

# Richard Braun

Senior Software Engineer

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http://www.sceen.net/

## Companies

- **SBG Systems**  
*Senior software engineer* 2017 – Ongoing
- **Novasys Ingénierie**  
*Embedded software engineer* 2010 – 2016
- **Proformatique**  
*Network software engineer* 2007 – 2008

## Education

- **ESGI - Paris**  
*Software Engineer* 2002 – 2007

## Skills

**Specialties:** Parallelism (multithreading/multiprocessor/memory models/RCU), distribution, virtual memory, microkernels, system development, algorithmics, performance, virtualization, embedded systems, real time, IPv4/IPv6 networking, POSIX, security, debugging, project maintenance, coding rules and philosophy, self-discipline, communication in general

**Computer languages:** C, assembly (ARM/TMS320/x86), Python, shell scripts, Makefile, XML, SQL

**Operating systems:** Linux (Debian, OpenWRT), NetBSD, FreeBSD, Solaris, QNX, Mach, L4

**Networking:** Ethernet, WiFi, xDSL, IPv4, IPv6, TCP, UDP, routing, filtering, NAT, VPN, DHCP, DNS, HTTP, SMTP, IMAP, POP3, NTP, LDAP, NFS, GTP

**Software:** Vim, Git, Subversion, Doxygen, L<sup>A</sup>T<sub>E</sub>X, GNU toolchains (binutils, GCC, glibc/uClibc), busybox, GDB, OpenOCD, buildroot, GNU autotools, CMake, pkg-config, dpkg, Valgrind, Qemu/KVM, OProfile, U-Boot, OpenSSL, Netfilter, OpenVPN, Quagga, libpcap, Wireshark, Bind, OpenLDAP, Apache, PHP, MySQL, SQLite, Oracle, Postfix, Dovecot, ntpd

**Languages:** English (written, spoken, TOEIC 950/990), French (native)

## Projects

- <https://www.sceen.net/the-x15-operating-system/> - 32/64 bits real-time multi-processor microkernel
- <https://developers.google.com/open-source/gsoc/> - Google Summer of Code Mentor 2011-2016
- <http://www.gnu.org/software/hurd/hurd.html> - GNU/Hurd contributor
- <http://buildroot.uclibc.org/> - Buildroot contributor
- <http://uclibc.org/> - uClibc contributor
- <https://www.sceen.net/basic-code-blocks-for-c/> - Personal open source C toolkit
- <http://www.sceen.net/> - Personal server (blog, mail, git, virtual machines, tunnels, etc..)

## Professional experience

- **SBG Systems**  
*Senior software engineer* February 2017 – Ongoing
  - Real-time embedded firmware development
  - **Technical environment:** FreeRTOS, ARM, TMS320
- **ENGIE Ineo (Cofely Ineo)**  
*Embedded software engineer* August 2014 – June 2016
  - Maintenance of the internal Linux distribution
  - Complete rewrite of the real-time Kinetis K60 microcontroller firmware
  - Fixes/rewrites of many drivers - I2C, USB, EEPROM, MDIO, ADC/DAC, odometer, gyroscope, GPS, etc...
  - **Technical environment:** C, Linux, Freescale MQX, GCC, ARM Cortex-M4, OpenOCD, GDB

## Professional experience (next)

- **Qosmos**
  - *R&D software engineer* *July 2013 – July 2014*
    - Profiling and porting of the deep packet inspection engine on embedded devices
    - Professional services around a zero-copy packet offloading Linux kernel module
    - Development of generic and performant reusable components for object caching
    - Development of a library for GTPv1 and GTPv2 connection tracking and analysis
    - Analysis and implementation of a specialized hardware regular expression library
    - **Technical environment:** Linux, C, Netfilter, Valgrind, Coverity, Cavium Octeon, Broadcom MIPS/XLP, Freescale PowerPC
- **Cofely Ineo**
  - *Embedded software engineer* *May 2012 – June 2013*
    - Creation and maintenance of the internal Linux distribution
    - Creation of the compilation toolchain, remote and local debugging tools, development virtual machines, documentation and training
    - Various optimizations (image size reduction, upgrade reliability, video acceleration, specialized instruction sets, profiling)
    - **Technical environment:** Linux, buildroot, C++, Qemu, Valgrind, OpenGL, Intel Atom
- **Sagemcom**
  - *Embedded software engineer* *July 2010 – April 2012*
    - Design and implementation of a new TR-069 client for CPE/STB devices
    - OpenWRT development, support and packaging
    - Creation of a set of virtual machines reproducing the STB/CPE/Broadband network chain to ease development
    - Debugging (hardware acceleration, software performance, cache coherency, memory leaks, etc...)
    - **Technical environment:** OpenWRT, Linux, uClibc, C/C++, GNU autotools, Qemu, Valgrind, OProfile, U-Boot, Ikanos, Broadcom, OpenRG, MIPS
- **Thales Communications**
  - *Software engineer* *April 2009 – October 2009*
    - Implementation of network protocol analyzers
    - Implementation of memory allocation and execution monitoring modules
    - Rewrites of modules into multithreaded versions for very high bandwidth data rates
    - Rewrite of the build system with CMake
    - **Technical environment:** C, Linux, GCC, GDB, Valgrind, MySQL, SMTP/POP3/HTTP/Webmails, CMake
- **Proformatique**
  - *VoIP software engineer* *September 2007 – June 2008*
    - Implementation of IPBX modules (C, C++, Python)
    - PBX/SQL (MySQL/SQLite) integration
    - Call processing analysis
    - Implementation of custom PBX functions (call bridges, automatic recall, voice clock, etc...)
    - **Technical environment:** Linux, Asterisk, GCC, Python, SQLite, MySQL, PHP, SIP/H323/IAX/RNIS
- **ESGI**
  - *Embedded Linux courses* *January 2008 – June 2008*
    - Lectures on Unix, Linux, operating systems
    - Embedded development practices (cross compiling, UART console, minimalist environments)
    - **Technical environment:** Linux, uClibc, Busybox, Qemu, AMD Geode evaluation boards