

Marco Patrignani, Ph.D.

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Address: 343 Serra Mall, Stanford, California, USA.
Date of Birth: December 2nd, 1986.

Working Experience

2018/9/1 to ... Visiting assistant professor at Stanford University (USA)
2018/9/1 to ... Junior research group leader at CISPA Helmholtz Center for Information Security (DE)
2017/9/1 to 2018/8/31 PostDoc researcher at CISPA (DE) (with Michael Backes)
2015/10/1 to 2017/8/31 PostDoc researcher at MPI SWS Saarbrücken (DE) (with Deepak Garg).
2010/11/1 to 2015/09/30 Ph.D. student at KU Leuven (BE) (with Dave Clarke and Frank Piessens).

Education

2010/11 to 2015/09 **Ph.D. in Computer Science** (2015/05/27) 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).

Achievements & Awards

2019 (CSF) Distinguished Paper 2017 Cisca-Stanford (DE)	For the paper: <i>Journey beyond full abstraction</i> . 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.

Publications

Journal papers

1. **Marco Patrignani** and Deepak Garg. Robustly safe compilation, an efficient form of secure compilation. *ACM TOPLAS* (2020, Accepted for publication, To Appear)
2. **Marco Patrignani**, Amal Ahmed, and Dave Clarke. Formal approaches to secure compilation a survey of fully abstract compilation and related work. *ACM Comput. Surv.*, 51(6):125:1–125:36, January 2019
3. Dominique Devriese, **Marco Patrignani**, Frank Piessens, and Steven Keuchel. Modular, Fully-abstract Compilation by Approximate Back-translation. *Logical Methods in Computer Science*, Volume 13, Issue 4, October 2017
4. **Marco Patrignani**, Pieter Agten, Raoul Strackx, Bart Jacobs, Dave Clarke, and Frank Piessens. Secure Compilation to Protected Module Architectures. *ACM TOPLAS*, 37(2):6:1–6:50, April 2015

5. **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. **Marco Patrignani**, Eric Martin, and Dominique Devriese. On the semantic expressiveness of recursive types. In *Proceedings of the 48th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, POPL 2021, 2021*
2. David Durst, Matthew Feldman, Dillon Huff, David Akeley, Ross G. Daly, Gilbert Louis Bernstein, **Marco Patrignani**, Kayvon Fatahalian, and Pat Hanrahan. Type-directed scheduling of streaming accelerators. In *Proceedings of the 41st ACM SIGPLAN International Conference on Programming Language Design and Implementation, PLDI 2020, London, UK, June 15-20, 2020*, pages 408–422, 2020
3. Carmine Abate, Roberto Blanco, Adrien Durier, Deepak Garg, Catalin Hritcu, **Marco Patrignani**, Eric Tanter, and Jeremy Thibault. Trace-Relating Compiler Correctness and Secure Compilation. In *Programming Languages and Systems - 29th European Symposium on Programming, ESOP 2020, ESOP, 2020*
4. Carmine Abate, Roberto Blanco, Deepak Garg, Catalin Hritcu, **Marco Patrignani**, and Jeremy Thibault. Journey Beyond Full Abstraction: Exploring Robust Property Preservation for Secure Compilation. In *Proceedings of the 32th IEEE Computer Security Foundations Symposium CSF 2019, Hoboken, USA, CSF, 2019. Distinguished Paper Award*
5. **Marco Patrignani** and Deepak Garg. Robustly safe compilation. In *Programming Languages and Systems - 28th European Symposium on Programming, ESOP 2019, ESOP'19, 2019*
6. 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, 2018*
7. **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*
8. **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*
9. 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
10. 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*
11. 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
12. 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

13. **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
14. **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
15. **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

Theses

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

Professional Activities

Teaching

2019-2020	Instructor for cs358: Programming Language Foundations (@Stanford)
2019-2020	Instructor for cs350: Secure Compilation (@Stanford)
2018-2019	Instructor for cs358: Programming Language Foundations (@Stanford)
2018-2019	Instructor for cs350: Secure Compilation (@Stanford)
2018-2019	Instructor for the (block) seminar on secure compilation (@CISPA & UdS)
2017-2018	Instructor for the seminar on secure compilation (@CISPA & UdS)
2017-2018	Topic supervisor on the CISPA joint conference seminar. (@CISPA & UdS)
2017-2018	Seminar lecture on Secure Compilation (guest @ University of Bologna)
2014-2015	Comparative Programming Languages: TA [plus lectures]; Problem & solving: TA and organisation. (@ KUL)
2013-2014	CPL: TA [plus lectures]; P&O: TA. (@ KUL)
2012-2013	CPL: TA [plus lectures]; Fundamentals of Computer Science: TA [plus lectures]. (@ KUL)
2011-2012	CPL: TA; Object-oriented Programming: TA; FCS: TA [plus 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, Interns)

@Stanford	Koby Chan, Eric Martin, Wilson Nguyen, Nicholas Barbier, Max DiGiacomo
@MPI-SWS	Maximilian Schwenger (with Deepak Garg), Akram El-Korashy (with Deepak Garg)
@KU Leuven	Matthias van der Hallen, Pieter van Geel

Community Duties

Organiser PRISC '19, PRISC '18, SCM '17.

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

PC CSF '20, SAC '19, SAC '18, SAC '17, FCS '16; SAC '16; SAC '15; ICCSW '14.

External/Sub-Reviewer CSF '21, 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.

Languages

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

Contacts

Prof. Frank Piessens

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Prof. Deepak Garg

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Germany

Prof. Dominique Devriese

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Brussel Faculteit WE,
Belgium

Prof. Amal Ahmed

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