

# Sebastien VARRETTE, PhD

## Research Associate

specialized in Distributed Platforms Security and HPC/Cloud systems.

**14 years of experience in Linux HPC systems**

Phone: +33(0)6 74 57 90 05

E-mail: [Sebastien.Varrette@uni.lu](mailto:Sebastien.Varrette@uni.lu)

Born on November 27th, 1979 (in France)

Married (2004), two children (2007,2010)



TECHNICAL / MANAGEMENT EXPERTISE:	High Performance Computing (HPC) , Grid, Cluster & Cloud Platforms. I'm administrating cluster-based HPC systems since 2003 (Linux environment) Leader of an expert team of HPC system administrator since 2008.
MAIN RESEARCH DOMAINS:	Security and Evaluation of Distributed Computing Platforms Relevant contributions per domains: <ul style="list-style-type: none"><li>• Code Obfuscation , CERTICLOUD, a Cloud IaaS secure platform</li><li>• Crash/cheating faults analysis in grid platforms</li><li>• Performance &amp; Energy efficiency of HPC/Cloud platforms</li><li>• Design of the authentication system of Grid'5000</li><li>• Developing security awareness by education</li></ul>

## Education

2007	PH.D. IN COMPUTER SCIENCE, with honours ( <i>Excellent/Outstanding</i> ) University of Luxembourg ( <a href="#">UL</a> ) & Institut National Polytechnique de Grenoble ( <a href="#">INPG</a> ) Thesis: <i>Security in Large Scale Distributed Systems: Authentication and Result Checking</i> Advisors: Franck Leprévost ( <a href="#">UL</a> ) & Jean-Louis Roch ( <a href="#">INPG</a> )
2003	M.SC. IN COMPUTER SCIENCE with honours ( <i>TB/First Class</i> ) Speciality: Cryptology, Security and Information Coding (CSCI), rank: 1st Institut National Polytechnique de Grenoble ( <a href="#">INPG</a> ) & University Joseph Fourier ( <a href="#">UJF</a> )
2003	MASTER'S DEGREE IN ENGINEERING ( <a href="#">Telecoms ENSIMAG</a> ) with honours ( <i>B/2.1</i> ) Speciality: Computer Sciences and Telecommunications rank: top 10%

## Graduate Students Supervision

<b>PhD.</b>	JAKUB MUSZYŃSKI (2011 – 2015) Cheating-Tolerance of Parallel and Distributed Evolutionary Algorithms in Desktop Grids and Volunteer Computing Systems BENOÎT BERTHOLON (2010 – 2013) CertiCloud & JShadObf: Toward Integrity and Software Protection in Cloud Computing Platforms
<b>In addition</b>	More than <b>11 Master</b> students successfully (co-)directed, and <b>2 bachelor</b> students.

## Research Projects

2007 – now	<a href="#">UL HPC</a> , co-PI (UL cumulative contribution: <b>7,506,558 €</b> )
2014 – now	EU <a href="#">COST ACTION IC1305</a> : Network for Sustainable Ultrascale Computing (NESUS)
2016 – 2019	co-PI, UL LSDEM (UL contribution: 332 k€)
2011 – 2013	UL EVOPELF (UL contribution: 373 k€)
2010 – 2012	FNR CORE <a href="#">GREENIT</a> (Total: 1,5 M€, FNR contribution: 432 k€)
2010 – 2012	AFR PhD BERTHOLON (PHD-09-142; Scientific Advisor; Total/AFR contribution: 110 k€) Confidentiality and Integrity Issues over Cloud Computing Platforms
2009 – 2013	EU <a href="#">COST ACTION IC0804</a> : Energy efficiency in large scale distributed systems
2009 – 2013	EU <a href="#">COREGRID</a>
2006 – 2008	ANR <a href="#">SAFESCALE-BGPR</a> (ANR-05-SSIA-0005; ANR contribution: 68 k€)
2005 – now	<a href="#">GRID'5000</a> (technical committee)
2005 – 2007	FNR-SECOM TESEGRAD (FNR contribution: 300 k€)
2004 – 2007	<a href="#">CRYPTALPES</a>
2004 – 2006	<a href="#">RAGTIME</a> (Total: 545 k€, Rhône-Alpes Region contribution: 217 k€)

## Publications

Publication category	Quantity
PhD Thesis	1
Books	4
Magazine	1
Book Chapters	9
International journals	7
International conferences with proceedings and reviews	43
(French) national conferences with proceedings and reviews	4
International conferences with proceedings	1
International conferences with reviews	7
Masters Thesis	1
Technical Reports	8
Miscellaneous	1
<b>Total:</b>	<b>87</b>

<a href="#">Publish or Perish</a>	Papers:117	Citations:330,Years:13	<b>h-index:10</b> ,g-index:15	hc-index:8,hI-index:2,78,hI-norm:5
<a href="#">DBLP</a>	Cites/year: 25.38	Cites/paper: 2.95/1.0/0	Cites/author: 113.24	Papers/author: 40.16
	<a href="#">Google Scholar</a>			Query date: <b>2016-04-05</b>

## Selected Publications

- [1] J.-G. Dumas, J.-L. Roch, E. Tannier, and S. Varrette. *Foundations of Coding: Compression, Encryption, Error-Correction*. Wiley & Sons, Feb 2015. 376 pages.
- [2] M. Guzek, S. Varrette, V. Plugaru, J. E. Pecero, and P. Bouvry. A Holistic Model of the Performance and the Energy-Efficiency of Hypervisors in an HPC Environment. *Intl. J. on Concurrency and Computation: Practice and Experience (CCPE)*, 26(15):2569–2590, Oct. 2014.
- [3] J. Muszyński, S. Varrette, P. Bouvry, F. Seredyński, and S. U. Khan. Convergence Analysis of Evolutionary Algorithms in the Presence of Crash-Faults and Cheaters. *Intl. Journal. of Computers and Mathematics with Applications (CAMWA)*, 64(12):3805–3819, Dec 2012.
- [4] V. Plugaru, S. Varrette, and P. Bouvry. Performance Analysis of Cloud Environments on Top of Energy-Efficient Platforms Featuring Low Power Processors. In *Proc. of the 6th IEEE Intl. Conf. on Cloud Computing Technology and Science (CloudCom'14)*, Singapore, Dec. 15–18 2014. IEEE Computer Society.
- [5] J. Muszyński, S. Varrette, J.L. Jiménez Laredo, and P. Bouvry. Exploiting the Hard-wired Vulnerabilities of Newscast via Connectivity-splitting Attack. In *Proc. of the IEEE Intl. Conf. on Network and System Security (NSS 2014)*, volume 8792 of *LNCS*, pages 152–165, Xi'an, China, Oct 2014. Springer Verlag. **Best Student Paper Award**.
- [6] S. Varrette, P. Bouvry, H. Cartiaux, and F. Georgatos. Management of an Academic HPC Cluster: The UL Experience. In *Proc. of the 2014 Intl. Conf. on High Performance Computing & Simulation (HPCS 2014)*, Bologna, Italy, July 2014. IEEE.
- [7] J. Muszynski, S. Varrette, and P. Bouvry. Expected Running Time of Parallel Evolutionary Algorithms on Unimodal Pseudo-Boolean Functions over Small-World Networks. In *Proc. of the IEEE Congress on Evolutionary Computation (CEC'2013)*, Cancún, Mexico, June 2013. IEEE.
- [8] B. Bertholon, S. Varrette, and P. Bouvry. CertiCloud: a Novel TPM-based Approach to Ensure Cloud IaaS Security. In *Proc. of the 4th IEEE Intl. Conf. on Cloud Computing (CLOUD 2011)*, Washington DC, USA, July 4–9 2011. IEEE Computer Society.
- [9] D. Dunlop, S. Varrette, and P. Bouvry. Deskillng HPL - Using an Evolutionary Algorithm to Automate Cluster Benchmarking. In *Proc. of 8th Intl. Conf. on Parallel Processing and Applied Mathematics - Part II (PPAM 2009)*, volume 6068 of *LNCS*, pages 102–114, Wroclaw, Poland, Sept. 13–16 2009. Springer Verlag. Publication appeared in 2010.
- [10] J.-L. Roch and S. Varrette. Probabilistic Certification of Divide & Conquer Algorithms on Global Computing Platforms. Application to Fault-Tolerant Exact Matrix-Vector Product. In *Proc. of the ACM Intl. Workshop on Parallel Symbolic Computation'07 (PASCO'07)*, pages 88–92, London, Ontario, Canada, July 27–28 2007. ACM.