

# Fabio Pagani

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**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 current research interests focus on different aspects of systems security: automated vulnerability discovery, human-assisted cyber reasoning systems, and malware analysis are all topics that spark my curiosity.

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, how to discover and to assess the quality of memory forensics heuristics, and how to automatically generate profiles for memory forensics.

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*  
Università 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*  
Università 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**

- [10] Fabio Gritti, **Fabio Pagani**, Ilya Grishchenko, Lukas Dresel, Nilo Redini, Christopher Kruegel, Giovanni Vigna. HEAPSTER: Analyzing the Security of Dynamic Allocators for Monolithic Firmware Images. In Proceedings of the 43rd IEEE Symposium on Security and Privacy (IEEE S&P 2022)
- [9] **Fabio Pagani**, Davide Balzarotti. AutoProfile: Towards Automated Profile Generation For Memory Analysis. ACM Transactions on Privacy and Security (TOPS) 25, no. 1 (2022)
- [8] Robert McLaughlin, **Fabio Pagani**, Noah Spahn, Christopher Kruegel, Giovanni Vigna. Regulator: Dynamic Analysis To Detect ReDoS. In Proceedings of the 31st USENIX Security Symposium (USENIX Security 22)

- [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] Nicola Ruaro, **Fabio Pagani**, Stefano Ortolani, Giovanni Vigna. 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

#### AWARDS

- [3] Distinguished Reviewer Award - DIMVA 2021
- [2] Volatility Plugin Contest 2019, 5th place
- [1] Black Hat Europe 2016 Student Scholarship

#### SERVICE

- IEEE Symposium on Security and Privacy (S&P) 2023
- Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA) 2022
- Digital Forensics Research Workshop (DFRWS) USA 2022
- IEEE Workshop on Offensive Technologies (WOOT) 2022
- Workshop on Binary Analysis Research (BAR) 2022
- Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA) 2021
- 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)** *Dec. 2016*  
Eurecom, France
- Computer Programming - Teaching Assistant** *Sept. 2014 - Feb. 2015*  
Università 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.