Martín Ribelotta

Currículum Vitae

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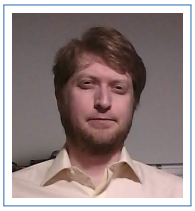

2020–now **Embedded System Developer**, *Freelancer*, Non fixed location

Main projects:

- Qt+QML application referent for consulting and low level maintainer (GPU profiling, Wayland integration, QML resource optimization)
- Development of GUI (QtWidgets) application for ZigBee gateway to MQTT
- Implementation of Qt+QML custom wayland compositor for industrial panel Pc applications
- Development and deploy of buildroot solution for LoRa (custom protocol) gateway
- Configuration and maintenance of buildroot system for embedded panel PC
- Custom VPN client port to Android
- OpenSSL tunnel implementation for old communication infrastructure securitization
- HTTPS implementation for embedded devices using ZephyrOS
- Aerospace grade, remote firmware updater for ProASIC3 FPGA
- Aerospace firmware infrastructure for communication LASER control (make/CMake based)
- Aerospace grade bootloader for samv71
- In memory, low-resource hungry, login system for aerospace MCU
- On-fly stand alone JTAG programming system for ProASIC3 for aerospace applications
- Nb-IoT device link for remote sensing
- Continuous integration hardware-in-the-loop for firmware testing

2011–2019 **Embedded System Developer**, *Emtech S.A.*, Bahia Blanca/Bariloche

Main projects:

- Software and firmware design and bring-up for IoT remote cattle weighing station, based on Cortex M4 CPU, using load cells, LoRa communications, MQTT to remote gateway and cloud-based server.
- nrf52 Bluetooth firmware for medical sensor hub.
- nRF9160 firmware customization for IoT communication and transparent encryption.
- Custom update system for buildroot distro based on binary diff.
- Custom buildroot-based distribution for chemistry control (imx8 SoM)
- Start-up of Linux systems on ARM9 + FPGA board and implementation of driver for FPGA-SoC bridge.
- Design of ad-hoc protocol for proprietary IOT LoRa network (SX12xx)
- Design and implementation of IoT communication and control software over RTOS in CorterxM4.
- RTEMS ports to custom board with Cortex-M4 (serial driver, SPI and I2c).

2009–2011 **Hardware/Software embedded designer and application developer**, *EyCON S.A.*, Bahia Blanca

Main projects:

- Hardware/Software redesign of vehicle tracking system. SIM340/SIM900
- Hardware design, startup and mass-production of Bahia Blanca's RF-id Bus machines. (SIM340/Digi ZigBee)
- Middleware design of software for data loggin software of Bahia Blanca's RF-id Bus machines.
- QtWidgets (Qt4) kiosk application for ticketing market used in Bahia Blanca's RF-id Bus machines.

Skills

Programming

Expertice	C/C++, Java, Python, VHDL, x86/ARM/RISC-V ASM
Advanced	Javascript, Tcl, Awk, bash/sh, R(MATLAB), SPARC-ASM
Mid	Rust, Perl, Ruby, PHP, Verilog/SystemVerilog, C#, TeX/LaTeX

Frameworks

Expertice	Qt+QML, QtWidgets, GTK+, boost, c++stl, POSIX, linux kernel API
Advanced	Wayland API, X11 API, GStreamer, v4l

EDA Tools

PCB Design	KiCAD, Altium PCB, OrCAD, Eagle
IDEs	Eclipse, QtCreator, Vim, Matlab, SciLabs, VisualStudio, VSCode

Operating systems

Linux	Administration and maintenance of Ubuntu, Debian, Red HAT, SuSe, Arch and derivatives, Slackware and others
Embedded	Buildroot, Yocto, Linux From Scratch, OpenWRT, QNX
RTOS	Zephyr OS, FreeRTOS/OpenRTOS, rt-threads, MBED-os, ChibiOS, RTEMS, eCos, RTLinux, RTAI, vxWorks, iTron&derived, OSEK&derived

Languages

Spanish	Native
English	Fluent read/write, Basic conversational

Personal Projects

Personal Projects

- Personal Consultant and Design services *ourembeddeds.github.io*
- Techical blog *ourembeddeds.github.io:blog*
- Cortex-M stand alone monitor: *@github:cmx-debug*
- Size constraint and bandwidth friendly embedded log system: *@github:elog*
- Executable loader for embedded devices: *@github:elfloader*
- Cortex-M7 arduino-compatible board *@github:h730duino*
- Cortex-M7 industrial grade CPU system: *@github:h7dragonman*
- Cortex-M7 low cost iMX-RT board (work in progress): *@github:imxrt1020-module*
- Embedded-IDE: *@github:embedded-ide*

Courses

- Presentation of "RT-Thread: An RTOS for IoT" (spanish)
- Presentation of "RISC-V on Microcontrollers" (spanish) *@SASE2022*
- Micropython over EDU-CIAA. PyCON-AR Bahia Blanca 2016 *mpy-pyconar2016@youtube*
- Sotfware Licences (UTN Avellaneda 2015): *@github:licence-beamer-es*
- Embedded Linux driver development (SASE 2011-2012): *@SASE2011*

Academic formation

2004–2011 **Ing. Electrónico [Electronic Engineer]**, *UTN FRBB*, Bahía Blanca, I have completed 4 over 5 years of bachelor's degree in electronic engineering