





Giulio De Pasquale



COMPUTER SECURITY PHD CANDIDATE

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Experience

- **Visiting PhD Student**
UNIVERSITY COLLEGE OF LONDON
London, United Kingdom
June 2021 - PRESENT
Joined UCL's ISec research group to collaborate on ongoing research projects. Coordinated an ongoing series of fortnightly **hands-on seminars** on information security while focusing on solving CTF challenges.
🌐 <https://sec.cs.ucl.ac.uk>
- **Research Intern**
TWEAG I/O
Remote
June 2021 - PRESENT
Worked on the improving the robustness of the type system of **Nickel**, a declarative configuration language. The project is written in **Rust**.
🌐 <https://github.com/tweag/nickel>
- **Research Intern - NEXt Special Projects**
MICROSOFT RESEARCH
Redmond, Washington, USA
June 2019 - September 2019
Researched **malware analysis** techniques to detect active threats in **ELF core** files as part of *Microsoft Project Freta*. The project has been developed in **Rust**.
🌐 <https://aka.ms/freta>
- **Visiting Graduate Researcher - SecLab**
UNIVERSITY OF CALIFORNIA, SANTA BARBARA
Santa Barbara, California, USA
January 2018 - July 2018
Researched **deobfuscation** techniques for software protected by VM obfuscation and **fuzzing** methodologies targeting IoT devices.
🌐 <https://seclab.cs.ucsb.edu>

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.
🌐 <https://s2lab.kcl.ac.uk> | 🗉 Advised by Prof. 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 with major Engineering subjects including Physics, Math and Algebra.

Technical skills

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|--------------------------|--|
| Operating Systems | Gentoo, NixOS, Arch Linux, Debian, Ubuntu, Microsoft Windows, MacOS |
| Programming | Python, Rust, Nix, C, TypeScript, Bash, C++, Java, WINAPI |
| Interests | Reverse engineering, malware analysis, system administration, low-level and systems' programming |

Affiliations

Research laboratories UCL/KCL's [S2Lab](#), UCSB's [SecLab](#), PoliMi's [NECSTLab](#), Polimi's [POuL](#)

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

32ND ANNUAL COMPUTER SECURITY APPLICATIONS CONFERENCE (ACSAC) & BLACK HAT '17

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.

Personal projects

Rustico

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

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

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++**.

Injectopi

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

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**.

AESTracer

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**.

CTF Teams



mHACKeroni

ITALIAN CAPTURE THE FLAG (CTF) TEAM

Italy

May 2019 - PRESENT

mHACKeroni is composed by five CTF Italian teams. We qualified and placed 5th to **DEFCON 2019 Finals**.

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

<https://mhackeroni.it>



Phish 'n' Chips

KING'S COLLEGE LONDON CAPTURE THE FLAG (CTF) TEAM

London, United Kingdom

November 2018 - PRESENT

- Founder of the team.

<https://phishnchips.co.uk>



Shellphish

UCSB'S CAPTURE THE FLAG (CTF) TEAM

Santa Barbara, California, USA

January 2018 - July 2018

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

<https://ictf.cs.ucsb.edu/>



Tower of Hanoi

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

Milan, Italy

September 2014 - PRESENT

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

<https://polictf.it>