Guillaume Scigala

Embedded Software Engineer

Education

2013–2014   **Master of Science**, *Université Paris Sud*, Orsay, France, *Grade B*.
Specialized in Embedded Systems and Information Processing, research finality

2009–2014   **Master of Engineering**, *ESME Sudria*, Ivry-sur-Seine, France.
Specialized in Embedded Systems

Experience

2018–Present   **Software Design Engineer**, Essilor Instruments, Créteil, France.
Design software solutions for new products with Linux and bare metal systems, from conception to production.

Detailed achievements:
- embedded software architecture design, prototyping and development,
- production bench design,
- Linux BSP development for real-time i.MX6 products with PREEMPT-RT and x86 products.
- Linux V4L2 camera sensor driver development,
- integration and deployment of production release with Yocto Linux build system,
- cybersecurity developments through OS securization,

2014–2018   **Embedded Software Engineer**, Open Wide, Paris, France.
Development and design of embedded software for dedicated systems from low-level to HMI (Linux kernel-space, user-space and firmware). Configuration and integration in Linux build system.

Detailed achievements:
- embedded software development: algorithm design and implementation in wearable device using C, CMake and Git,
- video stream software architecture and development using GStreamer and Python,
- automotive software development in C using CAN bus,
- HMI development with Qt framework.

Internships

2014 (6 months)   **Embedded Software Engineer Intern**, Robert BOSCH France SAS, Saint-Ouen, France.
Exploration of engine control ECU virtualization with ETAS EVE.

2013 (3 months)   **Summer Student**, CERN, Meyrin, Switzerland.
Creation of a new web portal for the LHC@home program.

Miscellaneous

2024-Present — **Frelancer - Embbeded Software Design and Prototyping**.
Support, assistance in design, prototyping, and development of embedded solutions

Detailed achievements:
- design and development of a Qt Bluetooth Low Energy application for prototyping an implantable device,
- implementation of a CUPS server for an open-source printer.

2019-Present — **Personal project - Linux Integration and Development**.
Development and integration of Silence OS, a custom Linux OS with Yocto build system for a Raspberry Pi Zero WH target.

Detailed achievements:
- continuous integration of the latest Yocto release to discover new features,
- sound clock development, using HifiBerry DAC output,
- application for cummuting, using Waveshare 2.15 inch e-Paper display,

2015-2017 — **Personal project - Linux Integration and Development**.
Development and integration of multiple services on Raspberry Pi, including LXC container management, OpenVPN integration, Git server implementation, AirPlay speaker setup, and home control with radio-frequency using homebridge.

Publications

January 2016 — **Xvisor VirtIO CAN: Fast Virtualized CAN**, ERTS-HAL.
CAN bus virtualization is challenging as it has to tackle the CAN arbitration mechanism and to provide CAN frame broadcast in a transparent manner. This paper use the VirtIO virtualization interface with a virtual CAN service and framework to manage virtualized CAN messaging for external and internal systems.

Computer skills

Programming	C (ANSI, MISRA), C++, CMake, Python, Bash, assembly (Intel 8051, PIC)
Framework	QT-QML, GStreamer, V4L2, Systemd
OS	Linux, Linux PREEMPT-RT, Das U-Boot, Grub, Secure Boot, Yocto, iOS, macOS, Windows
Hardware	i-MX6, ARM Cortex-M, STM32, x86
Methodology	UML, AUTOSAR
Protocol	CAN, TCP/IP, Bluetooth Low Energy
Web	IoT, Node.js, HTML/PHP, Wordpress, Drupal
Others	Git, SVN, Docker

Languages

French	**Mothertongue**	
English	**Advanced**	*Technical and conversationally fluent*

Interests

Sciences	*Computing science, particle physics, cosmology*
Culture	*Music, Opera, Cinema*
Activities	*Cyclist, clarinetist*
Travels	*Italia, Greece, Mongolia, Vietnam*