Martín Ribelotta

Currículum Vitae
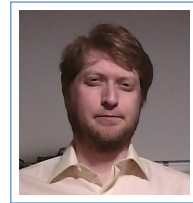
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in *martin-ribelotta*

2019–Now	**Freelancer Developer**, *freelancer*, Unlocalized.

Relevant projects:
- Port of f-prime to zephyr for educational project.
- Implementation of a standalone debug system for Cortex-M3 micros on SmartFusion2 via serial.
- Setup of CI/CD for RTL verification and hardware-software co-design test.
- Evaluation and hardness test of the stm32h7xx platform for commercial flight control.
- Memory efficient log system for RAM-constraint CPUs.
- Implementation of base software for aerospace communication payload over Microchip rad hard SAMv71 SoC.
- Design revision of communication system digital back-end and control unit front-end using Microchip's SAMv71 SoC .
- Design of update system and on-the-fly bootloader for SAMv71 MCU in aerospace applications.
- Design of on-the-fly JTAG reprogramming for aerospace applications.
- Platform evaluation of Softcore RISC-V processor for aerospace (VexRisc and NOEL-V softcores).
- Debug bridge for in-fly remote debug and trace for MSP430 MCU.
- Common Software Platform and HAL package for SAMv71 and MSP430-FRAM processors.
- Port of NASA OSAL to SAMv7x, STM32H7 and LPC43xx CPUs.
- Evaluation of cFS libraries for critical mission.
- Develop a build system based on bare gnu Makefile and posterior migration to the CMake build system.
- Evaluation of the stability of embedded Linux for aerospace applications.

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

Relevant projects:
- Implementation of LEON3 flight CPU in ProASIC3 A3P600 FPGA.
- Port of FreeRTOS/SafeRTOS to LEON3 FPGA systems.
- Port of RTEMS to the Cortex M4 CPU (stm32f4 and lpc43xx).
- Implementation of the RTEMS driver for i2c and SPI for the soft IP client on FPGA.
- Implementation of linux-capable LEON3 SoC on Spartan6 FPGA.
- Design of ad-hoc protocol for proprietary IOT LoRa network
- Design and implementation of IoT communication and control software over RTOS in CorterxM4.
- DSP simulation and radar testing in VHDL using Questasim/Modelsim.
- Design of the earth instrumentation acquisition system in the 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.
- Design and implementation of the SPI to AHB bridge.

Skills

Programming

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

EDA Tools

PCB Design	OrCAD, Altium PCB, KiCAD, Eagle
HDL/FPGA	Xilinx ISE, Vivado, LiberoIDE/LiberoSoC, LatticeMicro Diamond, YoSYS/ArachnePNR
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, ZephyrOS, RT-Thread, RTEMS, eCos, RTLinux, RTAI, vxWorks, ChibiOS, iTron&derived, OSEK&derived, MBED-os

Languages

Spanish	Native	*Mother tongue*
English	Fluid read/write, Basic conversational	*Autodidact*

Personal Projects

Personal Projects

- Personal Consultant and Design services *martinribelotta.github.io*
- Technical 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*
- Cortex-A9 developer board: *@github:Board-RZA1L*

Dictated courses

- 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*
- Cortex-M3 Introduction (UTN FRBB 2011): *@github:curso_cm3_2011*

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.