Fabio Pagani

AFFILIATION Postdoctoral Researcher, University of California Santa Barbara (UCSB)

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Bio

I am a postdoctoral researcher working with Giovanni Vigna and Christopher Kruegel in the SecLab at UC Santa Barbara. My research interests focus on several aspects of systems security. Currently, I am actively involved in projects related to automated vulnerability discovery (in firmware blobs and Android applications), and related to human-assisted cyber reasoning systems.

I earned a Ph.D at EURECOM, where I was advised by Davide Balzarotti. Among other things, we investigated how non-atomic acquisitions impact the consistency of memory dumps, and we developed a framework to discover and to assess the quality of memory forensics heuristics.

When I am away from keyboard, I enjoy hiking, rock climbing, surfing, and playing chess.

EDUCATION

Postdoctoral Researcher

Jan 2020-Current

University of California, Santa Barbara, US

Doctor in Philosophy (PhD)

Jan 2016-Sept 2019

Eurecom, France

Thesis: Advances in Memory Forensics

MSc in Computer Science

Feb 2013-Oct 2015

Universitá degli Studi di Milano, Italy

Thesis: Defeating Return Oriented Programming Attacks Using Program Analysis Techniques Graduated with a final grade of 110/110 cum laude

Internship Feb 2015-May 2015

Eurecom, France

Erasmus Jan 2014-Jun 2014

Uppsala University, Sweden

BSc in Computer Science

Sep 2009-Feb 2013

Universitá degli Studi di Milano, Italy

Thesis: When Hardware Meets Software: A Bulletproof Solution to Forensic Memory Acquisition Graduated with a final grade of 107/110

PUBLICATIONS

- [7] Fabio Gritti, Lorenzo Fontana, Eric Gustafson, **Fabio Pagani**, Andrea Continella, Christopher Kruegel, Giovanni Vigna. SYMBION: Interleaving Symbolic With Concrete Execution. In Proceedings of the IEEE Conference on Communications and Network Security (CNS) 2020
- [6] **Fabio Pagani**, Davide Balzarotti. Back to the Whiteboard: a Principled Approach for the Assessment and Design of Memory Forensic Techniques. In Proceedings of the 28th USENIX Security Symposium (USENIX Security 19) 2019
- [5] **Fabio Pagani**, Oleksii Fedorov, Davide Balzarotti. Introducing the Temporal Dimension to Memory Forensics. ACM Transactions on Privacy and Security (TOPS) 22, no. 2 (2019)

- [4] **Fabio Pagani**, Matteo Dell'Amico, Davide Balzarotti. Beyond Precision and Recall: Understanding Uses (and Misuses) of Similarity Hashes in Binary Analysis. In Proceedings of the Eighth ACM Conference on Data and Application Security and Privacy (CODASPY) 2018
- [3] Marius Muench, **Fabio Pagani**, Yan Shoshitaishvili, Christopher Kruegel, Giovanni Vigna, Davide Balzarotti. Taming Transactions: Towards Hardware-Assisted Control Flow Integrity Using Transactional Memory. In International Symposium on Research in Attacks, Intrusions, and Defenses (RAID) 2016
- [2] **Fabio Pagani**, Matteo De Astis, Mariano Graziano, Andrea Lanzi, Davide Balzarotti. Measuring the Role of Greylisting and Nolisting in Fighting Spam. In Proceedings of the 46th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN) 2016
- [1] Alessandro Reina, Aristide Fattori, **Fabio Pagani**, Lorenzo Cavallaro, Danilo Bruschi. When Hardware Meets Software: a Bulletproof Solution to Forensic Memory Acquisition. In Proceedings of the 28th Annual Computer Security Applications Conference (ACSAC) 2012

TALKS

- [2] Giovanni Vigna, Nicola Ruaro, **Fabio Pagani**, Stefano Ortolani. Symbexcel: Bringing the Power of Symbolic Execution to the Fight Against Malicious Excel 4 Macros. Black Hat USA 2021
- [1] Fabio Pagani. Memory Smearing: Myth Or Reality?. SANS DFIR Europe Summit 2019

SERVICE

DIMVA 2021 (Distinguished Reviewer Award)

Computers & Security (COSE)

TEACHING EXPERIENCE

Lecture on Memory Forensics (Cybercrime and Computer Forensics)

Apr. 2019

Eurecom, France

Lecture on Python Optimization and Integration (Software Development)

Dec. 2018

Eurecom. France

Lecture on Memory Forensics (Cybercrime and Computer Forensics)

May 2018

Eurecom, France

Lecture on Python Optimization and Integration (Software Development)

Dec. 2017

Eurecom, France

Lecture on Python Optimization and Integration (Software Development) Eurecom, France

Dec. 2016

Computer Programming - Teaching Assistant

Sept. 2014 - Feb. 2015

Universitá degli Studi di Milano, Italy

HACKING COMPETITIONS

I am a core member of the NOPS team. Along with my teammates, I qualified twice for the CSAW Europe Finals (in 2017 we got 2nd place) and **won** hxp CTF 2018.