

A **creative problem solver** with strong **full-stack experience**. **Passionate** about **technology** driving **innovation** every-day, everywhere.



## Contact

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## Skills

**Programming languages:** Assembly (8051, ARM, PPC, MIPS, Cell-SPE), C, C++, JAVA, BASH-scripting, perl, Python and PHP

**Software Engineering:** UML, scrum, software systems architecture, Open Source & commercial development processes, version control systems (git, mercurial, Subversion, CVS, Perforce, ClearCase).

**Operating systems:** GNU-Linux (deb-based: Debian, ubuntu, Maemo, rpm-based: Red-hat, Suse, MeeGo, src-based: Gentoo, ChromiumOS), Android (AOSP platform), AutoSAR (OSEK) and FreeRTOS, Windows & MacOS X (App & Services level)

**Build Systems:** Buildroot, Yocto (Bitbake/OpenEmbedded), CMake, Autotools, Open Build System, Jenkins, advanced makefiles, various custom build solutions.

**Networking, Telecom & Field bus Technology:** TCP/IP v4 & v6, IEEE 802.11 (WiFi) & related, Bluetooth stack, Zigbee, Z-Wave, working knowledge of GSM-GPRS-UMTS-HSPA protocols and practices, Voice over IP, CAN, KNX-IP & -TP

**Multimedia:** VLC, ffmpeg/libav, gstreamer, VDPAU, HDMI CEC.

**Graphical Toolkits:** Qt (3, 4 & 5) experience for 8+ years with QtCore, QtGUI, QThreads, IPC, the GraphicsView canvas, Networking, QtXml, QtScript, the phonon multimedia framework, the Qt Window System for embedded devices and Qt Quick. Continued involvement in Open Source desktop and mobile projects. Wt web toolkit.

**Strong experience with:** Linux kernel device drivers, GNU toolchain, SQL programming (sqlite & MySQL), Multimedia software, multi-core & parallel programming (SIMD, thread synchronization, inter-processor communication), MPEG compression & encoding.

**Special Interests:** Home automation and media distribution, "Internet of Things", Energy efficiency and "green" technology in general.

**Personality Traits:** Strong in verbal and written communication and very outgoing. Enthusiastic and ambitious in exploring technological limits. Natural tendency towards innovative solutions and out-of-the-box ideas. Critical yet pragmatic. Flexible and self-motivating.

## **Employment & Contracts**

### **Video technology contracts, Liège area (freelance)**

**since April 2016**

Platform and application work for high performance video processing and display for digital cinema and specialized applications.

Worked with buildroot to create the platform and C and C++ for application and kernel. Board bring-up and debugging of u-boot and linux kernel. Network delivery and video processing using libav (ffmpeg).

### **Jabil Circuit Hasselt (freelance)**

**October 2015 – April 2016**

Jabil Hasselt offers design services for electronic products to companies all over the world. For a dutch fast growing company a touch screen, ARM based multi-communications product was developed. I worked on the yocto based BSP which included U-boot and Linux board support and low-level drivers; diagnostics software for production and engineering including flashing, serialization, low-level IO access, RF communications, hardware debugging and testing.

Continued working on linux driver, build system and FreeRTOS for the Cortex M4 processor core.

### **Premium Sound Solutions (freelance)**

**January 2014 – April 2015**

PSS is a speaker manufacturer of amplifier products for high-end consumer and automotive brands. You can find their work in Apple stores, high-end audio products and as the premium audio option in European cars.

For a British premium car manufacturer I worked in a Scrum team that implemented a pedestrian warning system for hybrid vehicles. The ESS amplifier is based on an automotive PPC and a SHARC DSP running OSEK and a Mentor CAN stack. Our code is fully MISRA-C compliant and verified using Polyspace. Using git and Jenkins I assured that the unit-test coverage was kept high and feature branches were not only completely tested but also reviewed before merging.

I've provided vital feedback w.r.t. architecture, testing & validation and complexity management and push hard to improve our scrum methods and sprint velocity.

### **Rightbrain interface, Hasselt, Belgium (freelance)**

**February 2013 – December 2013**

For bhaalu, the cloud based collaborative video recorder. Develop & support custom linux based platform for the bhaalu box & android based HDMI stick:

- linux kernel: HDMI CEC driver & custom GPIO based IR receiver.
- VLC: VDPAU & libVA based video pipeline blending webkit rendered UI and video
- Buildroot based build infrastructure using jenkins & git
- C & Java control applications both on device and Amazon VPC servers.

### **EmWeb bvba, Leuven, Belgium (freelance)**

**Juli 2012 – January 2013**

Development of desktop software for design, provisioning and control of explosion prevention equipment. Qt & Wt based C++ software on Windows. Project management & quality assurance.

### **Collabora Ltd., Cambridge UK, working remotely**

**October 2010 – May 2012**

#### **Qt developer**

Working on various internal and customer projects. Generic knowledge: QML, Telepathy, D-Bus, packaging, project management, internal sales, internal R&D, ...

### **GENIVI – Improving D-Bus with kernel mediation**

**Jan. - May 2012**

Fixing known architecture bugs in the well known IPC system without breaking backwards compatibility.

**Texas Instruments – Second line support customer project** **H2 2011**

Support gstreamer, X11, OpenGL and audio drivers for an ARM platform running a Debian derivative.

**Intel – MeeGo Tablet IM** **Q2 2011**

Pulseaudio echo-cancelation

**Nokia – Devices and Services – Real Time Communications team** **Q1 2011**

Starting MeeGo based platform integration for the RTCom projects.  
Experience with OBS and other MeeGo tools.

**Essensium - Mind n.v., Leuven, Belgium** **Nov. 2008 – Oct. 2010**

**Senior Embedded Software Architect**

Support and development of Linux and Open Source Solutions for Embedded Systems. Typical projects include work on device drivers, BSPs and applications for the Linux, RTEMS or eCos operating systems.

**Technicolor (consultant)** **Mar 2010 – Oct. 2010**

**Multifunctional software developer and architect for DSL**

Adding iLBC, AMR and AMR-Wideband support to an existing voice stack using hardware specific drivers. These codes require special fields in the SIP/SDP headers in order to be compliant with the RFC's.

Porting of a highly specialized DDR tuning algorithm implemented in C and MIPS assembly from uboot to a proprietary bootloader architecture.

Bugfixing in both new and legacy code in a variety of applications and base OS systems.

**Dymo (fixed price project)** **Dec. 2009 – March 2010**

**Linux driver for USB gadget Human Interface Device**

A consumer appliance manufacturer required a USB driver for an embedded USB device serving as a Human Interface Device. I created a new GPLed driver that serves as a pass-through between the userspace proprietary implementation and the USB gadget subsystem. The host side HID report parsing is used to allow the application to only read and write actual data, the HID specific wrapping is added and removed by the kernel driver. This code has been submitted to linux-usb-devel for inclusion in the mainline kernel.

**Prodata systems (consultant)** **Juli 2009 – Dec. 2009**

**OS Team member for Mobility Systems**

Development, maintenance and support of the OpenEmbedded based system including: linux drivers (new and patched code), Uplink daemon (using NetworkManager), Postion daemon (using gpsd + additional outputs and positioning methods).  
Embedded Qt support. On the spot linux training.

**SoftAtHome (consultant)** **Nov. 2008 – June 2009**

**Development of SW Platform for Residential Gateways**

Working in the Application and Services team. Development and support for DLNA features of the home gateway platform including Digital Media Server (DMS) and Digital Media Controller (DMC) functionality according to the DLNA 1.5 requirements. Definition of the Universal Plug and Play (UPnP) API and implementation of various DLNA use cases like Follow-Me feature, etc...

**Hogeschool voor Wetenschap & Kunst, De Nayer, St-Katelijne-Waver, Belgium**

**Dec. 2006 – Nov. 2008**

**Project Engineer**

TETRA Project T-Cell: Heterogeneous Multicore Technology  
(project website: <http://emsys.denayer.wenk.be/?project=EmCel>)

The TEchnology TRAnsfer project T-Cell focused on the Cell Processor Architecture by STI (Sony-Toshiba-IBM) for applications in industry and science. As part of this research project I investigated the challenges of developing software for heterogeneous processors featuring multiple cores of different type. The Cell Broadband Engine processor consists of a Power PC general purpose core and up to 8 SIMD "Synergistic Processing Elements" which each have a local scratchpad memory and a DMA controller for transfers to the main memory.

The gathered experience was also transferred to the wider public and education in the form of a 2-day workshop, guest courses at the University of Leuven and the master and bachelor programs at De Nayer and mentoring of student projects.

**Option NV, Leuven, Belgium**

**Aug. 2006 – Dec. 2006**

**Firmware Engineer**

Option's wireless data products are based on highly specialized chipsets which are ARM based but include multiple co-processors and ASIC components. The products are customized based on the clients specifications. The end user buy or rent the hardware directly from of these telecom providers.

The vendors firmware stack had to be extended with proprietary AT commands and features for customization for the clients brands. During a products live cycle the code is kept up to date with vendor supplied patches and Options own fixes for know issues. The firmware department job includes both implementing these extensions and supporting other departments with testing and validating releases.

## **Projects**

**Akademy, Sint-Katelijne-Waver, Belgium**

**Aug 2008**

**Lead Organizer**

Yearly KDE World Summit with 2 days Contributor Conference, KDE e.V. General Assembly, Embedded & Mobile Day, Coding Marathon, Social Event, Day Trip, BoF Sessions (<http://akademy2008.kde.org>).

**Amarok – Open Source Music Player**

**2005 - 2012**

**Author and active contributor**

Working mainly on Podcasting and Playlist functionalities.

## **Education**

**Master of Industrial Sciences Electronics – ICT**

**2004 - 2006**

**De Nayerinstituut, Sint-Katelijne-Waver, Belgium**

Graduation thesis: Evaluation of Near Field Communication for Consumer Electronics Applications. Study, brainstorm and implementation on an embedded Linux platform, at Philips Digital Systems Lab (Leuven).

To be able to quickly test multiple uses cases of this RFID based technology I implemented a RAD stack based on Python using an existing C library. In the process a communication driver for Linux 2.6 was written so the USB NFC reader could be used on the ARM based embedded platform.

**Micro Elektronica Systeem Ontwerp**

**2003 - 2004**

**Haagse Hogeschool, Den Haag, The Netherlands (European Student Exchange Program)**

European Student Exchange. Bachelor diploma obtained, 90%.

MESO: doughmaster: 15" touchscreen interface for automation of small to medium sized bakeries. Written in Java running on embedded linux and J2SE from a 64 MB Compact Flash card. Baktec BV Wassenaar, NL.

**Graduaat elektriciteit option electronics (Bachelor degree)**

**De Nayerinstituut, Sint-Katelijne-Waver, Belgium**

**2001 - 2004**

Electronics design course: Laserzone, laser based shooting game.

### ***Additional Education***

**Qtopia Core Programming**

**Nov 2007**

Trolltech Developer Days

**Predictable and Scalable Application Mapping on Multiprocessor SoC**

**Jun 2007**

Microelectronics Training Center, IMEC, Leuven

**How to write code for high-performance, low-power multimedia applications (DTSE)**

**Jun 2007**

Microelectronics Training Center, IMEC, Leuven

### ***Languages***

Dutch: native

English: fluent

French: limited