

Marco Patrignani, Ph.D.

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Address: Campus E9 1, 66123 Saarbrücken, Germany.
Date of Birth & Citizenship: December 2nd, 1986. Italy.

Working Experience

2017/9 to ... PostDoc researcher at CISPA (DE) (with Michael Backes)
2015/10 to 2017/8 PostDoc researcher at MPI SWS Saarbrücken (DE) (with Deepak Garg).
2010/11 to 2015/09 Ph.D. student at KU Leuven (BE) (with Dave Clarke and Frank Piessens).

Education

2010/11 to 2015/09 **Ph.D. in Computer Science** at *KU Leuven* (BE).
2008/9 to 2010/7 **Master degree (Laurea specialistica) in Computer Science** at the *University of Bologna* (IT), (110/110 cum laude). (First graduate from the class).
2005/9 to 2008/10 **Bachelor degree (Laurea) in Computer Science** at the *University of Bologna* (IT), (107/110).
2000/9 to 2005/6 **High School** at *Liceo Scientifico A.Oriani*, Ravenna (IT) (98/100).

Achievements

2017 Cisca-Stanford (DE)	Funding for PostDoc, Assistant professor and Research group leader (6 years total) between CISPA and Stanford University.
2011 FWO grant (BE)	Scholarship for a Ph.D. at KU Leuven (21.4% acceptance rate).
2010 LLP Erasmus placement (IT)	European commission fundings for an internship at KU Leuven.
2010 Sciences faculty grant (IT)	Fundings to develop master theses abroad (<i>declined</i>).

Publications

Journal papers

1. Dominique Devriese, **Marco Patrignani**, Frank Piessens, and Steven Keuchel. Modular, fully-abstract compilation by approximate back-translation. In *accepted in Logical Methods in Computer Science*, 2017
2. **Marco Patrignani**, Pieter Agten, Raoul Strackx, Bart Jacobs, Dave Clarke, and Frank Piessens. Secure Compilation to Protected Module Architectures. *ACM Trans. Program. Lang. Syst.*, 37(2):6:1–6:50, April 2015
3. **Marco Patrignani** and Dave Clarke. Fully abstract trace semantics for protected module architectures. *Computer Languages, Systems & Structures*, 42(0):22 – 45, 2015. Special issue on the Programming Languages track at the 29th {ACM} Symposium on Applied Computing

Conference Papers

1. Dominique Devriese, **Marco Patrignani**, and Frank Piessens. Parametricity versus the universal type. In *Proceedings of the 45th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, POPL 2018, Los Angeles, CA, USA, 2016, 2018*
2. **Marco Patrignani** and Deepak Garg. Secure Compilation and Hyperproperties Preservation. In *Proceedings of the 30th IEEE Computer Security Foundations Symposium CSF 2017, Santa Barbara, USA, CSF 2017, 2017*
3. **Marco Patrignani**, Dominique Devriese, and Frank Piessens. On Modular and Fully-Abstract Compilation. In *Proceedings of the 29th IEEE Computer Security Foundations Symposium CSF 2016, Lisbon, Portugal, CSF 2016, 2016*
4. Dominique Devriese, **Marco Patrignani**, and Frank Piessens. Fully-abstract compilation by approximate back-translation. In *Proceedings of the 43rd Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, POPL 2016, St. Petersburg, FL, USA, January 20 - 22, 2016*, pages 164–177, 2016
5. Adriaan Larmuseau, **Marco Patrignani**, and Dave Clarke. Implementing a Secure Abstract Machine. In *Proceedings of the 31th Annual ACM Symposium on Applied Computing, SAC '16*. ACM, 2016
6. Adriaan Larmuseau, **Marco Patrignani**, and Dave Clarke. A secure compiler for ML modules. In *Programming Languages and Systems - 13th Asian Symposium, APLAS 2015, Pohang, South Korea, November 30 - December 2, 2015, Proceedings*, pages 29–48, 2015
7. Adriaan Larmuseau, **Marco Patrignani**, and Dave Clarke. A high-level model for an assembly language attacker by means of reflection. In *Dependable Software Engineering: Theories, Tools, and Applications - First International Symposium, SETTA 2015, Nanjing, China, November 4-6, 2015, Proceedings*, pages 168–182, 2015
8. **Marco Patrignani** and Dave Clarke. Fully Abstract Trace Semantics of Low-level Isolation Mechanisms. In *Proceedings of the 29th Annual ACM Symposium on Applied Computing, SAC '14*, pages 1562–1569. ACM, 2014
9. **Marco Patrignani**, Dave Clarke, and Frank Piessens. Secure Compilation of Object-Oriented Components to Protected Module Architectures. In *Proceedings of the 11th Asian Symposium on Programming Languages and Systems (APLAS'13)*, volume 8301 of LNCS, pages 176–191, 2013
10. **Marco Patrignani**, Dave Clarke, and Davide Sangiorgi. Ownership Types for the Join Calculus. In *FMOODS/FORTE 2011*, volume 6722 of LNCS, pages 289–303, 2011

Workshop Papers

1. Stelios Tsampas, Akram El-Korashy, **Marco Patrignani**, Dominique Devriese, Deepak Garg, and Frank Piessens. Towards Automatic Compartmentalization of C Programs on Capability Machines. In *Workshop on Foundations of Computer Security 2017 August 21, 2017, FCS 2017, 2017*
2. **Marco Patrignani**, Dominique Devriese, and Frank Piessens. Multi-Module Fully Abstract Compilation (Extended Abstract). In *Proceedings of the 12th Workshop on Foundations of Computer Security, FCS 2015*, pages 13–13, 2015
3. Adriaan Larmuseau, **Marco Patrignani**, and Dave Clarke. Operational Semantics for Secure Interoperation. In *Proceedings of the Ninth ACM SIGPLAN Workshop on Programming Languages and Analysis for Security, PLAS '14*. ACM, 2014

4. **Marco Patrignani** and Dave Clarke. Fully Abstract Trace Semantics of Low-level Protection Mechanisms –Extended Abstract–. In *Proceedings of the 24th Nordic Workshop on Programming Theory, NWPT 2012*, pages 43–45, 2012
5. **Marco Patrignani**, Nelson Matthys, José Proença, Danny Hughes, and Dave Clarke. Formal Analysis of Policies in Wireless Sensor Network Application. In *Proceedings of the 3rd international Workshop on Software Engineering for Sensor Network Applications, SESENA 2012*, pages 21–28, 2012

Theses

1. **Marco Patrignani**. *The Tome of Secure Compilation: Fully Abstract Compilation to Protected Modules Architectures*. PhD thesis, KU Leuven, Leuven, Belgium, May 2015

Technical Reports

1. **Marco Patrignani** and Deepak Garg. Secure Compilation and Hyperproperties Preservation – Extended Version. Technical report, MPI-SWS, 2017
2. Dominique Devriese, **Marco Patrignani**, and Frank Piessens. Fully abstract compilation by approximate back-translation: Technical appendix. Technical Report CW 687, Dept. of Computer Science, KU Leuven, 2016
3. **Marco Patrignani** and Dave Clarke. Fully Abstract Trace Semantics for Low-level Isolation Mechanisms – Extended version. CW Reports CW651, Dept. of Computer Science, K.U.Leuven, November 2013
4. **Marco Patrignani**, Dave Clarke, and Frank Piessens. Secure Compilation of Object-Oriented Components to Protected Module Architectures – Extended Version. CW Reports CW646, Dept. of Computer Science, K.U.Leuven, September 2013
5. **Marco Patrignani**, Dave Clarke, and Frank Piessens. Secure Compilation of Object-Oriented Components to Untyped Machine Code. CW Reports CW630, Dept. of Computer Science, K.U.Leuven, January 2013
6. **Marco Patrignani**, Dave Clarke, and Davide Sangiorgi. Ownership types for the Join calculus. CW Reports CW603, Dept. of Computer Science, K.U.Leuven, March 2011

Professional Activities

Organiser PRISC '18, SCM '17: secure compilation meeting (co-located with POPL '17).

Co-Organiser Dagstuhl seminar on secure compilation (May '18)

PC SAC '18, SAC '17, FCS '16; SAC '16; SAC '15; ICCSW '14.

External/Sub- Reviewer POPL '16, CSF '15, Elsevier's Computer Languages, Systems & Structures; FOCLASA '14; GPCE '14; Scientific world journal; IFM '13; FSEN '13; ESOP '12; IWACO '11.

Summer Schools and Extra Courses

2016, February 1st - 2016, July 30th	Scientific Writing at MPI-SWS (Saarbrücken, DE)
2014, November 3rd - 2015, April 2nd	Doctoral school training course: exploitation of research - technology & knowledge transfer (Leuven, BE).
2014, June 30th - July 4h	First International Summer School on Behavioural Types (Lovran, HR).
2013, April 8th - April 12th	Midlands graduate school (Leicester, UK).
2012, September 24th - September 28th	Hats-FMOC Formal Methods for Objects and Components Summer School (Bertinoro, IT).
2012, April 15th - April 18th	Milner Symposium (Edinburgh, UK).
2012, February 27th - March 1st	ARTIST Quantitative Model Checking Winter School (Copenhagen, DK).
2011, June 15th - July 1st	OPLSS Oregon Programming Languages Summer School (Eugene, US).
2011, February 28th - March 4th	SecAppDev Secure application development (Leuven, BE).

Teaching and Teaching Assistancy

2017-2018	Seminar lecture on Secure Compilation (guest @ University of Bologna)
2014-2015	Comparative Programming Languages: TA [plus some lectures]; Problem & solving: TA and organisation. (@ KUL)
2013-2014	CPL: TA [plus some lectures]; P&O: TA. (@ KUL)
2012-2013	CPL: TA [plus some lectures]; Fundamentals of Computer Science: TA [plus some lectures]. (@ KUL)
2011-2012	CPL: TA; Object-oriented Programming: TA; FCS: TA [plus some lectures]. (@ KUL)
2010-2011	FCS: TA. (@ KUL)

Note: P&O is a software development course project equivalent to a Bachelor thesis.

Students (PhD, Master, Bachelor)

2017	Maximilian Schwenger, research immersion lab (@MPI-SWS, with Deepak Garg)
2017-	Akram El-Korashy, PhD thesis (@MPI-SWS, with Deepak Garg)
2015-2016	Akram El-Korashy, master thesis (@MPI-SWS)
2013-2014	Matthias van der Hallen, master thesis (@ KU Leuven)
2012-2013	Pieter van Geel, master thesis (@ KU Leuven)

Personal abilities*Languages*

Italian	Mothertongue.
English	Spoken every day and used to write international articles since 2010.
Dutch	Elementary proficiency.
German	Elementary proficiency.

Contacts

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