Xavier Del Campo Romero

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Working experience

Senior software engineer, Midokura September 2021 - July 2025

Development of the portable C runtime and SDK used by Sony AITRIOS.
https://www.aitrios.sony-semicon.com/

Acquired experience

- C, CMake, POSIX, GNU/Linux, Python, Bash, WebAssembly.
- Real-time operating systems: NuttX.
- Virtualization via Docker.
- Unit testing with CMocka.
- Static source code analysis with Fortify and cppcheck.
- Implement secure connections via MQTT and HTTP using TLS.
- Write an asynchronous HTTP client.
- Integrate libweb for system testing.
- Use of wasm-micro-runtime, a WebAssembly interpreter in C.

Software engineer, Orain Technologies February 2020 - April 2021

Firmware development and mantainance of cross-platform IoT solutions used by vending and self-service machines.

Acquired experience

- C, CMake, POSIX, ESP-IDF, FreeRTOS, STM32F4Cube, Win32, Python, Bash.
- Write Bluetooth Classic, BLE and WiFi-enabled applications.
- Integrate the TLS encryption standard to existing cross-platform applications using mbedTLS over Bluetooth Classic and BLE.
- Design and implementation of a custom, EncFS-like file-level encryption solution, based on the ChaCha20-Poly1305 stream cypher.
- Packet inspection with Wireshark.
- Design and implementation of an end-to-end encrypted, store-and-forward messaging solution based on TLS.

Personal project September 2019 - February 2020

Design from scratch of a prototype handheld video game system powered by an ESP32.

Acquired experience

- PCB and hardware design with KiCAD.
- Software development using ESP-IDF (Espressif Integrated Development Framework) and FreeRTOS.
- Packet inspection with Wireshark.
- Encrypted multiplayer gaming with DTLS with mbedTLS.

Key reference engineer, E.G.O. November 2015 - August 2019

Team Lead for a software team specialised in firmware design and development for household and commercial appliances.

Acquired experience

- Baremetal firmware development in C using various 8-bit, 16-bit and 32-bit microcontroller families: Renesas RL78, STM8, Cypress PSoC 4 BLE and AVR.
- Desktop application development for customers and in-house testing and prototyping
- PC tool development using Qt/C++.
- Scripting language design and implementation.
- Design and implement a real-time plotter based on DWARF, a standard debugging attributes file format.

Academic experience and languages

Degree in Electrical Engineering 2010 - 2015

Universitat Rovira i Virgili

English

Certificate in Advanced English (CAE - C1)

Catalan

Native

Spanish

Native

Programming languages and technologies

C Git Rust C++ WebAssembly POSIX CMake
MQTT Docker Python Zig Vala Qt Self-hosting
HTTP SVN Bash Make Assembly languages TLS

Free and open source projects

I am a free software advocate, using GNU/Linux as my daily operating system, as well as a huge amount of other great free software. Apart from teaching others about the benefits in freedom, security and privacy that free software provides, I often develop free software for fun in my spare time since 2011 that everyone can benefit from. Ocasionally, I also contribute back to projects that I love.
Among many others, these are some of the more relevant projects I actively work in:

Speed Dreams (project leader) https://www.speed-dreams.net/

A free and open source motorsport simulator.

- Migrate the project from SourceForge (SVN and CVS) to Forgejo (Git).
- Collaboration with the Libre en Communs non-profit foundation (https://a-lec.org/).
- Deploy a CI/CD with Forgejo Actions, Podman and mmdebstrap.
- Many improvements, bugfixes and optimizations.
- System administration: Apache web server, forgejo-runner, Prosody, slcl, Matterbridge.
- Community management through XMPP, Matrix and Fediverse.

wnix (author) https://gitea.privatedns.org/xavi/wnix

A Unix-like operating system for resource-constrained devices, with WebAssembly as its userspace.

wip (author) https://gitea.privatedns.org/xavi/wip

A work-in-progress (no pun intended) small and non-blocking TCP/IP stack written in C99, used by wnix. Currently implemented features: IP, ICMP.

nanowasm (author) https://gitea.privatedns.org/xavi/nanowasm

A MPL-2.0-licensed asynchronous and portable WebAssembly interpreter written in C99.

slcl (author) https://gitea.privatedns.org/xavi/slcl

An AGPLv3-or-later-licensed simple and lightweight cloud storage, using libweb. Meant as a non-JavaScript, minimalist alternative to Nextcloud's "Files" app, written in C99 plus POSIX.1-2008 extensions, with OpenSSL and cJSON as its only dependencies.

libweb (author) https://gitea.privatedns.org/xavi/libweb

An AGPLv3-or-later-licensed simple and lightweight web framework library that allows users to create dynamic websites. Also, it defines its own HTTP/1.1 server. Written in C99 plus POSIX.1-2008 extensions with no additional dependencies.

Dillo (contributor) https://dillo-browser.github.io/

Free and open source minimalistic web browser written in C++ and FTLK.

- Avoid expensive search for multipart/form-data boundaries.

Airport (author) https://gitea.privatedns.org/xavi/Airport

A GPLv3-or-later-licensed airport simulation video game for Sony PlayStation® 1.