based on an adapted ERSA simulator stimulating sensors and capturing outputs. Offline output analysis. 🐧 DOORS/DXL scripts, CAN, RS-232, DRS05, QAC++, Rhapsody, QNX, Profibus, 2oo2 Odometry.

2001  
2003

### **Transverse Productivity Tools Creator**

**GenDAO**: ORM tool generating C ++ / Qt DAO (DataAccessObject). **DOTM**: A database-based Documentation Management and Requirements Traceability tool (HTML,PDF) 🐧 C / C++, MySQL, QPI Qt4 / Qt3, MySQLWorkbench, phpmyadmin, HTML.

2000/08  
2001/07

### **Software Engineer on Siemens' ETCS2000 Project**

Developments on the scenario controller (LSC) of the TuSSy test environment in the scope of the ETCS2000 project developed by Siemens Berlin (testing real ETCS RBC and EVC). 🐧 C / C++, SmartSocket, MS Access, Innovator (UML), Solaris, Realix.

1999  
2000

### **📍 Simulog, Guyancourt (France), 19 months.**

e-sim factory product development design and development. e-sim is a software platform for building up computational paths and coupling scientific applications distributed over a network of heterogeneous machines. Technical and user manuals in English. 🐧 Solaris 2.5, Windows NT 4.0, Red Hat 6.0, AIX 4.3, HP-UX 10.20, IRIX, CORBA 2.1 (MICO, ORBacus 3.3), UML (Rational Rose), GNU C/C, Visual C 5.0, TCL/TK 8.1, ObTCL, TCL Mico, CVS

1998

📍 **LIPHA, Lyon (France)**, 3 months.

Port from IRIX to Windows NT of the MSI Catalyst scientific software used for molecular processing in the pharmaceutical field, parallelization on a Windows station network and performance tests and analysis. After that, developments for the molecular research in C (common molecule fragments analysis tool). 🛠️ C, C++, Makefiles, DOS scripts, FTP, Cygwin32, IRIX 6.2, WinNT.

1997/11  
1998/06

📍 **Telecommunications and Information Systems Office, 5th Command and Support Regiment, FFSA headquarters, Baden-Baden.**

Secretary of the General Staff. Under Windows 3.11, development of the HMIs and associated databases of the Secret Défense and Secret OTAN authorization manager. Design and development of a radio call sign manager for a regiment. Installation of the SIC network during maneuvers. 🛠️ ACCESS 2.0, SQL, EXCEL, UNIX, TCP/IP.

1997/04  
1997/09

📍 **LIP Laboratory, Ecole Normale Supérieure, Lyon**, 6 months.

DESS intern. In a team of three people, design and development under Solaris 2.5 of the Parsim II parallel machine simulator, in collaboration with Matra Systèmes & Information for its validation on the massively parallel and real-time CAPITAN machine. 🛠️ C++, TCP/IP, MPI, PVM, PERL, CSH, LATEX2e, CVS.

1994  
1997

📍 **ADELIE Association, Strasbourg.**

1994/10  
1997/03

**Maintainer of the minitel service 3717 UGE**

Responsible for maintaining, under SCO Xenix, the telematics server for job offers 36 17 UGE (Universités Grandes Ecoles). Updating and creating services, developing a data import engine to the server database, scripts. 🛠️ SCO Linux, shell script, AWK.

1996/07  
1996/09

**Developer on the www.adelie.com website prototype.**

Master's degree intern. 🛠️ IIS 1.0, SQL Server 6.0, CGI Script Houston Prose ISAPIBasic, HTML, Windows 95/NT.

1994/06  
1994/09

**Developer of a commercial product catalog on CD-ROM.**

DUT degree intern. 🛠️ VB 3.0, API Windows, FRACTAL compression, Windows 11.

## EDUCATION AND TRAINING

2013	<b>CMMI Training</b>	 Learning Tree International, Clichy (France).  CMMI session 1 (1 day): Introduction  CMMI session 2 (3 days): Fundamentals
2013	<b>Scrum and Agile Methods Training</b>	 ALTRAN, Illkirch-Graffenstaden (France).  1 day presentation of agile methods: stories, product owner, scrum master etc.
2009	<b>Project management for software</b>	 ORSYS, Strasbourg.  3-day training on Project management activities, Processes, Lifecycle, Rules of thumb, Real case study
2000	<b>ClearCase Training</b>	 Simulog, Guyancourt (France)  How to use ClearCase in Configuration Management
1997	<b>DESS Informatique - Networks and Parallel Computing</b>	 Université Louis Pasteur, Strasbourg (France).  Engineer level qualification in computer science (BAC+5, Master level). Wide range of technical fields covered: development, languages, networking, database, 3D and image processing, systems, architectures, hardware, engineering techniques, mathematical background etc.
1994	<b>DUT Informatique</b>	 Université Robert Schuman, Illkirch-Graffenstaden (France).  Professional qualification in computer science (BAC+2). Wide range of technical fields covered: development, languages, networking, database, image processing, administration, systems, architectures, hardware, English courses.
1992	<b>BAC C</b>	 Lycée Jean Monnet, Strasbourg (France)  Strong focus on mathematics and physics. Extra German courses ("Bilingual" option)

## PERSONAL SKILLS

**Mother tongue(s)** French, Alsatian

**Other language(s)**

*Table 1. Common European Framework of Reference for Languages*

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
German	C1	C2	B2	B2	C1
English	B1	B2	B2	B1	B2
Spanish	A2	B1	A2	A2	
Russian	A1	A1		A1	
Latin, Ancient Greek	Notions. Spelling, grammar, study of ancient texts.				

*Table 2. Linguistic and intercultural experience*

German	<ul style="list-style-type: none"> <li>+8 years of collaboration with DEUTA-WERKE (Bergisch-Gladbach)</li> <li>School exchange: Winnenden, Berlin, Dresden</li> </ul>
English	<ul style="list-style-type: none"> <li>Extended exchange experience with international clients : Spain, UK, Italy, Austria, Sweden</li> <li>School exchange in UK: London.</li> </ul>
Spanish, Russian	<ul style="list-style-type: none"> <li>Family life</li> </ul>

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user  
<https://euopass.europa.eu/en/common-european-framework-reference-language-skills>

**Communication, organisational skills** Autonomous, +10 years experience as project leader with many interlocutors and team members (developers, testers, subcontractors, clients, independent assessors etc.).

**Job-related skills**

- CAD and 3D



[Click here to download the PDF appendix](#)

- File conversion and processing



[Click here to download the PDF appendix](#)

**Other skills**

- Mounting of custom fanless computer based on HDPLEX box, Biostar/RYZEN CPU, 10Gbits network.
- Photography, singing, guitar playing (amateur since 1994)
- Skiing (2nd degree ESF), Hiking, mountain biking, jogging
- DIY: Masonry and structural work, gardening, tools, floor layout (tiling, laminate, stairs paving, slabs), furniture, plumbing, wallpaper, lights, basic electric

## ② ADDITIONAL INFORMATION

**Summer jobs**

- MARS Wrigley, Haguenau (1995, 2 months, Packaging and cleaning)
- SEW USOCOM, Haguenau (1993, 1 month, Electric motor production line)
- MUTANT (COOP), Strasbourg (1992, 2 months, Shelf filling)
- Banque Populaire, Strasbourg (1991, 1 month, Doorman at the company headquarters)

## ANNEXES

<b>Recurrent tools and techniques applied at DEUTA-WERKE GmbH</b>	<b>Requirements</b>	JAMA connect, JAMA Review/Dashboard/Coverage Explorer/Export, BIRT Report Templates, Velocity Report Templates,VBA script	<b>Norms and standards</b>	EN50128 (SIL0,SIL2), ERA DMI (v2.3, v3.6), <a href="#">UML</a> , NMEA 1083 (2.2), NAVMAN NMEA (2004)
	<b>Programming and APIs</b>	C++-11/17, Qt5, BASH, Python, XML, XSL/xsltproc, YAML 1.2, yq, JSON, jq, SVG, PNG, HTML/CSS	<b>Process</b>	Git, GitLab DevOps, Mantis Bugtracker, GCC, CMake, Ninja, ccache, distcc, astyle, docker, QEMU
	<b>Buses, Database</b>	PROFINET, MVB, CAN, DBDesigner4, SQLite	<b>Desktop</b>	Windows 7 Pro/10/11, Horizon, Ubuntu 16/18/20/22, VirtualBox
	<b>Testing</b>	doctest, gcov, Icov, Robot framework, Wireshark, FlameGraph, <a href="#">Online YAML validator</a> , yamllint, Valgrind, ethtool, tcpdump	<b>Communication</b>	MS Teams, Circuit, Rocket chat, Webex, MS Outlook OWA
	<b>Editors / IDE /Design</b>	Visual Code,Atom,QtCreator,Umbrello, Emacs	<b>DEUTA</b>	DTAF, DATS2080, ADS3, ADS4
	<b>Documentation</b>	Oxygen XML Author (DITA editor),DITA, AsciiDoctor, Markdown Pandoc, Doxygen, Graphiz/DOT, PlantUML, kroki (docker), MS Excel, MS WORD, mspell, aspell, hunspell, languagetool.org, landslide	<b>Languages</b>	English, German, French
<b>Recurrent tools and techniques applied at ERSA SaRL</b>	<b>Requirements</b>	DOTM	<b>Norms and standards</b>	EN50129,EN50126,EN50128 (SIL0,SIL2), ERA DMI (v2.3, v3.6), CENELEC (2004/2005), <a href="#">UML</a>
	<b>Programming and APIs</b>	C++-11/17, BASH, Qt 3/4, UTF-8, API font QPF2, Linux framebuffer, XML, PNG, HTML/CSS, Lloop, GenDAO, CORBA / Mico / IDL, PIXY controller, SPII controller	<b>Process</b>	SVN, Tortoise, Jenkins, Redmine, Helpdesk, GCC, QMake, crosstools-ng
	<b>Buses, Database</b>	802.1Q, RS-422/485/232, MVB, PROFIBUS, MySQL,phpmyadmin, MySQLWorkbench, DBDesigner4, SQLite	<b>Desktop</b>	Windows 7 Pro/10/11, RedHat Linux 5/6/7, embedded Linux
	<b>Testing</b>	QAC++, LDRA TestBed, CodeSonar , gcov, Icov, Robot framework, Wireshark, FlameGraph, <a href="#">Online YAML validator</a> , yamllint, Valgrind, ethtool, tcpdump	<b>Communication</b>	Webex, Skype, MS Outlook
	<b>Editors / IDE / Design</b>	Visual Projet 5, Emacs	<b>ERSA</b>	TrafficSimu, OPSIMU, ETCS DMI
	<b>Documentation</b>	MS Excel, MS WORD, MS Powerpoint, HTML	<b>Languages</b>	English, German, French

**Other used tools and technologies**

Norms	Process & Quality Tools	Infrastructures	Data Storing and Sharing	System Prog. and Admin.
EN50128:2011	Visual Projet (VPT)	5.1 Windows, Linux/Unix	OneDrive	Windows (autres: NT4)
EN50129:2003	SVN, CVS, WinCVS	1.8.14 Firefox , Chrome, Opéra	GoogleDrive, MEGA etc	MS DOS
EN50126:1999	Tortoise SVN	1.8.12 OpenVPN	2.0.18 WinSCP, FileZilla	Debian (Sarge->Jessie)
EN50159:2010	Redmine	3.3.0 Remote Desktop	PuTTY Plink	RedHat / CentOS
ISO:9001	Jenkins	1.658 Webmail	NFS	QNX neutrino
CMMI	1.3 DOTM, DOORS	4.3.5 Skype , Webex	2016 Torrent, qBittorrent,	CygWin32
<b>Design and Methodologies</b>	MS Word, Excel	2016 NoMachine, X-Win32	FUSE (ntfs-3d, GDFS etc)	Solaris
UML	Visio , Powerpoint	2016 Vmware Player	7.1.2 <b>Packaging Tools</b>	Xenix, Realix, IRIX
HOOD	Latex2e	4.0.1 MS Outlook	2016 rpm, apt, yum	HP.UX 10.20, AIX 4.3
Merise	Internet, Google, engines	Gmail, Contact Gmail	InstallShield	
SA, SART	Facebook			
FTA, PHA, FMEA,CCF	Trello			
Exigences clients et produits				
Agile, Scrum				
Filesystems	DB Prog. and Admin.	Multimedia Tools	Dev. Tools and	Test & Verification Tools
Linux Live usb creator (lili)	MySQL	5.0.95 InkScape	0.91 Rhapsody	4 LDRA Test Bed
Rufus	2.8 phpmysqladmin	GIMP	2.8 Rationale Rose	Code sonar
ImgBurn	2.5.8 Oracle SQL	7 Audacity	2.1.2 Emacs, XEmacs	21.4.1 QA C++
UNetbootin	6 MS SQL Server	6 Avidemux	2.6.1 Qt Creator	CPPcheck
Partition Magic	8 MS Access	2.0 K-lite Codec Pack	12.1.5 Eclipse	Parasoft CPP Checker
Gparted	UNIFY	Adobe Photoshop	Visual Studio	Klockwork,Polyspace, Splint
ImDisk (RAM Disk)	SQLWorkbench	Nero CD burner	Visual Basic, VBA	Parasoft C++ Tester
Plop Boot Manager	5 SQLForms	ALSA (alsamixer etc)	1.1 Crosstools-ng	1.11.4 Squish
Samba	GenDAO (ORM)	1.4	Winmerge	2.14 Wireshark
exFAT, FAT16/32, NTFS, ext2/3			ccache	Maple V
			Lloop	2.11 Valgrind
Languages and File Formats	Web technologies	Graphics API	Networking and Buses	OSI Layers
C	CGI script ISAPIBasic	X-Window	MVB (Process Data)	FTP, HTTP, NFS, SSH, telnet
C++ 98, 11	Magnet URI, URL	MFC, Motif	Profibus (FDL)	NNTP, POP3, SMTP, D NS,DHCP
Java	SVG	Qt	3 & 4 HID, USB	Unicode, UTF-8, XDR
Shells: SH, BASH, CSH, TSH	JavaScript	Java AWT	RS-485/422/232	TCP, UDP, ICMP, IPv4, X25
lisp	HTML	5 OpenGL	CIP	RPC, RARP
TCL/TK, obTCL, TCLMico	8.1 MS IIS	1.0 <b>Sound API</b>	National Instr. PC-TIO	Ethernet, 802.1Q,socket
COBOL, PRO-COBOL	Apache, CGI	ALSA	1.1 IPC (pipe, message)	ATM, HDLC
OBJ + Smalltalk + Prolog	<b>Middleware</b>	API Windows	<b>Network Admin.</b>	1000BaseT/TX, USB, ADSL
Assembleur 80x86, SPARC, Z80	Mico (CORBA)	libnas (wav)	Cisco 4000	
SQL	ORBacus (CORBA)	3.3 Pulse	Hub, switch ethernet	
Python	SmartSocket	5.2 <b>Parallel Computing API</b>	USB3 type A/B/C	
Lex/yacc		PVM		
XML		MPI		
BNF, EBNF		POSIX Thread and API		
Pascal, Basic				

2 dashes : Expert (>1 success. exp). 1 dash : Mastery (>1 exp). Long dotted lines : Independent (1 exp, to be deepened). Short dotted lines : Understanding (no exp.). Nothing : Notions.