

# Martín Ribelotta

## Curriculum Vitae

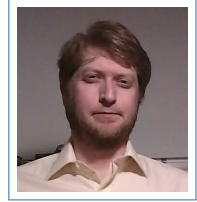
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🌐 [www.github.com/martinribelotta](https://www.github.com/martinribelotta)

in martin-ribelotta



### 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.
- 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
- Design and implementation of IoT communication and control software over RTOS in CortexM4.
- Design of acquisition software using Virtex6 FPGA over PCI-express
- Design and implementation of HDL software for radar simulation over FPGA through PCIe.
- Design and implementation of HDL, base software, drivers and web application for remote control for acquisition subsystem board based on FPGASoC Zynq7000.
- Implementation of Softcore LEON3 on Atlys board (Spartan6) (soft core customization, boot, linux embedded, RTEMS and bare metal)
- RTEMS ports to custom board with Cortex-M4 (serial driver, SPI and I2c).
- Design and implementation of bridge SPI to AHB.
- Design and implementation of software and modification of the manufacturer's HDL for high-speed communication on telecommunication board over FPGA Virtex5 and DSP Blackfin over usb.
- Schematic port and FPGA + SoC board PCB from OrCad to KiCAD.

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

Main projects:

- Hardware/Software redesign of vehicle tracking system.
- Hardware design, startup and mass-production of Bahia Blanca's RF-id Bus machines.
- Middleware design of software for data logging 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.

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## Skills

### Programming

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

### Frameworks

Expertise Qt+QML, QtWidgets, GTK+, boost, c++stl, linux kernel API  
Advance Wayland API, X11 API, GStreamer, v4l

### EDA Tools

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

### Operating systems

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

### Languages

Spanish	Native	<i>Mother tongue</i>
English	Fluent read/write, Basic conversational	<i>Autodidact</i>

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## Personal Projects

### Personal Projects

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

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## Dictated courses

- Presentation of "RT-Thread: An RTOS for IoT" (spanish)
- Presentation of "RISC-V on Microcontrollers" (spanish) [@SASE2022](https://github.com/oureembeddedds/SASE2022)
- Micropython over EDU-CIAA. PyCON-AR Bahia Blanca 2016 [mpy-pyconar2016@youtube](https://www.youtube.com/watch?v=mpy-pyconar2016)
- Software Licences (UTN Avellaneda 2015): [@github:licence-beamer-es](https://github.com/oureembeddedds/licence-beamer-es)
- Embedded Linux driver development (SASE 2011-2012): [@SASE2011](https://github.com/oureembeddedds/SASE2011)
- Cortex-M3 Introduction (UTN FRBB 2011): [@github:curso\\_cm3\\_2011](https://github.com/oureembeddedds/curso_cm3_2011)

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## 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