







FABIO PIRAS

Computer Engineer
Cybersecurity specialization

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SUMMARY

Computer engineer student in University of Pisa. During my academic journey I acquired a solid knowledge base in different areas of computer engineering such as: algorithms, artificial intelligence, cybersecurity, software development. I am a creative, motivated and diligent person who loves to work in a team to reach common results. I love having a positive impact on the community. I also do CTF competitions in my free time.

SKILLS

Languages: C/C++, Java, Python, PHP, JS, Kotlin, Erlang, Go.

Back-end: MySQL, MongoDB, Neo4j, Redis.

Technologies: Linux, Git, Spring, Docker, Tensorflow.

Soft skills: Cybersecurity, Critical thinking, Team-work, Project design & implementation, Problem-solving, Adaptability.

CURRENT PROJECT

- eBPF
- C
- Linux Kernel
- Docker

A study on eBPF enhanced container security: Identifying and Addressing Data Visibility Vulnerabilities

The project aims to study the security implications of eBPF in containerized environments. The study will focus on the data visibility vulnerabilities that arise from the use of eBPF in containerized environments. The final goal is to allow users inside containerized environments to use the eBPF technology without leveraging the program to access data outside the container.

PAST PROJECTS

- Go
- Erlang
- Tomcat Servers

Fed-GoLang, integration Federated learning platform with Go Erlang - 07/2024 - 09/2024

The project aims to integrate a federated learning platform by leveraging Erlang for the communication between the nodes and Go for the application logic. The application is built to support different types of nodes topology and to be able to handle the communication between them.

- Kotlin
- Android

NoiseMapper - 04/2024 - 05/2024

github.com/Albran99/NoiseMapper

Noisemapper is a mobile application designed to facilitate indoor positioning and environmental noise mapping. Leveraging Bluetooth Low Energy (BLE) technology for indoor localization, the app captures ambient audio data from the user's surroundings. This data is transmitted to a central server where it is stored with data from other users. The app then is able to generate comprehensive noise maps, providing insights into the acoustic landscape of various indoor environments. Users can access these maps to make informed decisions about noise levels in specific rooms.

- Python
- BPMN
- Trello
- UML

SecurePOS - 11/2023 - 04/2024

SecurePos is a *fully comprehensive* project, starting from user specifications, the objective is to build a functional factory of micro-services to classify POS transaction and signal the malevolent ones. The project has a strong focus on the whole road-map with milestones and meetings with the client (the professor). In addition the project is done in such way to be module independent to make future addition of features and changes easier to implement.

- Python
- Tensorflow

AI for violence detection in CCTV - 11/2023 - 02/2024

github.com/Albran99/CNNforViolenceDetectionInCCTV

The objective of the project is to build from scratch a CNN that receives as input CCTV footage and classifies it into two main categories: violence and non violence presence. The study starts with a very simple CNN and follows it up with a continuous improvement of performances and hyper-parameter tuning and test with both 2D and 3D CNN. In addition a comparison will be made with pre-trained neural network such as Resnet with the following case study.

- Php
- MySQL
- Burp
- Kali Linux

SecureBookSellingWebsite - 11/2023 - 01/2024

github.com/Albran99/SecureBookWebSite

Secure Book store is a fully functional site with a focus on cybersecurity, resistant to SQL injection, cross site scripting, privilege escalation and others malicious activity. It does implement helpful user such as: account recovery, password change and the possibility to download the purchased book, all of this in a secure manner. The site will then be tested by cybersecurity expert at the University of Pisa.

- Java
- MongoDB
- Neo4j
- Spring
- Thymeleaf

Rotten Movies - 12/2022 - 01/2023

gitlab.com/fp99/rottenmovies

RottenMovies is an online platform dedicated to film reviews, drawing inspiration from the renowned Rotten Tomatoes. The users have the opportunity to rate and review a wide range of movies, with the user base divided into two categories: critics and top critics. Critics have the option to follow top critics, ensuring they stay up-to-date with their latest opinions and insights.

<ul style="list-style-type: none"> - C++ - Omnetpp - Excel 	Epidemic Broadcast - 01/2023 - 02/2023 github.com/Albran99/EpidemicBroadcast Epidemic Broadcast is an epidemic simulation built using C++ in Omnetpp. The simulation represents a network of interconnected nodes, where each node has peer-to-peer connections. Within this network, each node has a probability of transmitting an "infection message" to its neighboring nodes. The objective of the simulation is to identify the optimal configuration that maximizes the spread of the epidemic.
<ul style="list-style-type: none"> - C++ - OpenSSL 	SecureBank - 06/2023 - 07/2023 github.com/Albran99/SecureBank SecureBank is an application designed to implement the transfer of messages and data between a client and a bank server in a secure way. The protocol designed is resistant to both active attacks like replay and MITM and subquantum passive ones. The protocol uses both symmetric and asymmetric key encryption. For simplicity purposes, it is assumed that both parties already know the other's public key
<ul style="list-style-type: none"> - C++ - Cuda - uProf - Nsight 	BitonicSort - 04/2023 - 06/2023 github.com/Albran99/BitonicSort BitonicSort is a study of the bitonic sort algorithm and focuses on enhancing its performance on specific hardware. The project analyzes how the utilization of multithreading and GPU accelerators can bring a significant speedup, resulting in the ability to sort an array of 2Gb in less than 15 seconds specifically on an Nvidia Tesla T4.
<ul style="list-style-type: none"> - Java - APKTool - Virus total - MobSf - Kali Linux 	Malware analysis - 08/2023 - 09/2023 github.com/Albran99/MalwareAnalysis In this project I was tasked with analyzing two sets of malware, the first one is of Iranian origin and it steals SMS messages to allegedly steal OTP code, the second one is an adult-themed app that tracks the user, subscribes him to paid SMS services and could also act as ransomware. The last one in particular had an extensive use of code obfuscation
<ul style="list-style-type: none"> - C - Linux file system 	MessagingAppC - 05/2022 - 07/2022 github.com/Albran99/MessagingAppC MessagingAppC is a project that involves implementing a messaging app using C sockets. The architecture consists of a central server that serves as a mediator, facilitating user communication and updating their status to notify them if other users are offline. Users can exchange messages, transfer files, and create group chats within the app, the server keeps track of the messages sent but not yet received by users.

EDUCATION AND OTHER LEARNING EXPERIENCES

09/2022-04/2025	Master's Degree Computer Engineering Cybersecurity curriculum	University of Pisa
09/2018-09/2022	Bachelor's Degree Computer Engineering	University of Pisa
03/2024-06/2024	Cyberchallenge.it trainee program Part of the trainee program, managed to classify 9th in the local competition, there I learned about many types of vulnerability, how to exploit them and how to patch them.	

LANGUAGES

English - B2, **Italian** - native