

MICHELE BERETTA

Researcher @ UniBG

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michele-beretta
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.

2012 – 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)

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

IT Technical Institute

Istituto E. Majorana

📅 2012 – 2017

📍 Seriate, Italy

- Graduated with 100L (summa cum laude)

SELECTED PUBLICATIONS

👥 Conference Proceedings

- [1] M. Abbadini, M. Beretta, S. De Capitani di Vimercati, D. Facchinetti, S. Foresti, G. Oldani, S. Paraboschi, M. Rossi, and P. Samarati. “Supporting data owner control in IPFS networks”. In: *Proceedings of the IEEE International Conference Communications (IEEE ICC 2024)*. 2024.
- [2] 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.
- [3] 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.

📄 Tech Reports

- [4] S. Paraboschi et al. *D4.3 – Final Encryption-based Techniques*. Tech. rep. MOSAICrOWN, 2020.
(Deliverable) Co-authored Chapter 2: *Integration of the Aesmix library with a file system*.

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.
Url: <https://github.com/micheleberetta98/rust-wasm-landlock>.

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.
Url: <https://github.com/micheleberetta98/freya-fs>.

Skills: **Unix file systems, Virtual file systems**.

Hasking

Haskell

A very simple Turing Machine interpreter with its own parsable language and a TUI.
Url: <https://github.com/micheleberetta98/hasking>.
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.
Url: <https://github.com/micheleberetta98/qkd-sim>.
Skills: **Multithreaded programming, Actor model**.