STEFANO BERLATO

Computer Scientist, PhD

Researcher@Fondazione Bruno Kessler.
Keen on cybersecurity, applied cryptography, 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 and access management · trusted execution environments · end-to-end data protection · cloud native · distributed ledger technologies · cooperative, connected and automated mobility · Android · reverse engineering (anti-debugging)

Things I Worked With

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

Things I Did and Learned

Conduct academic and applied research · design secure cryptographic protocols · conduct threat modeling and risk assessment · collaborate in European research projects

Write, present, and review scientific articles · prepare and deliver university lectures, grading and exam preparation · develop educational materials and conduct training seminars · supervise and mentor BSc and MSc students as well as junior researchers

Plan self-organisation · interact professionally and develop networks · promote inclusion and diversity · work in teams · build mentor-mentee relationships · ensure wellbeing at work

Languages

Italian (mother tongue), English (C1)

Experience (selected)

Researcher
(Nov 2023 > on going)

Fondazione Bruno Kessler (FBK), Trento (Italy)

Research on applied cryptography, trusted execution environments, identity and access management, and cloud native applications

Research Assistant
(Oct 2018 > Oct 2020)

Fondazione Bruno Kessler (FBK), Trento (Italy)

Research on cloud, mobile, and automotive security. Design and implementation of protections against malicious reverse enginnering 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 ATVISE® 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 (selected)

S. Berlato, U. Morelli, R. Carbone. S. Ranise. **A Secure and Quality of Service-Aware Solution for the End to End Protection of IoT Applications** in *Journal of Network and Computer Applications (JNCA)*

I. A. Ditu, S. Berlato, M. Busi, R. Carbone, S. Ranise. **Work-in-Progress: Optimizing Performance of User Revocation in Cryptographic Access Control with Trusted Execution Environments** in *2nd Workshop on Operating Systems and Virtualization Security (OSVS 2025)*

S. Berlato, M. Rizzi, M. Franzil, S. Cretti, P. De Matteis, R. 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)*

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

S. Berlato, M. Centenaro, S. 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)*

A. Heider-Aviet, D. R. Ollik, S. Berlato, S. Ranise, R. Carbone, V. Thanh Le, N. El Ioini, C. Pahl, H. R. Barzegar. **Blockchain Based RAN Data Sharing** in *IEEE International Conference on Smart Data Services 2021 (SMDS 2021)*

S. Berlato, M. 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 (selected)

- reviewing activity: 35+ papers for conferences and Q1 journals (e.g., IEEE TIFS, IEEE T-ITS)
- part of the organizing committee for [TAC 24](#) and [TAC 25](#)

Teaching Activities (selected)

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 (selected)

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

- CryptoAC (Cryptographic Access Control)
  github.com/stfbk/CryptoAC

- ACE (AC state-change rule extraction procedurE)
  aleph.fbk.eu/tools/ACE

- ACME (Access Control Mechanisms Evaluator)
  aleph.fbk.eu/tools/ACME