



Martin Peres

PhD Student & Linux / X.org developer

Education

- 2013 University of Ottawa (CA): Did research on a real-time generic decision engine (3 months).
- 2011 – 2014 Ph.D. Student at LaBRI, Bordeaux (FR): Research autonomic computing, security, power & RF spectrum management to design an architecture for local-and-distributed entirely-self-optimising wireless systems.
- 2008 – 2011 ENSI de Bourges (FR): Studied system/network/hardware security, compilation and system administration. Specialised in « Security of ubiquitous systems », ranked 1st. Researched desktop PC OS security.
- 2008 University of Central Lancashire (UK): Studied microprocessor-based systems and image/speech processing. Researched GUI evaluation using a gaze-tracking device (3 months)
- 2006 – 2008 IUT d'informatique de Montpellier: Graduated in IT and software engineering.

Experience

- 2013 – Now Software-defined radio: Designing protocols and the software architecture to create infrastructure-less communications over a wide area and to improve the network's response to (un)intentional jamming.
- 2013 – 2015 Elected as a member of X.Org Foundation's Board of Directors: Work on the Foundation's communication by centralising news and talks on G+. Handle the organisation's work for the GSoC 2014 and the XDC2014.
- 2012 – Now Security of the Linux Graphics Stack (X/Wayland): Analysis of the user's expectation towards the desktop's security, current issues of the Graphics Stack and user-experience recommendations (latest work). Proof-of-concept userspace to use render-nodes to reduce the privileges of OpenGL/CL clients.
- 2011 – 2012 DIAFORUS: Designing and developing a framework for distributed autonomic wireless sensor networks that detects spatially-correlated events. Focused on how to deal with ill-calibrated sensors, correlating sensors, evicting faulty sensors, low power consumption, online monitoring and deployment of the network (link).
- 2010 – Now Nouveau, Open Source driver for Nvidia GPUs: Reverse engineering and implementing support for thermal & power management, clock & power gating and performance counters on Geforce 8+ chipsets.
- 2009 – 2010 PIGA-SYSTRANS / PIGA-OS: Designing and developing a mandatory access control system for graphical applications that dynamically changes the SELinux policy / firewall rules in order to react to a change in the user's current activity. System written for a research secure operating system called PIGA-OS (link).

Skills

Programming: C++ is my language of choice for prototyping and developing GUIs (Qt) as well as for writing dynamic web services (Wt). I am also skilled in C, mostly because of my Linux/Nouveau contributions. My work on Nouveau also led me to write a substantial amount of assembly code in NVidia's Falcon ISA.

Electronics: Studied digital electronics in High School and has been doing it as a hobby since then. Worked with the Arduino, TI's CC430. Built a physical frontend to my music player and Raspberry Pi- and Web-based suite to power up/down computers. Co-wrote a Qt-based Arduino IDE. Bordeaux's hackerspace member.

FLOSS communication: Used to engage with the FLOSS community using IRC, emails and blog posts. Got 60+ patches upstream in Linux/Nouveau, gave 12 talks at FLOSS conferences such as XDC and FOSDEM since 2011 and mentored for the EVoC 2012 and the GSoC 2013.

Software development: Used to deal with most steps of creating a new Libre and Open Source software project: setting up a repository, an IRC channel, releasing the source code and packaging it for users.

Languages

French	Native	
English	Cambridge's Certificate in Advanced English	<i>Spent 3 months in England and 3 months in Ontario/CA</i>
Spanish	Basics	<i>Studied for 7 years but barely used for the last 8 years</i>
German	Basics	<i>Self-taught for 4 years, regular trips to Germany</i>

References

Intel

- o Keith Packard, X.Org BoD and XDC

Red Hat

- o Ben Skeggs, Nouveau project
- o Peter Hutterer, X.Org BoD and XDC

Achievements

- 2008 – 2010 PIGA-OS: The research team I was in at the ENSI de Bourges won the Sec&SI security challenge funded by the French National Research Agency. The goal of the challenge was to create a secure graphical operating system targeted for novice users. Three research teams first got selected before competing against each others in 3 rounds. Finding bugs in another's OS would earn us more or less points depending on how severe the bug was and how long it took to fix it. The other contestants were EADS IW and the university Paris XI.

Publications

Martin Peres. Reverse engineering power management on NVIDIA GPUs - a detailed overview. In *X.Org Developer's Conference 2013*.

Martin Peres. Reverse engineering power management on NVIDIA GPUs - anatomy of an autonomic-ready system. In *ECRTS, Operating Systems Platforms for Embedded Real-Time applications 2013*.

Martin Peres, Romain Perier, and Francine Krief. Overcoming the deficiencies of collaborative detection of spatially-correlated events in WSN. In Vincent Guyot, editor, *Advanced Infocomm Technology*, number 7593 in Lecture Notes in Computer Science, pages 243–257. Springer Berlin Heidelberg, July 2012.

Yuki Abe, Hiroshi Sasaki, Martin Peres, Koji Inoue, Kazuaki Murakami, and Shinpei Kato. Power and performance analysis of GPU-accelerated systems. In *Proceedings of the 2012 USENIX Conference on Power-Aware Computing and Systems, HotPower'12*, page 10–10, Berkeley, CA, USA, 2012. USENIX Association.

M. Peres, M.A. Chalouf, and F. Krief. On optimizing energy consumption: An adaptative authentication level in wireless sensor networks. In *Global Information Infrastructure Symposium (GIIS), 2011*, pages 1–8, August 2011.

J. Briffaut, M. Peres, and C. Toinard. A dynamic end-to-end security for coordinating multiple protections within a linux desktop. In *2010 International Symposium on Collaborative Technologies and Systems (CTS)*, pages 509–515, May 2010.

Complete list at <http://phd.mupuf.org>.