Bernie Innocenti
Linux Systems Engineer, Firmware Engineer
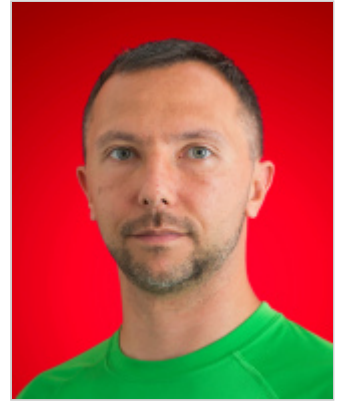
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Latest version of this resume: *www.codewiz.org/resume*

Career Objectives

My primary interests are system programming, compilers, firmware, sensors, robotics, hard real-time systems, machine learning, distributed systems, low-latency networking, computer graphics, education technology. Anything related to science, technology and consumer electronics is likely to interest me, *especially* if it's not already listed below.

Summary

- Senior Software Engineer, *Google*
- Senior Systems Administrator, *Free Software Foundation*
- Co-founder, Board Member, *Sugar Labs Foundation*
- OS Developer, *Paraguay Educa*, One Laptop Per Child
- CTO & Co-Founder, *Develer*, software and embedded systems engineering firm
- Open-source contributor (*GCC*, *Linux kernel* and various others)

Skills

- **Programming Languages**: Modern C++, Rust, C, Java, Go
- **Assembly**: x86, m68k, 6502, Z80
- **Microcontrollers and DSPs**: Coldfire, m68705, TMS320
- **Dynamic/Scripting Languages**: JavaScript, TypeScript, Python, Bash, Perl, PHP
- **Other Languages**: HTML, CSS, GLSL, SQL, LaTeX
- **Natural Languages**: Italian (native), English (excellent), Spanish (fluent), Japanese (studying for JLPT N3)

- **Operating Systems**: Linux (Arch, Red Hat, Fedora, Ubuntu, Debian, uClinux), Android, macOS, Solaris, NetBSD, AmigaOS, Windows
- **Development Tools**: GCC (contributor), Clang, Visual Studio Code, GNU make, autoconf
- **Embedded Compilers**: Codewarrior, IAR, Code Composer Studio, BSO Tasking, SAS/C
- **Frameworks and APIs**: POSIX, WebAssembly, Qt, OpenGL, Win32, Protobufs
- **Programming Styles**: OOP, functional programming, template metaprogramming, event-driven, real-time, multithreading
- **Version Control**: Git (self-hosted, *GitLab* and *GitHub*), Perforce, Subversion

- **Network Protocols**: QUIC, HTTP, IPv6, TCP, TLS, DNSSEC, BGP
- **Sysadmin**: KVM, Docker, Puppet, Google Cloud, systemd, Nagios, Munin
- **Server Software**: Apache, Nginx, BIND, Postfix, MySQL, PostgreSQL, Mediawiki, Asterisk

Work Experience

Senior Software Engineer, Google (Sep 2011 to present)

- Android Core Networking: Lead developer of the *DNS resolver*, including monitoring and experiments system

- Google Search Infrastructure: Develop features for high-throughput, high-availability, distributed web serving for billions of files
- *Accelerated Mobile Pages*: Tech lead of global CDN for news sites integrated with Google Search
- Instructor of advanced C++ and Linux programming courses for Tokyo and Taipei offices
- Conduct system design interviews, mentor new employees and host interns

Senior Systems Administrator, Free Software Foundation (Oct 2010 ~ Sep 2011)

- Develop and consolidate infrastructure comprising approx. 100 virtual machines and 50 domains
- Maintain project hosting and collaboration services for the GNU Project

Co-founder, Sugar Labs (May 2008 to present)

- Lead of the *Infrastructure Team*
- Member of the Sugar Labs Oversight Board (2008 to 2011)
- Fundraising, partnerships and organization of events

OS Developer, Paraguay Educa (Jan 2010 ~ Aug 2010)

- Coordinate engineering team to develop new features for *Sugar Learning Environment*
- Build, test and release OS updates for 4600 laptops deployed in rural schools
- Organize computer programming and "hacking" workshops for students

Volunteer Developer at One Laptop Per Child (May 2007 ~ Apr 2008)

- In-house maintainer of the X11 windowing system and graphics drivers
- Input drivers, keyboard layouts and i18n
- Platform development, packaging, release engineering

CTO, Co-founder at Develer (Nov 2002 ~ Apr 2007)

- Designer of *BeRTOS*, a modular, open-source RTOS for 8bit and 16bit microcontrollers.
- Built team of highly skilled Linux and firmware engineers
- Wrote firmware for embedded systems and DSPs (over a dozen different architectures)
- Created project hosting and remote collaboration infrastructure
- Business development and customer relationships in multiple industries

Freelance (2000 ~ 2009)

- **Telecom Italia Labs**: Design and implement compiler & interpreter of an object-oriented configuration language for a network simulator
- **Selex Communications**: Design and develop DSP modem firmware for Air Traffic Control radios
- **Gilbarco Veeder-Root**: Internal training of 200h for 45 engineer on Embedded Linux, OOP and C++

Instructor for European Fund's engineering courses

- *DLab*: Multimedia programmer course (600h for 20 participants). My students designed a *2D game engine* from scratch
- *GFactory*: Videogame development course of 450h for selected 15 participants
- PAW (Web Application Programmer): 300h for 15 participants
- Workshop on GIS Systems in Iannina, Greece (30h for 15 participants)

Co-founder and CTO, Sirius SRL

- Firmware and power control for laser hair removal
- Created company's Internet presence and collaboration infrastructure

Firmware engineer, SEAC R&D laboratories

- Control software for clinical analyzer robot with 18 stepper motors
- Software, firmware and driver development for laboratory instruments: photometers, incubators, hematology

Education

- Diploma in Mathematics, Computer Science and Electrical Engineering (Firenze, Italy)
- Undergraduate student of Software Engineering (Università degli Studi di Firenze)
- Undergraduate courses of Education Technology and Mathematics (Harvard Extension School)
- Personal research in compilers, algorithms, operating systems, network protocols, 3D graphics

Personal Projects / Volunteer Activity

- *Mandelwow*, a 3D fractal demo written in Rust and OpenGL
- *Coreboot hacking* on Thinkpad laptops
- GeekiGeeki, a wiki engine backed by Git, powering this website
- *Fedora developer*
- *Ubuntu packager*
- GCC maintainer (mostly m68k backend)
- Minor contributions to the Linux kernel
- Co-maintainer of *Background Debug Module* driver for Freescale Coldfire series
- *NetBSD* developer
- Sysop of SystemShockBBS, a FidoNET technology BBS