STEFANO BERLATO

Computer Scientist, PhD

Researcher@FBK, De Cifris member
Keen on cloud security and applied cryptography
Football coach, KH fan, and D&D master

Contacts

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Teaching

University of Trento - 2020 > on going
Teaching Assistant for the Computer Science course "Programmazione 1"

University of Genoa - 2023
Teacher at the Cybersecurity and Critical Infrastructure Protection Master

Education

University of Genoa and Fondazione Bruno Kessler (FBK) - 2020 > 2023

PhD in Security, Risk and Vulnerability, Cybersecurity and Reliable Artificial Intelligence curriculum

University of Trento - 2017 > 2019

Master degree in Computer Science "ICT Innovation - Security&Privacy" 110L

University of Trento - 2014 > 2017

Bachelor degree in Computer Science 110L

Skills

Computer Science

Applied Cryptography, Authentication, Authorization, Reverse Engineering, Android, Basic DevOps knowledge, Software Engineering (Kotlin)

Languages

Italian (mother tongue), English (C1)

Experience

Researcher
(Nov 2023 > on going)
Fondazione Bruno Kessler (FBK), Trento (Italy)
Research on applied cryptography, security, and access control for cloud native applications

PhD Student
(Nov 2020 > Oct 2023)
University of Genoa, Genoa (Italy)
Fondazione Bruno Kessler (FBK), Trento (Italy)
Research on cryptographic access control in cloud-edge-IoT scenarios (eHealth, Cooperative Connected and Automated Mobility). Design of an architectural model for optimal enforcement of cryptographic access control policies

Assistant Researcher
(Oct 2018 > Oct 2020)
Fondazione Bruno Kessler (FBK), Trento (Italy)
Research activities on access control in the Cloud, mobile and automotive security. Research activities on Cooperative, Connected and Automated Mobility (5G-CARMEN project). Study and design of reverse engineering protections for Java and Android Apps

Master Thesis
University of Trento, Trento (Italy)
Fondazione Bruno Kessler (FBK), Trento (Italy)
A Pragmatic Approach to Handle "Honest but Curious" Cloud Service Providers: Cryptographic Enforcement of Dynamic Access Control Policies
Awarded 3rd prize at Thesis Award «Innovating information security» 15th edition - 2019, Clusit
github.com/StefanoBerlato/Master-Thesis

last update: 31-05-2024

Publications

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) (10.1109/ICIN60470.2024.10494482)*

Davide Pizzolotto, Stefano Berlato, and Mariano Ceccato
Mitigating Debugger-based Attacks to Java Applications with Self-Debugging
In *ACM Trans. Softw. Eng. Methodol (10.1145/3631971)*

Stefano Berlato, Umberto Morelli, Roberto Carbone, Silvio Ranise
End-to-End Protection of IoT Communications Through Cryptographic Enforcement of Access Control Policies
In *36th Annual IFIP WG 11.3 Conference on Data and Applications Security and Privacy (DBSec'22) (10.1007/978-3-031-10684-2_14)*

Reviewer Activity

Conferences
- 2019: ICISS
- 2020: SECRYPT, FPS, ICISS, DPM, DBSec, SACMAT
- 2021: SECRYPT, DPM, SACMAT, ITASEC, DBSec, FPS
- 2022: CODASPY, SECRYPT, DBSec, FedCSIS, ICISSP, FPS
- 2023: DBSec, ITASEC, SECRYPT, CODASPY, SACMAT, ICISS, FPS
- 2024: ICIN, WWW, ITASEC

Journals
- 2021: ScienceDirect - JISA
- 2023: EURASIP - JIS
- 2024: IEEE - TIFS

Open-source projects

- Kotlin Multiplatform for OpenABE
  github.com/StefanoBerlato/kotlin-multiplatform-openabe

Experience (cont.d)

Android Reverse Engineering
(Jul > Oct 2018)
2ASPIRE, Trento (Italy)
Research and analysis of best practices against malicious Reverse Engineering (RE) to increase the company's knowhow in Android RE anti-tampering and anti-debugging protections

Business Development Course
(Feb > Jul 2018)
University of Trento, Povo (Italy)
"Joni is a tool meant to help blind and visually impaired people to keep in touch with the world". Validate business idea through concrete analysis on the field and market research with the goal to make news and podcasts accessible by the blind community
github.com/StefanoBerlato/Joni

University Assistant: IT Assistant
University of Trento, Trento (Italy)
150 hours working contract under the "Information Systems Management" office, Support the deployment of the Digital University project, a new platform serving as Knowledge HUB within the university itself

Bachelor Thesis
University of Trento, Trento (Italy)
Development of a web based Interface for the Orchestration of Machine Learning Components
github.com/StefanoBerlato/Bachelor-Thesis

Android App - Course
(Feb > Jun 2017)
University of Trento, Trento (Italy)
Glumo is an Android application for helping people who suffer from diabetes with features like automatic alarms and emergency SMS. Design of monitoring services with direct BT connection with modern glycemic sensors
github.com/StefanoBerlato/Glumo
youtu.be/D86wqLJcGT

Publications (cont.d)

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) (10.1109/TITS.2021.3118721)*

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) (10.1145/3474056)*

Marco Centenaro, Stefano Berlato, Roberto Carbone, Gianfranco Burzio, Giuseppe Faranda Cordella, Roberto Riggio, and Silvio Ranise
Safety-Related Cooperative, Connected, and Automated Mobility Services: Interplay Between Functional and Security Requirements
In *IEEE Vehicular Technology Magazine (2021) (10.1109/MVT.2021.3089144)*

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) (10.1109/SMDS53860.2021.00029)*

Stefano Berlato, Roberto Carbone, Silvio Ranise
Cryptographic Enforcement of Access Control Policies in the Cloud: Implementation and Experimental Assessment
In *18th International Conference on Security and Cryptography (SECRYPT 2021) (10.5220/0010608003700381)*

Experience (cont.d)

Javascript plugins for Web SCADA (Jun > Sept 2016)
Heas srl, Schio (Italy)
Design of 2 plugins for the web-based SCADA platform ATVISE® in compliance with high-level HMI industrial standards. Developed gestures and tablet-style functionalities, dynamic object instantiation and linking to PLC data

Web Development - Course (Feb > Jun 2016)
University of Trento, Trento (Italy)
Agile design and development of a website with Java backend. Implementation of Model-View-Control while employing the DAO pattern for decoupling logic from storage
github.com/StefanoBerlato/eater

Supervised Theses

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 (2023)*
Leveraging Trusted Execution Environment for Efficient Revocation and Security in Cryptographic Access Control

Erica Elia, *master in Mathematics at the University of Trento (2023)*
A Key Recovery Protocol based on Threshold Secret Sharing for Cryptographic Access Control in the Cloud: The CryptoAC Use Case

Enrico Marconi, *bachelor in Computer Science at the University of Trento (2022)*
Combining Blockchain-as-a-Service and Cryptographic Access Control for Secure Data Sharing Across Multiple Organizations

Alessandro Colombo, *bachelor in Computer Science at the University of Trento (2022)*
Attribute Based Encryption for Advanced Data Protection in IoT with MQTT

Publications (cont.d)

Marco Centenaro, Stefano Berlato, Roberto
Carbone, Gianfranco Burzio, Giuseppe
Faranda Cordella, Silvio Ranise, Roberto
Riggio
**Security Considerations on 5G-Enabled
Back-Situation Awareness for CCAM**
*In IEEE 3rd 5G World Forum (5GWF'20)
(10.1109/5GWF49715.2020.9221064)*

Stefano Berlato, Roberto Carbone, Silvio
Ranise, Adam J. Lee
**Exploring Architectures for Cryptographic
Access Control Enforcement in the Cloud
for Fun and Optimization**
In *15th ACM ASIA Conference on Computer
and Communications Security (ASIACCS
2020) (10.1145/3320269.3384767)*

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, Issue number 52 (2020)
(10.1016/j.jisa.2020.102463)*

Supervised Theses (cont.d)

Veronica Cristiano, *master in Mathematics
at the University of Trento (2021)*
**Key Management for Cryptographic
Enforcement of Access Control Policies in
the Cloud: The CryptoAC Use Case**

Chaudhry Muhammad Suleman, *master in
Computer Science at the University of
Trento (2021)*
**Cyber-security Risk Assessment for
Cooperative, Connected and Automated
Mobility: Application to Cooperative Lane
Merging**