

# STEFANO BERLATO

## Computer Scientist, PhD

Researcher@Fondazione Bruno Kessler.

Keen on applied cryptography, cybersecurity, and cloud native.

Football coach, fantasy reader, and Game Master.



(this is a curated selection of my research activities; please refer to my [website](#) for more details)

## Contact Links



## Skills

### Things I Researched

Applied cryptography · identity&access management · end-to-end data protection · cloud native applications · distributed ledger technologies · cooperative, connected and automated mobility · Android · reverse engineering (anti-debugging)

### Things I Worked With

Java, Kotlin, and C++ programming (Rust is next) · LaTeX · cryptography and such (key management, programming of cryptographic methods) · blockchain technologies · cloud native applications, containers, and microservices · anti-debugging protections

### Things I Did and Learned

Academic and applied research in computer science security · design secure communication protocols for cloud-edge applications based on advanced cryptographic primitives such as ABE · conduct threat modeling and risk assessment · collaborate in European research projects

Write, present, and review scientific articles in conferences and peer-reviewed journals · prepare and deliver lectures and seminars at university courses, grading and exam preparation · develop educational materials and conduct training seminars

Supervise and mentor BSc and MSc students on thesis projects · guide junior researchers in academic and practical research

### Languages

Italian (mother tongue), English (C1)

## Experience

### Researcher

(Nov 2023 > on going)



Fondazione Bruno Kessler (FBK), Trento (Italy)

Research on applied cryptography and identity&access management for securing cloud native applications

### Research Assistant

(Oct 2018 > Oct 2020)



Fondazione Bruno Kessler (FBK), Trento (Italy)

Research activities on cloud, mobile, and automotive security. Design and implementation of protections against reverse engineering for Java and Android

### Android Reverse Engineering

(Jul > Oct 2018)



2ASPIRE, Trento (Italy)

Investigation of anti-tampering and anti-debugging protections against malicious reverse engineering

### Javascript Libraries Development

(Jun > Sep 2016)



Heas srl, Schio (Italy)

Design of two plugins for the commercial webbased SCADA platform ATWISE® through web technologies.

## Education

### University of Genoa and Fondazione Bruno Kessler

(FBK) - 2020 > 2023

PhD in Security, Risk and Vulnerability, Cybersecurity and Reliable Artificial Intelligence curriculum (cum laude)

### University of Trento - 2017 > 2019

Master degree in Computer Science, ICT Innovation and Security&Privacy curriculum (110 cum laude)

### University of Trento - 2014 > 2017

Bachelor degree in Computer Science (110 cum laude)

## Publications

Stefano Berlato, Matteo Rizzi, Matteo Franzil, Silvio Cretti, Pietro De Matteis, Roberto Carbone. **Work-in-Progress: A Sidecar Proxy for Usable and Performance-Adaptable End-to-End Protection of Communications in Cloud Native Applications** in *1st Workshop on Operating Systems and Virtualization Security (OSVS 2024)*

Stefano Berlato, Silvio Cretti, Domenico Siracusa, and Silvio Ranise. **Multi-Objective Microservice Orchestration: Balancing Security and Performance in CCAM** in *27th Conference on Innovation in Clouds, Internet and Networks (ICIN 2024)*

Davide Pizzolotto, Stefano Berlato, and Mariano Ceccato. **Mitigating Debugger-based Attacks to Java Applications with Self-Debugging** in *ACM Trans. Softw. Eng. Methodol (TOSEM)*

Stefano Berlato, Marco Centenaro, Silvio Ranise. **Smart Card-Based Identity Management Protocols for V2V and V2I Communications in CCAM: a Systematic Literature Review** in *IEEE Transactions on Intelligent Transportation Systems (T-ITS)*

Stefano Berlato, Roberto Carbone, Silvio Ranise, Adam J. Lee. **Formal Modelling and Automated Trade-Off Analysis of Enforcement Architectures for Cryptographic Access Control in the Cloud** in *ACM Transactions on Privacy and Security (TOPS)*

Andreas Heider-Aviet, Danny Roswin Ollik, Stefano Berlato, Silvio Ranise, Roberto Carbone, Van Thanh Le, Nabil El Ioini, Claus Pahl, Hamid R. Barzegar. **Blockchain Based RAN Data Sharing** in *IEEE International Conference on Smart Data Services 2021 (SMDS 2021)*

Stefano Berlato, Mariano Ceccato. **A Large-Scale Study on the Adoption of Anti-Debugging and Anti-Tampering Protections in Android Apps** in *Journal of Information Security and Applications (JISA)*

## Editorial Work and Community Service

- reviewing activity: 35+ papers for conferences and Q1 journals (e.g., IEEE TIFS, IEEE T-ITS)
- part of the organizing committee for TAC 24

## Teaching Activities

**University of Trento - 2024 > on going**  
**Teaching Assistant** for the master courses "Advanced Programming of Cryptographic Methods" and "Cryptographic Protocols for Secure Networks and Applications"

**University of Genoa - 2023 > on going**  
**Teacher** at the "Cybersecurity and Critical Infrastructure Protection" specialization course

**University of Trento - 2020 > 2024**  
**Teaching Assistant** for the bachelor course "Programming 101"

## Supervised Theses

Marco Soldera, *bachelor in Computer Science at the University of Trento (2024)*. **A Risk Assessment Methodology for VSNF Placement in Cloud Native Applications**

Simone Brunello, *bachelor in Computer Science at the University of Trento (2024)*. **Cryptographic Access Control for Balancing Trust, Protection, and Performance**

Ion Andy Ditu, *bachelor in Computer Science at the University of Trento (2024)*. **Leveraging Trusted Execution Environment for Efficient Revocation and Security in Cryptographic Access Control**

Alessandro Colombo, *bachelor in Computer Science at the University of Trento (2024)*. **Attribute Based Encryption for Advanced Data Protection in IoT with MQTT**

## Software Projects

- Kotlin Multiplatform for OpenABE  
[github.com/StefanoBerlato/kotlin-multiplatform-openabe](https://github.com/StefanoBerlato/kotlin-multiplatform-openabe)
- CryptoAC (Cryptographic Access Control)  
[github.com/stfbk/CryptoAC](https://github.com/stfbk/CryptoAC)
- ACE (AC state-change rule extraction procedurE)  
[aleph.fbk.eu/tools/ACE](https://aleph.fbk.eu/tools/ACE)
- ACME (Access Control Mechanisms Evaluator)  
[aleph.fbk.eu/tools/ACME](https://aleph.fbk.eu/tools/ACME)