# **MICHELE BERETTA**

## **Researcher** @ UniBG

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## WORK EXPERIENCE

#### Security researcher

Università degli Studi di Bergamo

**2**023 – present

Bergamo, Italy

- A research position with the UniBG Security Lab. The main focus of research is WebAssembly and sandboxing technologies.
- Acquired skills: WebAssembly, Landlock, eBPF, Scientific writing, Teaching

## Occasional consulting work

#### Software consulting

2022 – present

- Various consulting work in Web and Mobile technologies. Among others, coded a real-time notification delivery system in Elixir.
- Acquired skills: Elixir, REST, Soft real-time systems

## Web & Mobile Developer

#### Info-bit S.r.l.

2017 - 2021

Gorlago, Italy

- Developed and designed a HR management website in JavaScript (React) and a React Native mobile app handling tens of thousands of daily usages.
- Acquired skills: JavaScript, React, Project management, Mobile development, iOS, Android, React Native

# **EDUCATION**

#### PhD in Engineering and Applied Sciences Università degli Studi di Bergamo

**2**023 – present

# MSc in Computer Science and Engineering

## Università degli Studi di Bergamo

**a** 2020 - 2022

Bergamo, Italy

Graduated with: 110L (summa cum laude)

# **BSc in Computer Science and Engineering**

## Università degli Studi di Bergamo

2017 - 2020

Bergamo, Italy

Bergamo, Italy

Graduated with: 110L (summa cum laude)

## IT Technical Institute

## Istituto E. Majorana

2012 - 2017

Seriate, Italy

Graduated with: 100L (summa cum laude)

C micheleberetta98

😭 scholar

## LANGUAGES

## Italian

English

Japanese

## SKILLS

#### **Computer Languages**

Haskell Elixir JS/HTML/CSS Python Rust	
C/C++ SQL LaTeX Shell scripting Java	Scala
WebAssembly	

#### **Systems**

Linux macOS Windows

## Frameworks & Tools

React/React Native Keras NodeJS Deno

Makefiles | Landlock | eBPF

#### Software Engineering

Software architecture Functional programming

Object-oriented programming Software design

Version control (Git) Project management

Web development Mobile development

# **AWARDS & RECOGNITION**



Scholarship "Roberto Rocca" Dalmine S.p.A.



🐨 Top Ten Students Program 2017, 2018, 2019, 2020, 2021



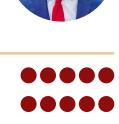
National Kangorou Competition 2014



#### **Italian Computer Science Olympics** 2013

## HOBBIES

Travelling | Hiking | Languages | Photography |



## SELECTED PUBLICATIONS

- [1] M. Abbadini, M. Beretta, D. Facchinetti, G. Oldani, M. Rossi, and S. Paraboschi, "POSTER: Leveraging eBPF to enhance sandboxing of WebAssembly runtimes," in *Proceedings of the 18th ACM ASIA Conference on Computer and Communications Security (ACM ASIACCS 2023)*, 2023. doi: 10.1145/3579856.3592831.
- [2] M. Abbadini et al., "Supporting data owner control in IPFS networks," in Proceedings of the IEEE International Conference Communications (IEEE ICC 2024), 2024. [Online]. Available: https://cs.unibg. it/seclab-papers/2024/ICC/ipfs.pdf
- [3] M. Abbadini, M. Beretta, D. Facchinetti, G. Oldani, M. Rossi, and S. Paraboschi, "Lightweight Cloud Application Sandboxing," in *Proceedings of the 14th IEEE International Conference on Cloud Computing Technology and Science (IEEE CLOUDCOM 2023)*, 2023. [Online]. Available: https://cs.unibg.it/ seclab-papers/2023/CLOUDCOM/dmng.pdf
- [4] S. Paraboschi and others, "D4.3 Final Encryptionbased Techniques," 2020. [Online]. Available: https://mosaicrown.eu/wp-content/uploads/ 2021/03/D4.3.pdf

# PROJECTS

# Integration between WASM runtimes and Landlock

#### Rust

The work for my master's thesis. It is an integration between Wasmtime and the Landlock LSM for the restriction of WASI runtimes. Skills: **WebAssembly, Landlock** 

## FreyaFS Python, C/C++

My bachelor thesis. It's a virtual file system for Linux/ macOS written with Python and FUSE supporting transparent encryption. Skills: **Unix file systems**, **Virtual file systems** 

## Hasking

#### Haskell

A very simple Turing Machine interpreter with its own parsable language and a TUI. Skills: Haskell, Language definition, Parsing, TUI building

## QKD Simulation Elixir, LaTeX

A project for the master's course of Computer Security. It's a multi-threaded simulation of the BB84 quantum key distribution protocol in Elixir. Skills: **Multithreaded programming**, **Actor model**