Michele Beretta

Curriculum Vitae

PERSONAL INFORMATION

I am a researcher at the University of Bergamo, Italy, currently working with the Seclab research group.

EDUCATION

PhD in Engineering and Applied Sciences	2023 - present
Università degli Studi di Bergamo	Bergamo, Italy
 MSc in Computer Science and Engineering Università degli Studi di Bergamo Thesis: Enhancing WASI Sandboxes: Restricting WebAssembly Runtimes with Linu ules Advisor: Prof. Stefano Paraboschi Graduated with 110L (summa cum laude) 	2020 – 2022 Bergamo, Italy x Security Mod-
• BSc in Computer Science and Engineering Università degli Studi di Bergamo Thesis: FreyaFS: A virtual file system with Mix&Slice support Advisor: Prof. Stefano Paraboschi Graduated with 110L (summa cum laude)	2017 – 2020 Bergamo, Italy
• IT Technical Institute Istituto E. Majorana Graduated with 100L (summa cum laude)	2012 – 2017 Seriate, Italy
WORK EXPERIENCE	
 Security researcher Università degli Studi di Bergamo A research position with the UniBG Security Lab. The main focus of research is We sandboxing technologies. Acquired skills: WebAssembly, Landlock, eBPF, Scientific writing, Teaching 	2023 – present Bergamo, Italy ebAssembly and g.
• Occasional consulting work Various consulting work in Web and Mobile technologies. Among others, coded a re- tion delivery system in Elixir. Acquired skills: Elixir, REST, Soft real-time systems.	2022 – present al-time notifica-
• Web & Mobile Developer Info-bit S.r.l. Developed and designed a HR management website in JavaScript (React) and a Reac app handling tens of thousands of daily usages.	2012 – 2021 Gorlago, Italy et Native mobile

Acquired skills: JavaScript, React, Project management, Mobile development (iOS, Android, React Native).

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 A private scholarship for graduated bachelor students with a grade over 100/110 and a GPA over 3.60/4.00 in the first year of the MSc degree.
- Top Ten Students Program 2017, 2018, 2019, 2020, 2021 A scholarship by the University of Bergamo for students with a GPA over 3.73/4.00.
- National Kangorou Competition 2014

 A national group coding challenge, ranked 2nd place on a national level.

 Italian Computer Science Olympics 2013
- Italian Computer Science Olympics A national group problem solving challenge, ranked 12nd place on a national level.

LANGUAGES

- Italian Native.
- English Fluent.
- Japanese Elementary.

Projects

• Integration between WASM runtimes and Landlock Rust https://github.com/micheleberetta98/rust-wasm-landlock The work for my master's thesis. It is an integration between Wasmtime and the Landlock LSM for the restriction of WASI runtimes.

• FreyaFS

https://github.com/micheleberetta98/freya-fs

My bachelor thesis. It's a virtual file system for Linux/macOS written with Python and FUSE supporting transparent encryption.

• Hasking

https://github.com/micheleberetta98/hasking A very simple Turing Machine interpreter with its own parsable language and a TUI. Haskell

Python, C/C++

• QKD Simulation

https://github.com/micheleberetta98/qkd-sim

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.

HOBBIES

Travelling, Hiking, Languages, Photography.

PUBLICATIONS

- [1] Marco Abbadini, Michele Beretta, Sabrina De Capitani di Vimercati, Dario Facchinetti, Sara Foresti, Gianluca Oldani, Stefano Paraboschi, Matthew Rossi, and Pierangela Samarati. "Supporting data owner control in IPFS networks". In: Proceedings of the IEEE International Conference Communications (IEEE ICC 2024). 2024. URL: https://cs.unibg.it/seclab-papers/2024/ ICC/ipfs.pdf.
- [2] Marco Abbadini, Michele Beretta, Dario Facchinetti, Gianluca Oldani, Matthew Rossi, and Stefano Paraboschi. "Lightweight Cloud Application Sandboxing". In: Proceedings of the 14th IEEE International Conference on Cloud Computing Technology and Science (IEEE CLOUDCOM 2023). 2023. URL: https://cs.unibg.it/seclab-papers/2023/CLOUDCOM/dmng.pdf.
- [3] Marco Abbadini, Michele Beretta, Dario Facchinetti, Gianluca Oldani, Matthew Rossi, and Stefano 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. URL: https://cs.unibg.it/seclab-papers/2023/ASIACCS/poster/enhance-wasm-sandbox.pdf.
- [4] Stefano Paraboschi et al. D4.3 Final Encryption-based Techniques. Tech. rep. MOSAICrOWN, 2020. URL: https://mosaicrown.eu/wp-content/uploads/2021/03/D4.3.pdf.
 (Deliverable) Co-authored Chapter 2: Integration of the Aesmix library with a file system.