

CONTACTS AND PERSONAL INFORMATION	<p>👤 Edoardo Di Paolo</p> <p>📅 January 18, 1998. Mantova, Italy.</p> <p>✉️ edoardo.dipaolo AT uniroma1.it (AT is @)</p>
EXPERIENCES	<p>Teaching Assistant at “La Sapienza”, University of Rome October 2023 - February 2024 <i>Teaching assistant for the course “Programming” (python).</i></p> <p>Artisan Summer School, Austrian Institute Technology (AIT) July 2023 <i>Topics: Artificial Intelligence and Machine Learning with regards to security and safety applications.</i></p> <p>Research Scholar at “La Sapienza”, University of Rome May 2022 - October 2022 <i>Analysis and testing of new attacks on the IPv6 protocol.</i></p>
EDUCATION	<p>“La Sapienza”, University of Rome & Luiss Guido Carli November 2022 - 2025 <i>Ph.D. in Cybersecurity in collaboration with Luiss Guido Carli.</i></p> <p>“La Sapienza”, University of Rome December 2020 - October 2022 <i>Master of Science in Computer Science, 110/110 cum Laude</i> <i>Thesis: “Bot Detection Leveraging Image Techniques”</i></p> <p>“La Sapienza”, University of Rome September 2017 - December 2020 <i>Bachelor’s degree in Computer Science, 101 / 110</i> <i>Thesis: “Analysis of security issues of MQTT protocol”</i></p> <p>Liceo classico “Pilo Albertelli” September 2011 - July 2016 <i>Classical studies</i></p>
TECHNICAL SKILLS	<p>Programming Languages: <i>Python, PHP, SQL, MySQL, MongoDB, Node.js, C, C++, C#, XML, PostgreSQL, JSON, Java, Javascript, Lua, TypeScript, GraphQL</i></p> <p>Frameworks and libraries: <i>Laravel, Django, ns3, Angular, Codeigniter, Spark, PyTorch, Pandas, socket.io, ReactJS, React Native, PyTorch Lightning</i></p> <p>Softwares and others: <i>AWS, Git, Docker, VirtualBox, Office, Apache, IIS, nginx, Cloudflare, Telegram APIs, Twitch APIs, LaTeX</i></p>
PUBLICATIONS	<p>Edoardo Di Paolo, Enrico Bassetti, Angelo Spognardi. “A New Model for Testing IPv6 Fragment Handling”, <i>ESORICS 2023, 25-29 September, The Hague.</i></p> <p>Edoardo Di Paolo, Angelo Spognardi, Marinella Petrocchi. “From Online Behaviours to Images: A Novel Approach to Social Bot Detection”, <i>International Conference on Computational Science (ICCS) - 2023, 3-5 July, Prague.</i></p> <p>Edoardo Di Paolo, Enrico Bassetti, Angelo Spognardi. “Security assesment of common open source MQTT brokers and clients”, <i>Italian Conference on CyberSecurity (ITASEC) - 2021, Online.</i></p>
SECURITY ADVISORIES	<p>CVE-2023-4809: IPv6 fragments may bypass firewall rules written on the assumption all fragments have been reassembled and, as a result, be forwarded or processed by the host.</p>
PROJECTS AND OTHERS	<p>¹ F1 22 Telemetry December 2022 A simple UDP server which parses UDP packets from the F1 22 game. This project uses python as backend and NextJS as frontend. Source code</p> <p>F1 cars tracking November 2021 - February 2022 A <i>Computer Vision</i> project to track the F1 cars in videos producing the correct bounding box with a <i>transfer learning</i> approach with an RCNN model. Source code</p> <p>Drones Routing Algorithms November 2021 - January 2022 These homeworks are about routing protocols for drones with a <i>reinforcement learning</i> approach. The first homework was about the <i>k-bandit</i> problem and the last two were about the <i>Q-learning</i> and the</p>

¹This section may not be updated. Other projects are available in my [GitHub profile](#).

energy consumption trying to minimize the latency.

[Source code](#)

Fundamentals of Computer Graphics Homeworks

October 2021 - December 2021

In these homeworks I implemented different renders in C++ with the **yocto-gl** library; for example one of the implemented render was about the hair rendering.

[Source code](#)

Flood-WUP Implementation

July 2021 - December 2021

It is the implementation with ns3 of Flood-WUP (described in **this paper**) for the AFC (subsidiary formative activity). It is a flooding protocol for devices with low energy.

[Source code](#)

Asteroids Predictions

April 2021 - June 2021

The project consists of two tasks: a *binary classification* to decide if an asteroid is potentially hazardous or not and a *regression problem* that tries to predict the asteroids' diameter.

[Source code](#)

MQTT Fuzzer

September 2020 - December 2020

An MQTT fuzzer in order to test MQTT brokers and clients. It is written in *python* and it uses a library called *twisted*.

[Source code](#)

Foundations of Data Science homeworks

September 2020 - December 2020

Image filtering and object identification, histogram distances, logistic regression, gradient ascent, Newton's method, Gaussian Discriminant Analysis

[Source code](#)

OpenJML

December 2020 - January 2021

A project for the *Security in Software Applications* course in which I used JML for a Java code in order to correct errors in the source.

[Source code](#)

Image classification

November 2020 - December 2020

A ML project where I used some *neural network* in order to classify images in 8 different classes with different models.

[Source code](#)

Assembly functions classification

October 2020 - November 2020

A ML project in order to classify correctly some type of assembly functions.

[Source code](#)

Static analysis with FlawFinder and Splint

October 2020 - November 2020

A project for the *Security in Software Applications* course in which I used FlawFinder and Splint in order to find vulnerabilities.

[Source code](#)

Sapienza Classroom

April 2020 - June 2020

The project is a website similar to *Google Classroom* built with *ReactJS*, *PHP*, *PostgreSQL* and *socket.io* as websocket.

[Source code](#)

LANGUAGES

Italian: *native proficiency*

English: *professional working proficiency*