

Fabio Orazio  
Mirto

## Contact



## Skills

- Problem Solving
- Active Listening
- Teamwork
- Adaptability
- Critical Thinking

## Education

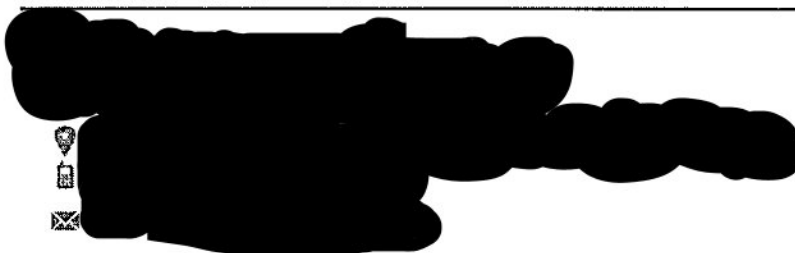
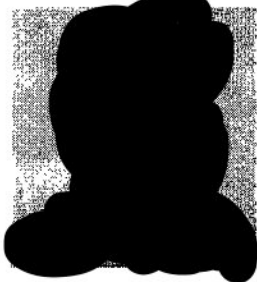
- Bachelor degree in Computer Engineering  
*Politecnico di Torino* 2018 - 2021
- Master degree in Computer Engineering (Cybersecurity)  
*Politecnico di Torino* 2021 - 2023  
Project:
  - "Parallelization of A-star path finding algorithm"Master's Thesis:
  - "Enhancing and testing smart home security through a MUD-enabled environment"

## Experience

- Legal Administrator  
*Sicilia Vacanze SRL* 2018 - Today
  - Coordination and management of activities related to the administration of the company.
  - Responsible for personnel and safety in the workplace.
  - Responsible for the company with third parties.
- Security Delivery Analyst  
*Accenture SPA* 2024 - Today  
Red Team activities:
  - Web Application Penetration Tests
  - Vulnerability Assessments

## Fabio Orazio MIRTO

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### ISTRUZIONE

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28/10/2021 - 15/12/2023

\* Laurea magistrale in Ingegneria Informatica \\\(Computer Engineering\\)

Politecnico di Torino

Tesi: Enhancing and testing smart home security through a MUD-enabled environment

*The Increasing number of Internet of Things (IoT) devices in smart homes now offers a high level of efficiency and convenience that we have never seen before. However, this rapid growth also introduces some new challenges related to the security of these systems.*

*To address those challenges, IETF introduced Manufacturer Usage Description (MUD). MUD is a standard that offers a way to specify the network behavior and permissions of devices that are MUD-enabled. To achieve this goal, the MUD standard uses a white-listing approach based on a set of rules (also called policies), written by the device's manufacturer. So, all traffic that is not expressly allowed by the manufacturer is blocked. These rules are read from a file, called MUD File, and instantiated for allowing connections between two end-points, for instance, using a firewall.*

*By offering better control over devices' interactions inside the smart home ecosystem, provides a potential way to improve network security. This potential is also recognized by ENISA and NIST.*

*The main contribution of this thesis is to build and test a MUD-enabled smart home environment. In this scenario, there is a diverse set of IoT devices that should be managed by a Smart Home Gateway (SHG), in our case Home Assistant. By integrating the MUD standard inside the SHG, it is possible to achieve a higher level of network security and reduce the surface of attacks (e.g., avoiding unauthorized access or Denial of Service attacks).*

*In the context of IoT devices, the produced solution includes end-point identification for the production of the rules for the different integrations. This is done by performing a manual analysis of the traffic and source code of the integrations.*

*After the initial setup, the proposed solution increases the security of the smart home without the need for further user action.*

Relatori F.Corno, L.Mannella

Voto 98/110

12/09/2018 - 22/10/2021

\* Laurea in Ingegneria Informatica

Politecnico di Torino

Voto 86/110

*Prova finale riguardo i seguenti argomenti:*

- 1) Sicurezza di rete
- 2) Crittografia chiave simmetrica
  - 2.1) Cifrario a blocchi concatenati
- 3) Crittografia a chiave pubblica
  - 3.1) Chiave di sessione
- 4) Integrità dei messaggi
  - 4.1) Funzioni Hash crittografiche

4.2) Firme digitali

2018 Diploma MATURITA' SCIENTIFICA

**ESPERIENZE PROFESSIONALI**

12/02/2024 - attualmente  
Security Delivery Analyst  
Accenture SPA - Torino - ITALIA  
Red Team Activities  
- Web Application Penetration Tests  
- Vulnerability Assessments  
Apprendistato

**LINGUE**

Prima lingua Italiano

Altre lingue

Inglese

COMPRESIONE		ESPRESSIONE		SCRITTURA
Ascolto	Lettura	Interaz. orale	Produz. orale	
B1	B1	B1	B1	B1

Livelli: A1/A2: Utente base - B1/B2: Utente intermedio - C1/C2: Utente avanzato

Quadro Comune Europeo di Riferimento delle Lingue

**CONOSCENZE INFORMATICHE**

SISTEMI OPERATIVI

Livello buono

LINGUAGGI DI PROGRAMMAZIONE

Livello buono

PROGRAMMI / APPLICAZIONI

Livello buono

BASI DI DATI

Livello buono

GRAFICA

Livello buono

FOGLI DI CALCOLO

Livello buono

**ALTRE COMPETENZE**

Programming languages: C/C++, Javascript, Java, Python, Bash, Assembly MIPS, CUDA Programming  
Framework: React.js, Express.js (Node.js), Spring Boot, Docker

**INFORMAZIONI SUPPLEMENTARI**

Patente

**ABILITAZIONI**

## ESAMI \*

## Laurea magistrale in Ingegneria Informatica (Computer Engineering)

Data	Esame	Crediti
24/01/2022	Data Science e Tecnologie per le Basi di Dati	8
31/01/2022	Computer network technologies and services	6
18/02/2022	Information systems security	6
23/06/2022	Web Applications I	6
27/06/2022	Cryptography	6
29/06/2022	Software engineering	8
08/09/2022	System and device programming	10
14/09/2022	Architetture dei sistemi di elaborazione	10
27/01/2023	Cybersecurity	6
30/01/2023	Human Computer Interaction	6
02/02/2023	Big data: architectures and data analytics	6
22/02/2023	Security verification and testing	6
12/09/2023	Web Applications II	6
15/12/2023	Tesi	30

## Laurea in Ingegneria Informatica

Data	Esame	Crediti
01/02/2019	Informatica	8
11/02/2019	Analisi matematica I	10
20/02/2019	Chimica	8
02/07/2019	Algebra lineare e geometria	10
05/07/2019	Imprenditorialità e Innovazione	6
10/07/2019	Fisica I	10
28/01/2020	Algoritmi e programmazione	12
31/01/2020	Elettrotecnica	8
07/02/2020	Fisica II	6
17/02/2020	Analisi matematica II	8
23/06/2020	Programmazione a oggetti	8
24/06/2020	Basi di dati	8
01/09/2020	Calcolatori elettronici	8
29/01/2021	Sistemi operativi	6
17/02/2021	Teoria ed elaborazione dei segnali	8
19/02/2021	Sistemi elettronici, tecnologie e misure	10
01/03/2021	Lingua inglese I livello	3
16/06/2021	Reti di calcolatori	8
24/06/2021	Metodi matematici per l'ingegneria	10
01/07/2021	Laboratorio di Internet	6
19/07/2021	Controlli automatici	10
31/08/2021	Elettronica applicata	8
22/10/2021	Prova finale	1

\* L'asterisco si riferisce ai dati certificati dall'Ateneo. L'eventuale descrizione della tesi è inserita direttamente dal candidato.