

MICHELE BERETTA

Researcher @ UniBG

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🎓 scholar



WORK EXPERIENCE

Security researcher

Università degli Studi di Bergamo

📅 2023 – 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

📅 2023 – present

📍 Bergamo, Italy

MSc in Computer Science and Engineering

Università degli Studi di Bergamo

📅 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

Graduated with: 110L (summa cum laude)

IT Technical Institute

Istituto E. Majorana

📅 2012 – 2017

📍 Seriate, Italy

Graduated with: 100L (summa cum laude)

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. 2021

🏆 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 Encryption-based 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**