Giulio **De Pasquale**

COMPUTER SECURITY ENGINEER

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Education

Ph.D Candidate in Computer Security
KING'S COLLEGE LONDON, DEPARTMENT OF INFORMATICS

London, United Kingdom
November 2018 - PRESENT

Post-graduate research programme covering a wide spectrum of Computer Security topics, focusing mainly on **program analysis**. Other research interests include binary obfuscation/deobfuscation methodologies, malware analysis and vulnerability identification and exploitation.
Advised by Professor Lorenzo Cavallaro.

B.Sc Degree in Engineering of Computing Systems
POLITECNICO DI MILANO

Milan, Italy
September 2011 - September 2017

Degree that covers all the fundamental topics in the IT area, such as Algorithms, Operating Systems, Databases and Computer Architectures, combined to major Engineering subjects including Physics, Math and Algebra.

Experience

Research Intern - NExT Special Projects
MICROSOFT RESEARCH

Redmond, Washington, USA
June 2019 - September 2019

Researched **malware analysis** techniques on **ELF core** files as part of *Microsoft Project Freta*.
Advised by Mike Walker.
- **Webpage:** *https://www.microsoft.com/en-us/research/blog/toward-trusted-sensing-for-the-cloud-introducing-project-freta/*

Visiting Graduate Researcher - SecLab
UNIVERSITY OF CALIFORNIA, SANTA BARBARA

Santa Barbara, California, USA
January 2018 - July 2018

Researched **binary deobfuscation** techniques and novel **fuzzing** methodologies targeting IOT devices.
Advised by Professors Christopher Kruegel and Giovanni Vigna.

Publications

ShieldFS: A Self-healing, Ransomware-aware Filesystem
IN PROCEEDINGS OF THE ANNUAL COMPUTER SECURITY APPLICATIONS CONFERENCE (ACSAC)

Los Angeles, California, USA
December 2016

ShieldFS is an innovative solution to fight **ransomware** attacks. It automatically creates detection models that distinguish ransomware from benign processes at runtime on the base of the filesystem activity. ShieldFS adapts these models to the filesystem usage habits observed on the protected system.
- **Authors:**
  Andrea Continella, Alessandro Guagnelli, Giovanni Zingaro, **Giulio De Pasquale**, Alessandro Barenghi, Stefano Zanero, Federico Maggi.
- **Webpage:** *http://shieldfs.necst.it*

Personal projects

Pasticciotto
POLICTF '17

Milan, Italy
June 2017

Pasticciotto is a polimorphic **Virtual Machine** which can be embedded in an application to protect proprietary code. It was developed for the **PoliCTF '17** as a reverse engineering challenge. The project is open source.
- **Webpage:** *https://github.com/peperunas/pasticciotto*

Injectopi
POLITECNICO DI MILANO

Milan, Italy
February 2017 - May 2017

Injectopi is a set of tutorials that illustrates multiple **code injection** techniques in the Microsoft Windows environment. The project is open source.
- **Webpage:** *https://github.com/peperunas/injectopi*

AESTracer
POLITECNICO DI MILANO

Milan, Italy
October 2015 - January 2016

AESTracer is a **Microsoft Windows driver** which actively scans running processes for valid AES keyschedules. It has been included in a research project, ShieldFS, which was later published at ACSAC '16.

Technical skills

Information Security	Data forensics, memory exploitation, network analysis
Operating Systems	Arch Linux, Gentoo, Debian, Ubuntu, Microsoft Windows, Mac OS X
Programming	C, Python, Rust, Bash, C++, Java, WINAPI
Reverse Engineering	IDA, Binary Ninja, Angr, Radare2
System Administration	Docker, iptables, Wireguard, OpenVPN, Restic, Systemd, Traefik

Language proficiency

2016	**Test of English for International Communication (TOEIC)**, 975/990	*Milan, Italy*
2011	**Test of English as a Foreign Language (TOEFL)**, 99/120	*Lecce, Italy*
2010	**Cambridge English: Advanced (CAE)**, B	*Lecce, Italy*

Research Labs

S2Lab
KCL'S SYSTEMS SECURITY RESEARCH LAB

London, United Kingdom
November 2018 - PRESENT

The Systems Security Research Lab (S2Lab) is part of the Cybersecurity group in the Department of Informatics at King's College London.
- **Webpage:** *https://s2lab.kcl.ac.uk/*

SecLab
UCSB'S COMPUTER SECURITY RESEARCH LAB

Santa Barbara, California, USA
January 2018 - July 2018

The Computer Security Group at UCSB works on tools and techniques for designing, building, and validating secure software systems.
- **Webpage:** *https://seclab.cs.ucsb.edu/*

NECSTLab
POLITECNICO DI MILANO'S NOVEL EMERGING COMPUTING SYSTEM TECHNOLOGIES LABORATORY

Milan, Italy
March 2014 - September 2017

The NECSTLab is a research laboratory of Politecnico di Milano focusing on a number of different research lines on advanced topics in computing systems.
- **Webpage:** *https://necst.it*

POuL Linux User Group
POLITECNICO OPEN UNIX LABS

Milan, Italy
March 2014 - PRESENT

I am an *honorary member* of POuL, a hackerspace and association of Politecnico di Milano students interested in Linux, hacking and FOSS.
- **Webpage:** *https://poul.org*

CTF Teams

mHACKeroni
Italy

Italian Capture the Flag (CTF) Team
May 2019 - PRESENT

mHACKeroni is a CTF team composed of 5 CTF Italian teams. We qualified to **DEFCON 2019 Finals** and placed 5th out of 16 finalists.
- **Webpage:** *https://mhackeroni.it/*

Phish 'n' Chips
London, United Kingdom

King's College London Capture the Flag (CTF) Team
November 2018 - PRESENT

Founder of King's College London CTF team.

Shellphish
Santa Barbara, California, USA

UCSB's Capture the Flag (CTF) Team
January 2018 - July 2018

Helped to organize the **UCSB's iCTF 2018** competition.
- **Webpage:** *https://ictf.cs.ucsb.edu/*

Tower of Hanoi
Milan, Italy

Politecnico di Milano's Capture the Flag (CTF) Team
September 2014 - PRESENT

Helped to organize the **PoliCTF 2015** competition held during DIMVA 2015 in Milan.
- **Webpage:** *https://polictf.it*

Talks and Presentations

Advanced Course for Linux System Administration
Milan, Italy

Politecnico di Milano
March 2016

Introduced the main command line tools along with their usage. The course was mainly aimed at sysadmins and Linux enthusiasts.
- **Slides:** *https://slides.poul.org/2016/corsi-linux-avanzati/Bash_e_Filtri.pdf*

AESTracer - How to find AES keyschedules in kernel-space
Milan, Italy

NECSTLab @ Politecnico di Milano
February 2016

Introduced Microsoft Windows driver development basics and how it is possible to hijack running processes in order to find valid AES keyschedules.
- **Slides:** *http://slides.com/giuliodepasquale/aestracer-aeshooker/*