

CHRISTOPHE HAUSER, PH.D.

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Research interests: cybersecurity—binary program analysis, vulnerability discovery, embedded systems security, reverse engineering, protection of privacy

Education

- **Ph.D. in computer science**—OS kernel model for intrusion detection in distributed systems
Joint Ph.D.: CentraleSupélec (French “grande école”) & Queensland university of technology, Australia - October 2009/ June 2013
- **Research Master’s in computing science**—System and network security
University of Rennes1/Supélec/Télécom Bretagne, France - 2008/2009
Institute of technology, Tralee, Ireland - 2007/2008 – Erasmus (European Mobility Program)
- **Bachelor in computer science**—Algorithms, formal methods and operating systems
University of Rennes 1, France - 2006/2007
- **Higher certificate**—Electronics and computing engineering
Institute of technology of the university of Rennes 1, France - 2005/2006
- **French Baccalaureate of science**—Mathematics specialty - 2003

Academic Experience

- **University of Southern California (ISI), Los Angeles, USA**—September 2016 - Present
—*Research Computer Scientist*— Program analysis/embedded systems security/vulnerability Discovery – Attack mitigation and automated security protocol generation for the Quasar (software attestation) platform, as part of the “Vetting Commodity IT Software and Firmware” (VET) DARPA program.
- **University of California, Santa Barbara, USA**—January 2014 - September 2016
—*Postdoctoral researcher*— Binary program analysis/vulnerability discovery – design of new techniques and development of the angr binary analysis platform, as part of the “Vetting Commodity IT Software and Firmware” (VET) DARPA program.
- **INRIA/CentraleSupélec, CIDRE team, France**—October 2009 - June 2013
—*PhD candidate/research assistant*— Distributed intrusion detection/kernel-level security/formal models – Design and development of a formal model for information flow tracking at the operating system kernel level - Linux kernel implementation of Blare IDS.
- **Queensland University of Technology, Australia**—January 2011, January 2012
—*Visiting PhD candidate/research assistant*— Distributed intrusion detection/kernel-level security/formal models
- **University of Tokyo - Sagayama & Ono laboratory, Japan**—Summer 2009
—*Research student*— Prototype of combined acoustic and stochastic model for evaluation engagement as part of the Quaero European research project.
- **INRIA, METISS team, France**—Fall/Spring 2009
—*Research student*— Stochastic model for automatic classification of musical genre and artist recognition as part of the Quaero European research project.

Professional Experience

- **OpenApp (Dublin, Ireland)**—June - September 2008
Linux system administrator and web developer - Python/PostgreSQL
- **Sogeti High-Tech (Capgemini branch in Rennes, France)**—April/September 2006
Video over IP / Embedded Linux developer - ARM/x86

- **Novelios**—Saint-Malo, France - July 2004
Linux server prototype - System administration / shell scripting

Selected Publications

- **Yan Shoshitaishvili, Fish Wang, Chris Salls, Nick Stephens, Mario Polino, Andrew Dutcher, John Groesen, Christophe Hauser, Christopher Kruegel, Giovanni Vigna**—SoK: (State of) The Art of War: Offensive Techniques in Binary Analysis
Proceedings of the IEEE Symposium on Security and Privacy (SSP) 2016
- **Yan Shoshitaishvili, Ruoyu Wang, Christophe Hauser, Christopher Kruegel, Giovanni Vigna**—Firmalice - Automatic Detection of Authentication Bypass Vulnerabilities in Binary Firmware
Proceedings of the Network and Distributed System and Security Symposium (NDSS) 2015
- **Christophe Hauser, Frédéric Tronel, Colin J. Fidge, Ludovic Mé**—Intrusion detection in distributed systems, an approach based on taint marking
Proceedings of the IEEE International Conference on Computer Communications (ICC) 2013
- **Christophe Hauser, Frederic Tronel, Jason F. Reid, and Colin J. Fidge**—A taint marking approach to confidentiality violation detection
10th Australasian Information Security Conference (AISC 2012) (RMIT University, Melbourne, VIC) (Josef Pieprzyk and Clark Thomborson, eds.), Conferences in Research and Practice in Information Technology, Australian Computer Society, January 2012
- **Stéphane Geller, Christophe Hauser, Frédéric Tronel, Valérie Viet Triem Tong**—Information flow control for intrusion detection derived from mac policy
Proceedings of the IEEE International Conference on Computer Communications (ICC) 2011

Skills

- **Program analysis:** Static & dynamic analysis, symbolic execution, reverse engineering
- **Systems and network security:** Intrusion detection systems - kernel development - Linux Security modules (LSM)- pentesting - virtualization - distributed systems
- **Tools:** IDA Pro, gdb, wireshark, tcpdump, objdump *etc.*
- **Programming languages:** Proficient in C, Python, \LaTeX , UNIX shells - Familiar with Ruby, Perl, Java, SQL, HTML, CSS
- **Operating Systems:** UNIX, Linux, FreeBSD, OpenBSD
- **Sound and language processing:** Statistical & machine learning models (HMM, N-grams, Bayesian models)
- **Languages :** Native French, fluent English, notions of German & Japanese

Hobbies & Interests

- Music & guitar, jam sessions (jazz, funk, blues, rock, metal)
- Audio production on Linux, recording & mastering (Ardour, Jack audio connection kit, LADSPA effects)
- Sailing (mostly dhingies, and a little bit of windsurfing)