

# GABRIEL JACOBO

July/2018

SENIOR FIRMWARE AND SYSTEMS ENGINEER

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## Contact

gabomdq@gmail.com

Blog

Twitter

Github

Bitbucket

Stack Overflow

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## Profile

Electronics engineer with a generalist profile in software and firmware development and specialization in firmware graphics and systems engineering.

## About Me

I'm an electronics engineer by training and firmware / systems engineer by trade, working remotely from Argentina with leading Silicon Valley companies. I've played key roles in several mass market smart watches, starting as an embedded FW graphics expert, but also evolving to deal with other areas such as filesystems, general RTOS improvements and optimizations, build systems, improvement of custom team tools, silicon design and finally systems lead for an upcoming flagship product. I'm also a SDL contributor, mainly in the Android, Linux, Raspberry Pi and Wayland backends. I have extensive knowledge and experience with C/C++, Python and Django, PHP, HTML5, etc. In previous projects I've gained substantial experience with web development (backend and frontend), general Linux and Ubuntu based customizations, Chromium customizations, digital signage, complex build systems, and 2D game engine development.

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## Skills

### Firmware Graphics

Hands on development of low level 2.5D graphics drivers and window managers in embedded C across different platforms.

### Systems Engineering

Systems lead for upcoming (2020) flagship wearable, integrating EE and FW needs on a hybrid RTOS/Linux platform.

### Full Stack Development

Extensive experience with backend and frontend web technologies.

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## Technical

C / C++

Python

Javascript

CSS

HTML5

PHP

Apache

MySQL

PostgreSQL

SVN

HG

GIT

Linux

OSX

OpenGL

Windows

Android

ThreadX

NuttX

Raspberry Pi

ESP8266

ESP32

English

Spanish

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## Experience

## Smart Watch / Wearable Market Leader Company

Sr. Firmware Graphics, Systems Engineering Lead

**2014-2018**

Embedded graphics engineer for 3 best selling smart watches and Systems lead for upcoming flagship product. Implemented Conda based tool distribution system that revolutionized team productivity, Implemented GCC based build system that worked along legacy IAR based build system and gradually replaced it with minimal transitional pain. Designed and implemented in house graphics stack and window manager for RTOS. Several low level RTOS improvements and bug fixes. Designed critical series of improvements on custom 2D graphics hardware that were key to shipping a highly performant product with 5 days of battery life. Integrated SDL into development environment, allowing single code base to run on a variety of platforms (from embedded all the way up to browser), simplifying app design considerably. Implemented and deployed static analysis tools. Ported RTOS / custom graphics stack based apps to Linux / OpenGL ES seamlessly. Evaluated potential SOC candidates for upcoming flagship products, worked with vendors to improve them substantially.

## Ignifuga Game Engine

Creator, Lead Developer

**2011-2014**

C / Python / Cython based multiplatform (Android, iOS, OSX, Linux and Windows) 2D game engine developed from the ground up as a learning experiment.

## libSDL.org

Contributor

**Since 2012**

Regular contributor to the open source cross platform multimedia library. My contributions range from complex ground-up enhancements (SDL\_RenderCopyEx, SDL\_SetRenderTarget, SDL\_RenderGeometry, Raspberry Pi backend, EGL support on all platforms, udev and evdev support, etc) to assorted fixes and general maintenance on Linux in general, Wayland, Android, and smaller contributions to the iOS, OS X and Windows backends. Creator of the SDL Game Controllers Database.

## 2WAV

Sr. Developer

**2011-2014**

2WAV strived to push the envelope in web technologies. We pioneered a few Meteor based websites, node.js applications, HTML5+CSS3, etc. Lead developer on the following projects: - Stradjectives For PAL (Meteor based) - Stradjectives For Eberfest (Node.js) - Network Configuration Card Game for Pavlov Media (HTML5+CSS3) - Financial Company Administration and Marketing system - Home automation system GUI and script editing system

## Voyage4 / Loopingo

Sr. Developer

**2012**

Contractor for Voyage4 / Loopingo taking care of a wide range of system admin and development tasks, including several Django portals, a Windows based VOIP solution, etc.

## Cortexa Automation

Sr. Developer

**2011-2012**

Contractor for Cortexa Automation working with the 2Wav team, moved their Home Automation solution from a BSD based system to an embedded Linux system, built their Django based webportal, and the automated build and upgrade system that compiles the whole system, constructs a customized Ubuntu distro and deploys it. I also developed the entire cross compilation and embedding solution for ARM boards, seamlessly integrated with the i386 toolchain, and ported the system to the Panda and Beagle boards.

## Reboot Computer Services Inc.

Sr. Developer

**2008-2011**

Lead developer of their digital signage solution (theinfomod.com) and system admin for a wide range of servers. Digital signage solution is autonomous, remotely controlled, locally controlled via iPad or webserver, automatically cached content, works over 3G, etc.

## Noticias & Protagonistas

Tech Columnist

**2000-2008**

8 years columnist of tech and science related issues on the national newspaper Noticias & Protagonistas (www.noticiasyprotagonistas.com).

## Mar del Plata Independent Film Festival

Director, Lead Developer

**2002-2008**

6 years experience as the director of the 10 persons team that translated more than 500 hundred films for the Mar del Plata Independent Film Festival (www.festivalmdp.org). Also software developer of the custom made app used to develop and screen the subtitles at theaters.

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## Education

# Universidad Nacional de Mar del Plata

## Electronics Engineering Degree

**1997-2002**

Engineering Thesis: Embedded system, MP3 player based on a standalone i486 processor (hardware and software developed from scratch). The electronics engineering career includes courses in digital signals processing, systems control, electronics measurements, etc. Avg Grade: 7.94

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