europass Curriculum vitae

PERSONAL INFORMATION Edoardo Di Paolo

EXPERIENCES

July 2023

Artisan Summer School (AIT)

“AI and ML with regards to security and safety applications" at “AIT", Austrian Institute Technology.

May 2022 – October 2022

Research Scholar

“Analysis and testing of new attacks on the IPv6 protocol" at “La Sapienza", University of Rome.

EDUCATION

2022–2025

Ph.D. in Cybersecurity

“La Sapienza", University of Rome.

2020–2022

Master of Science degree in Computer Science

“La Sapienza", University of Rome.

2017–2020

Bachelor’s degree in Computer Science

“La Sapienza", University of Rome. Thesis title: “Analysis of security issues of MQTT protocol".

2011–2016

Liceo classico “Pilo Albertelli”

Classical studies

LANGUAGES

Italian

Native proficiency.

English

Professional working proficiency.

TECHNICAL SKILLS

Programming languages: Python, PHP, SQL, MySQL, MongoDB, Node.js, C, C++, C#, XML, PostgreSQL, JSON, Java, Javascript, Lua, TypeScript, GraphQL

Frameworks and libraries: Laravel, Django, ns3, Angular, Codeigniter, Spark, PyTorch, Pandas, socket.io, ReactJS, React Native, PyTorch Lightning

Softwares and others: AWS, Git, Docker, VirtualBox, Office, Apache, IIS, nginx, Cloudflare, Telegram APIs, Twitch APIs, LaTeX

PROJECTS AND OTHERS

Projects

– **F1 cars tracking** November 2021 - February 2022
A *Computer Vision* project to track the F1 cars in videos producing the correct bounding box. **Source code**

Drones Routing Algorithms November 2021 - January 2022
These homeworks are about routing protocols for drones with a *reinforcement learning* approach. The first homework was about the *k-bandit* problem and the last two were about the *Q-learning* and the 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 nodes with low energy and low resources. **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
Imaage filtering and object identification, histogram distances, logistic regression, gradient ascent, Newton's method, Gaussiann 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**

Driving licence B

PUBLICATIONS

[1] Edoardo Di Paolo, Enrico Bassetti, and Angelo Spognardi. "A New Model for Testing IPv6 Fragment Handling". In: (ESORICS, 2023).

[2] Edoardo Di Paolo, Marinella Petrocchi, and Angelo Spognardi. "From Online Behaviours to Images: A Novel Approach to Social Bot Detection". In: *Computational Science – ICCS 2023*. 2023.

[3] Edoardo Di Paolo, Enrico Bassetti, and Angelo Spognardi. “Security assessment of common open source MQTT brokers and clients”. In: (ITASEC, 2021).