

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*. The project has been developed in **Rust**.

Advised by Mike Walker.

🌐 <https://aka.ms/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

DIANE: Identifying Fuzzing Triggers in Apps to Generate Under-constrained Inputs for IoT Devices

Online

42ND IEEE SYMPOSIUM ON SECURITY AND PRIVACY (S&P)

May 2021

DIANE is a tool that combines static and dynamic analysis to find fuzzing triggers and uses them to fuzz IoT devices automatically.

• Authors:

Nilo Redini, Andrea Continella, Dipanjan Das, **Giulio De Pasquale**, Noah Spahn, Aravind Machiry, Antonio Bianchi, Christopher Kruegel, Giovanni Vigna.

ShieldFS: A Self-healing, Ransomware-aware Filesystem

Los Angeles, California, USA

IN PROCEEDINGS OF THE ANNUAL COMPUTER SECURITY APPLICATIONS CONFERENCE (ACSAC)

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 Barengi, Stefano Zanero, Federico Maggi.

🌐 <http://shieldfs.necst.it>

Personal projects

Rustico

London, UK

PERSONAL INTEREST

November 2020 - PRESENT

Rustico is a **Rust** cryptocurrency trading bot. It features a frontend developed with **Svelte and TailwindCSS** and it is extendable with user-programmed trading strategies.

Pasticciotto

Milan, Italy

PoLiCTF '17

June 2017

Pasticciotto is a polymorphic **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 and it is written in **C++**.

🌐 <https://github.com/peperunas/pasticciotto>

Injectopi

Milan, Italy

POLITECNICO DI MILANO

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 and it is written in **C**.

🌐 <https://github.com/peperunas/injectopi>

AESTracer

Milan, Italy

POLITECNICO DI MILANO

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. The project was written in **C**.

Technical skills

Operating Systems	Gentoo, Arch Linux, Debian, Ubuntu, Microsoft Windows, MacOS
Programming	Python, Rust, C, TypeScript, Bash, C++, Java, WINAPI
System Administration	Docker, iptables, Wireguard, OpenVPN, Restic, Ansible, Systemd, Traefik

Research Labs

S2Lab

London, United Kingdom

KCL'S SYSTEMS SECURITY RESEARCH LAB

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.

🌐 <https://s2lab.kcl.ac.uk/>

SecLab

Santa Barbara, California, USA

UCSB'S COMPUTER SECURITY RESEARCH LAB

January 2018 - July 2018

The Computer Security Group at UCSB works on tools and techniques for designing, building, and validating secure software systems.

🌐 <https://seclab.cs.ucsb.edu/>

NECSTLab

Milan, Italy

POLITECNICO DI MILANO'S NOVEL EMERGING COMPUTING SYSTEM TECHNOLOGIES LABORATORY

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.

🌐 <https://necst.it>

POuL Linux User Group

Milan, Italy

POLITECNICO OPEN UNIX LABS

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.

🌐 <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.

- Involved in the organization of the **mHACKeCTF '20** competition.

🌐 <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

Involved in the organization of the **UCSB's iCTF 2018** competition.

🌐 <https://ictf.cs.ucsb.edu/>

Tower of Hanoi

Milan, Italy

POLITECNICO DI MILANO'S CAPTURE THE FLAG (CTF) TEAM

September 2014 - PRESENT

Involved in the organization of the **PoliCTF 2015** competition held during DIMVA 2015 in Milan.

🌐 <https://polictf.it>

Volunteering



Residence Welfare Lead

London, United Kingdom

KING'S RESIDENCES

January 2021 - PRESENT

Residence Welfare Leads are recruited to help residents in King's residences. Welfare Leads are specially trained to live in the Halls and provide an out-of-hours wellbeing support service to our residents, including first aid, mental health and crisis prevention.