Julien Lefrique | Firmware Engineer

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French citizen • Married

Experience

Debiotech SA   **Lausanne (Switzerland)**
Research and Development Engineer   Since Jan.2010 (4 years)

Responsible of the firmware development of a MEMS-based insulin pump, which is remote controlled by an Android platform. Efforts are oriented toward precision, patient safety and low-power consumption (`http://www.jewelpump.com`).

- Development of the firmware of the pump (MSP430 and STM8, C and Assembly), started from scratch.
- Evaluation and integration of various Bluetooth and Bluetooth Low Energy stacks.
- Support on Android development on the Remote Control (Java).
- Development of the application used to test the electronic assemblies (Python).
- Writing of technical documentation: studies, specifications, architecture and design documents, FMEA...
- Unit and integration testing.
- Development of internal tools for instrumentation, build system, microfluidic tests...
- Apply functional safety concepts: risk assessment, risk reduction with protective parts, self-tests...

Actia Aixia SA   **Le Bourget-du-Lac (France)**
Electronic Engineering Intern   Feb.2009 – Jul.2009 (6 months)

Electronic design for special vehicles and development of embedded software (XE167, C language). Worked on a graphic diplay used as a dashboard and on-board diagnostic system.

- Port of *lwIP*, a free TCP/IP stack and development of HTTP, TFTP, Telnet and NetBIOS servers (`http://savannah.nongnu.org/projects/lwip`).
- Development of a SD card driver and integration of a FAT library.
- Port of the CoDeSys runtime on the platform to make the device programmable with IEC61131-3 languages.
- Development of a CAN driver.
- Electronic schematics (CADSTAR).

Galley Technologies   **Chez-le-Bart (Switzerland)**
Automation Engineering Intern   Sep.2007 – Feb.2008 (6 months)

Test and measurement systems development, using LabVIEW, for Swiss watchmakers.

- Acoustic measurement system for the analysis of Minute Repeater chimes.
- Torque control of a DC brushless motor to simulate a barrel mainspring.

Motorola Ltd.   **Swindon (United Kingdom)**
Software Engineering Intern   Feb.2006 – Apr.2006 (3 months)

Applications development for mobile devices in J2ME (Java 2, Micro Edition) within the framework of the European project aceMedia which is aimed at discovering and exploiting knowledge contained in media files in order to make media more accessible to users by providing a flexible means of sorting, labelling and searching.

Education

University of Technology of Belfort-Montbéliard (UTBM)   **Belfort (France)**
Master's degree (Diplôme d'Ingénieur), Electrical and Control Systems Engineering   2009

Speciality Electronic and Embedded Systems

IUT of Nancy-Brabois   **Villers-lès-Nancy (France)**

DUT degree, Electrical Engineering and Industrial Computing, with High Honours (mention Bien)   2006
Equivalent to a two-year technical degree

Lycée Général et Technologique Boutet de Monvel   **Lunéville (France)**

French Baccalauréat, Mathematics and Power Systems, with Highest Honours (mention Très Bien)   2004

Languages

French: Native language

English: Professional working proficiency   *TOEIC in 2006 with 800 points*

German: School knowledge

Computer skills

OS: GNU/Linux (Debian and derivatives), Android, Microsoft Windows, Mac OSX

Languages: C, C++, Python, Java, Shell script, Assembly (MSP430, TMS320, 8051), VHDL, LabVIEW

VCS: Git, Subversion, Mercurial

Microcontrollers: MSP430, STM8, C166/XE166, TMS320, PIC16/18/24, 8051

Communication: UART, I2C, SPI, TCP/IP stack and related procotols, CAN

RF: Bluetooth, Bluetooth Low Energy

RTOS: Bare metal, FreeRTOS, PICos

Embedded Linux: Buildroot

Word processing: Microsoft Office, LibreOffice, LaTeX, Lightweight markup languages (Markdown, reStructuredText...)

Simulation: Matlab, Simulink, Scilab, NumPy, dSPACE

Electronic: CADSTAR, Orcad, Kicad, Proteus, LTspice

Test Equipments: Oscilloscopes, Multimeters, Logic analyzers, Bluetooth analyzers...

PLC: CoDeSys, Step-7, PL7-2, PL7 Pro

Methodologies: Structured Analysis for Real-Time Systems (SA/RT)

Diagrams: Data Flow Diagrams, State Diagrams, Sequence Diagrams

Additional information

Association: Member of the Armadeus project (electronic board for embedded Linux systems on ARM9 and FPGA)

Sports: Mountain Bike, Swimming, Walking, Basket-ball

Interests: Free Software, Smartphones, Travels, Cinema

Other: Driving license and car owner