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Curriculum vitae

Personal information	**Enrico Cambiaso**
	Nationality
	Last update

WORK EXPERIENCE

June 2017 - present	
	### Technologist
	Consiglio Nazionale delle Ricerche (CNR-IEIIT) Genoa (Italy)
	Research technologist working on research activities on the network security field and with involvement on European, national and local research projects.

February 2016 - May 2017	
	### Research Fellow
	Consiglio Nazionale delle Ricerche (CNR-IEIIT) Genoa (Italy)
	Research activities in the network security field, concerning the study of innovative cyberthreats, design of novel intrusion detection systems, and implementation of attacks testing and distribution infrastructures. Involvement in European, national and local research projects.

January 2015 - June 2015	
	### External collaborator
	Selex ES
	Genoa (Italy)
	Development of a project focused on security for cloud based services (Device as a Service, DaaS).

January 2013 - January 2016	
	### Research Fellow
	Consiglio Nazionale delle Ricerche (CNR-IEIIT)
	Genoa (Italy)
	Research activities in the network security field, concerning the study of innovative cyberthreats, design of novel intrusion detection systems, and implementation of attacks testing and distribution infrastructures. Involvement in European, national and local research projects.

January 2013 - January 2015	
	### External collaborator
	Ansaldo STS
	Genoa (Italy)
	Study and development of a software and hardware virtual patching system identifying and preventing malware spread on non updated ICT networks.

2008	
	### Software and web developer
	Planet HT S.r.l.
	Genoa (Italy)

2004   ## Software developer

Genoa (Italy)

For two months, computer programmatore for the development of a management software written in Visual Basic programming language.

TEACHING ACTIVITIES

September 2021 - June 2022   ## University teacher

Università degli Studi di Genova (DITEN, Scuola Politecnica, Ingegneria Informatica) Genoa (Italy)

University teacher for the course "STRATEGOS - Strategies for Telecommunications" (2021/2022), by Università degli Studi di Genova, for a total duration of 10 hours. Selection prot. UNIGE n. 3016/2021 dated May 26, 2021. CNR communication n. 8703/2021.

September 2020 - November 2020

External Ph.D. thesis reviewer

International Institute of Information Technology Bangalore (Deemed University) Bangalore (India)

External reviewer for the Ph.D. thesis titled "Feedback manipulation in next generation transport layer protocols: emerging threats and counter measures", submitted by V. Anil Kumar (student enrollment n. PH2011006), under the supervision of Prof. Debabrata Das, IIITB.
CNR communication n. 6213 dated September 30, 2020.

October 2020 - June 2021   ## University teacher

Università degli Studi di Genova (DITEN, Scuola Politecnica, Ingegneria Informatica) Genoa (Italy)

University teacher for the course "STRATEGOS - Strategies for Telecommunications" (2020/2021), by Università degli Studi di Genova, for a total duration of 10 hours. CNR communication n. 5768 dated August 18, 2020.

September 4-10, 2020   ## University master teacher

Università degli Studi di Genova
Genoa (Italy)

Teaching activities of the second grade university master on "Cybersecurity and Critical Intrastructure Protection" (2019/2020), by Università degli Studi di Genova, relatively to the Network Security module, for a total duration of 4 hours. CNR SIPER assignment n. 5852/2020.

September 2019 - September 2020

University teacher

Università degli Studi di Genova
Genoa (Italy)

University teacher for the course "STRATEGOS - Strategies for Telecommunications" (2019/2020), by Università degli Studi di Genova, for a total duration of 10 hours. CNR communication n. 4904 dated February 21, 2020,

June 2019   ## University master teacher

For three months, computer programmer for the development of a management software in Microsoft Visual Studio environments, with support to both mobile and web clients.

Università degli Studi di Genova Genova
(Italy)

Teaching activities of the second grade university master on "Cybersecurity and critical infrastructure protection" (2018/2019), by Università degli Studi di Genova, relatively to the Network Security module, for a total duration of 4 hours. CNR communication n. 3050 dated June 11, 2019.

June 2019 - Current

October 2017 - May 2021   **Ph.D. thesis supervisor**

Università degli Studi di Genova (DIBRIS, Scuola Politecnica, Ingegneria Informatica) Genoa (Italy)

Supervision of the Ph.D. thesis titled "Security aspects about Internet of Things networks, devices and communication protocols" by Dr. Ivan Vaccari.

July 2016 - March 2017

Master thesis supervisor

Università degli Studi di Genova (DIBRIS, Scuola Politecnica, Ingegneria Informatica) Genova (Italy)

Supervision of the master thesis titled "Analisi di sicurezza in ambienti IoT implementati attraverso il protocollo Wi-Fi" by Dr. Federico Pastorino.

July 2016 - March 2017

Master thesis supervisor

Università degli Studi di Genova (DIBRIS, Scuola Politecnica, Ingegneria Informatica) Genova (Italy)

Supervision of the master thesis titled "Studio delle problematiche di sicurezza su reti ZigBee in riferimento al fenomeno Internet of Things" by Dr. Ivan Vaccari.

Master thesis supervisor

January 2013 - July 2013   Università degli Studi di Genova (DIBRIS, Dipartimento di Informatica) Genova (Italy)

Supervision of the master thesis titled "Analisi e Sviluppo di una Rete Cooperativi per attacchi di tipo 'Slow DoS' Utilizzando Dispositivi Mobili" by Dr. Paolo Farina.

RESPONSIBILITIES

September 2020 - Current

Scientific responsible of Laboratorio Virtuale Cybersecurity

Consiglio Nazionale delle Ricerche (CNR)

Scientific responsible of Laboratorio Virtuale Cybersecurity, regarding the involvement of the IEIIT institute on the laboratory. Provv. CNR-DIITET dated September 15, 2020.

May 2020 - Current

Responsible of the Network Infrastructure Service

CNR - IEIIT Institute
Genoa (Italiy)

Resposible of the Network Infrastructure Service at Genoa headquarters of the IEIIT institute of Consiglio Nazionale delle Ricerche (CNR), relatively to the 1611 room of Area della Ricerca de CNR di Genova. CNR-IEIIT protocol n. 776/2020 dated May 8, 2020.

Public hacking challenge organizer

April 2019 - November 2019

Consiglio Nazionale delle Ricerche (CNR)
Roma (Italia)

Role of organizer of a public hacking challenge, in the context of the EU project My Health My Data, Horizon 2020 - ICT'18-2016, grant agreement No 732907. Protocol CNR IEIIT n. 13 dated January 9, 2020.

Access Port Manager (APM)

Consiglio Nazionale delle Ricerche (CNR) Roma
(Italia)

Role of Access Port Manager inside of Area della Ricerca del CNR of Genoa (Italy), for the following institutes of CNR located in Genoa (Italy): ARiGe, IBF, IEIIT, ICMATE, ILC, IMATI, ISMAC, IAS, INM, ITD. Protocol CNR IEIIT n. 992 dated June 27, 2019.

May 2019 - Current

Consiglio Nazionale delle Ricerche (CNR-IEIIT) Genoa (Italy)

Member of the fire suppression team of the CNR-IEIIT institute (as reported in a CNR-IEIIT document dated May 29, 2019).

April 2019 - May 2019

Member of the commission for a public competition notice

Consiglio Nazionale delle Ricerche (CNR-IEIIT) Genoa (Italy)

Member of the evaluating commission for a public competition notice for a research fellow position in the machine learning field (public notice CNR IEIIT-004-2019-GE).

April 2019 - May 2019

Member of the commission for a public competition notice

Consiglio Nazionale delle Ricerche (CNR-IEIIT) Genoa (Italy)

Member of the evaluating commission for a public competition notice for a research fellow position in the fintech field (public notice CNR IEIIT-003-2019-GE).

Member of Comitato G6 of the CNR-IEIIT institute

June 2018 - Current

Consiglio Nazionale delle Ricerche (CNR-IEIIT) Genoa (Italy)

Member of Comitato G6 of CNR-IEIIT, representing the Network Security group of the institute. CNR-IEIIT document dated June 19, 2018. Protocol n. 1089.

EDUCATION AND TRAINING

2013 - 2016

Ph.D

Università degli Studi di Genova (DIBRIS) Genoa
(Italy)

Obtained Ph.D in computer science (network and cyber security field), with thesis titled "Development and Detection of Slow DoS Attacks". The research work was accomplished in collaboration with Consiglio Nazionale delle Ricerche (CNR-IEIIT) of Genoa, Italy.

2010 - 2012

Master Degree

Università degli Studi di Genova (DIBRIS)
Genoa (Italy)

Obtained master degree in computer science, curriculum "Software development", with thesis titled "Analysis of Slow DoS Attacks". The research work was accomplished in collaboration with Consiglio Nazionale delle Ricerche (CNR-IEIIT) of Genoa, Italy. Final score: 110/110 with honour.

2004 - 2009

Bachelor Degree

Università degli Studi di Genova (DIBRIS)
Genoa (Italy)

Obtained bachelor degree in computer science, curriculum "Software development", with thesis titled "Tipologie di attacchi a reti wireless protette". The research work was accomplished in collaboration with Consiglio Nazionale delle Ricerche (CNR-IEIIT) of Genoa, Italy.

1998 - 2003

High School Degree

Member of fire suppression team

Istituto Tecnico Superiore Giuseppe Cesare Abba Genoa
(Italy)

Obtained high school degree as accountant, computer science program.

PROFESSIONAL CERTIFICATIONS

eLearnSecurity Network Defense Professional (eNDP)

Obtained certificate of the eLearnSecurity Network Defense Professional (eNDP) course, issued by eLearnSecurity and relative to the security of an ICT network. Course completed on January 15, 2021 (Certificate n. 9224207). URL: https://elearnsecurity.com/product/endpcertification/

eLearnSecurity Certified Incident Responder (eCIR)

Obtained certificate of the eLearnSecurity Certified Incident Responder (eCIR) course, issued by eLearnSecurity and relative to incident handling procedures and processes. Course completed on March 20, 2021 (Certificate n. 3240953). URL: https://elearnsecurity.com/product/ecir-certification/

Splunk 7.x Fundamentals Part 1 (eLearning)

Obtained certificate of the Splunk 7.x Fundamentals Part 1 (eLearning) course, issued by Splunk and relative to the use of the Splunk SIEM tool. Course completed on March 22, 2021. URL: https://www.splunk.com/en_us/training/free-courses/splunk-fundamentals-1.html

Rulex Academy Certification – Level 1 – Rulex Basic Training

Obtained Rulex Academy Certification – Level 1 – Rulex Basic Training certificate, issued by Rulex Inc. and relative to the use of the big data processing software Rulex Analytics. Course completed on May 8, 2020. URL: https://www.rulex-inc.com

Mind Mapping: Unlock Your Brain Power with Mind Mapping

Obtained certificate of the Mind Mapping: Unlock Your Brain Power with Mind Mapping course, issued by Udemy and relative to mind mapping techniques. Course completed on March 17, 2020 (Certificate n. UC-5c035e83-6691-4246-8846-d4d171beb3c0). URL: https://ude.my/UC-5c035e83-6691-4246-8846-d4d171beb3c0

Cybersecurity Essentials

Obtained certificate of the Cybersecurity Essentials course, issued by Cisco Networking Academy - ASSINT - Associazione per lo sviluppo dell'Innovazione e delle Nuove Tecnologie. Course completed on April 9, 2020. URL: https://www.netacad.com/courses/cybersecurity/cybersecurity-essentials

AWS Innovate Online Conference - Machine Learning and AI edition

Obtained certificate of the AWS Innovate Online Conference - Machine Learning and AI edition course, issued by Amazon. Course completed on October 17, 2019. URL: https://aws.amazon.com/it/events/aws-innovate/machine-learning/

CISSP Security

Obtained certificate of the CISSP Security course, issued by IT Masters. Course completed on October 23, 2019. URL: https://www.itmasters.edu.au/free-short-course-cissp-security/

eLearnSecurity Mobile Application Penetration Tester (eMAPT)

Obtained eLearnSecurity Mobile Application Penetration Tester certificate, issued by eLearnSecurity and relative to the study of security aspects for the development of mobile apps. Course completed on January 28, 2018 (Certificate ID: EMAPT-6753). URL: https://www.elearnsecurity.com/certification/emapt/

Introduction to Cybersecurity by Cisco Networking Academy

Obtained Introduction to Cybersecurity certificate, issued by Cisco Networking Academy and relative to the cyber-security context. Certification achieved on January 29, 2018. URL: https://www.netacad.com/courses/intro-cybersecurity/

HTML Fundamentals course

Obtained certificate of the HTML Fundamental course, issued by SoloLearn and relative to the HTML mark-up language. Course completed on September 30, 2018 (Certificate n. 101411060174). URL: https://www.sololearn.com/Course/HTML/

100W - Operational Security (OPSEC) for Control Systems

Obtained certificate of the 100W - Operational Security (OPSEC) for Control Systems course, issued by Industrial Control Systems Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on October 1, 2018. URL: https://us-cert.cisa.gov

210W-01 Cybersecurity for Industrial Control Systems Differences in Deployments of ICS

Obtained certificate of the 210W-01 Cybersecurity for Industrial Control Systems - Differences in Deployments of ICS course, issued by Industrial Control Systems Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on October 4, 2018. URL: https://us-cert.cisa.gov

210W-02 Cybersecurity for Industrial Control Systems - Influence of Common IT Components on ICS Obtained certificate of the 210W-02 Cybersecurity for Industrial Control Systems - Influence of Common IT Components on ICS course, issued by Industrial Control Systems Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on October 5, 2018. URL: https://us-cert.cisa.gov

210W-03 Cybersecurity for Industrial Control Systems -

Common ICS Components	Industrial Control Systems - Common ICS Components course, issued by Industrial Control Systems
210W-04 Cybersecurity for Industrial Control Systems - Cybersecurity within IT & ICS Domains	Obtained certificate of the 210W-04 Cybersecurity for Industrial Control Systems - Cybersecurity within IT & ICS Domains course, issued by Industrial Control Systems Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on October 8, 2018. URL: https://us-cert.cisa.gov
210W-05 Cybersecurity for Industrial Control Systems Cybersecurity Risk	Obtained certificate of the 210W-05 Cybersecurity for Industrial Control Systems - Cybersecurity Risk course, issued by Industrial Control Systems Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on October 9, 2018. URL: https://us-cert.cisa.gov
210W-06 Cybersecurity for Industrial Control Systems Current Trends (Threats)	Obtained certificate of the 210W-06 Cybersecurity for Industrial Control Systems - Current Trends (Threats) course, issued by Industrial Control Systems Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on October 10, 2018. URL: https://us-cert.cisa.gov
210W-07 Cybersecurity for Industrial Control Systems Current Trends (Vulnerabilities)	Obtained certificate of the 210W-07 Cybersecurity for Industrial Control Systems - Current Trends (Vulnerabilities) course, issued by Industrial Control Systems Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on October 11, 2018. URL: https://us-cert.cisa.gov
210W-08 Cybersecurity for Industrial Control Systems - Determining the Impacts of a Cybersecurity Incident	Obtained certificate of the 210W-08 Cybersecurity for Industrial Control Systems - Determining the Impacts of a Cybersecurity Incident course, issued by Industrial Control Systems Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on October 12, 2018. URL: https://us-cert.cisa.gov
210W-09 Cybersecurity for Industrial Control Systems - Attack Methodologies in IT & ICS	Obtained certificate of the 210W-09 Cybersecurity for Industrial Control Systems - Attack Methodologies in IT & ICS course, issued by Industrial Control Systems Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on October 13, 2018. URL: https://us-cert.cisa.gov
210W-10 Cybersecurity for Industrial Control Systems - Mapping IT Defense-In-Depth Security Solutions to ICS	Obtained certificate of the 210W-10 Cybersecurity for Industrial Control Systems - Mapping IT Defense-In-Depth Security Solutions to ICS course, issued by Industrial Control Systems Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on October 15, 2018. URL: https://us-cert.cisa.gov
eLearnSecurity Junior Penetration Tester (eJPT)	Obtained eLearnSecurity Junion Penetration Tester certificate, issued by eLearnSecurity and relative to the study of vulnerability assessment e penetration testing activities. Course completed on August 16, 2017 (Certificate ID: EJPT-200555). URL: https://www.elearnsecurity.com/certification/ejpt/
IBM Blockchain Essentials	Obtained IBM Blockchain Essentials badge, issued by IBM and relative to the study of basic information for the implementation of a software system based on the blockchain technology. Course completed on November 27, 2017. URL: https://www.youracclaim.com/badges/437902f3-8c2d-4565-abd0-c2675ca19ff6
Blockchain Foundation Developer	Obtained IBM Blockchain Foundation Developer badge, issued by IBM and relative to the implementation of a software system based on the Hyperledger platform. Course completed on November 30, 2017. URL: https://www.youracclaim.com/badges/b59b0137-e092-42c0-8f77909aa26cd3ae
Bitcoin and Cryptocurrency Technologies	Student of the Bitcoin and Cryptocurrency Technologies course, issued by Princeton University and distributed online through Coursera service. The course describes in detail the blockchain and crypto-currencies fields. Course completed on December 28, 2016, with the

Obtained certificate of the   Cyber Emergency Response Team - U.S. Department of Homeland Security. Course completed on
210W-03 Cybersecurity for   October 7, 2018. URL: https://us-cert.cisa.gov

The Basic Rulex Training Course

final score of 92/100. URL: https://www.coursera.org/learn/cryptocurrency

Obtained The Basic Rulex Training Course certificate, issued by Rulex Inc. and relative to the use of the big data processing software Rulex Analytics. Course completed on October 9, 2015. URL: https://www.rulex-inc.com

Nessus Vulnerability and Compliance Auditing – On Demand

Obtained certificate of the Nessus Vulnerability and Compliance Auditing - On Demand course, issued by Teenable Network Security and relative to the use of the vulnerability assessment software Nessus. Course completed on August 8, 2013. URL: https://www.tenable.com/products/nessus-vulnerability-scanner

RESEARCH RESULTS

Scientific papers

Preventing MQTT Vulnerabilities Using IoT-Enabled Intrusion Detection System. *Sensors*, 22(2), 2022. doi: 10.3390/s22020567

Analysis of the cyber-attacks executed during the Russia-Ukraine conflict. In *International Scientific and Practical Internet Conference - Russia-Ukraine War: Consequences for the World (2022)*, page 9. WayScience, 2022 A Generative Adversarial Network (GAN) Technique for Internet of Medical Things Data. *Sensors*, 21(11):3726, may 2021c. ISSN 1424-8220. doi: 10.3390/s21113726

Identifying and Mitigating Phishing Attack Threats in IoT Use Cases Using a Threat Modelling Approach. *Sensors*, 21(14):4816, jul 2021. ISSN 1424-8220. doi: 10.3390/ s21144816

Exploiting Internet of Things Protocols for Malicious Data Exfiltration Activities. *IEEE Access*, 9:104261–104280, 2021b. ISSN 2169-3536. doi: 10.1109/ACCESS.2021.3099642 Evaluating the possibility to perpetrate tunnelling attacks exploiting short-message-service. *Journal of Internet Services and Information Security (JISIS)*, 11:30–46, 2021c. doi: 10. 22667/JISIS.2021.08.31.030

DoS Attacks in Available MQTT Implementations: Investigating the Impact on Brokers and Devices, and Supported Anti-DoS Protections. In *The 16th International Conference on Availability, Reliability and Security*, ARES 2021. Association for Computing Machinery, 2021. ISBN 9781450390514. doi: 10.1145/3465481.3470049

From Explainable to Reliable Artificial Intelligence. In Andreas Holzinger, Peter Kieseberg, A Min Tjoa, and Edgar Weippl, editors, *CD-MAKE 2021: Machine Learning and Knowledge Extraction*, pages 255–273, Cham, 2021a. Springer International Publishing. ISBN 978-3030-84060-0. doi: 10.1007/978-3-030-84060-0_17

On the feasibility of covert channels through Short-Message-Service. In *Italian Conference on CyberSecurity (ITASEC21)*, 2021b

Perpetrate cyber-attacks using IoT devices as attack vector: the ESP8266 use case. In *Italian Conference on CyberSecurity (ITASEC21)*, 2021d

An Innovative 0-Day Attack against ZigBee: Exploitation and Protection System Analysis. In *Theory and Practice of Mathematics and Computer Science Vol. 8*, number SE - Chapters, chapter 10, pages 146–166. feb 2021a. doi: 10.9734/bpi/tpmcs/v6/6969D

SlowITe, a Novel Denial of Service Attack Affecting MQTT. *Sensors*, 20(10), 2020b. ISSN 1424-8220. doi: 10.3390/s20102932 Innovative Protection System Against Remote AT Command Attacks on ZigBee Networks. *Computer Sciences*, 2(4):2–8, 2020a

SlowTT: A slow denial of service against IoT networks. *Information (Switzerland)*, 11(9), 2020e. ISSN 20782489. doi: 10.3390/INFO11090452

MQTTset, a New Dataset for Machine Learning Techniques on MQTT. *Sensors*, 20(22): 6578, 2020c

Challenges and Opportunities of IoT and AI in Pneumology. In *2020 23rd Euromicro Conference on Digital System Design (DSD)*, pages 285–292. IEEE, 2020. ISBN 1728195357

Detection and Classification of Slow DoS Attacks Targeting Network Servers. In *Proceedings of the 15th International Conference on Availability, Reliability and Security*, ARES '20, New York, NY, USA, 2020a. Association for Computing Machinery. ISBN 9781450388337. doi: 10.1145/3407023.3409198

Protecting the ESP8266 Module from Replay Attacks. In *2020 International Conference on Communications, Computing, Cybersecurity, and Informatics (CCCI)*, pages 1–6. IEEE, 2020d

FINSTIX: A Cyber-Physical Data Model for Financial Critical Infrastructures. *Cyber-Physical Security for Critical Infrastructures Protection*, 12618:48, 2020a

FINSTIX: A Security Data Model for the Financial Sector. In *CYBER-PHYSICAL THREAT INTELLIGENCE FOR CRITICAL INFRASTRUCTURES SECURITY*, chapter 3, page 34. 2020b

Adaptive and Intelligent Data Collection and Analytics for Securing Critical Financial Infrastructure. In *CYBER-PHYSICAL THREAT INTELLIGENCE FOR CRITICAL INFRASTRUCTURES SECURITY*, chapter 7, page 104. 2020

Detection of innovative low-rate denial of service attacks against critical infrastructures. In *Cyber-Physical Threat Intelligence for Critical Infrastructures Security: A Guide to Integrated Cyber-Physical Protection of Modern Critical Infrastructures*, chapter 19, page 346. 2020b. doi: 10.1561/9781680836875.ch19

Introducing the SlowDrop Attack. *Computer Networks*, 150:234–249, feb 2019a. ISSN 1389-1286. doi: 10.1016/J.COMNET.2019.01.007

Evaluating Security of Low-Power Internet of Things Networks. *International Journal of Computing and Digital Systems*, 8(2):101–114, 2019. doi: 10.12785/ijcds/080202

Darknet Security: A Categorization of Attacks to the Tor Network. In *ITASEC19*, Pisa, Italy, 2019b. CEUR Workshop Proceedings

Key Innovations in ANASTACIA: Advanced Networked Agents for Security and Trust Assessment in CPS/IOT Architectures. In *Challenges in Cybersecurity and Privacy - the European Research Landscape*, chapter 2, pages 23–53. River Publishers, 2019. ISBN 9788770220880. doi: 10.13052/rp-9788770220873

Measuring the energy consumption of cyber security. *IEEE Communications Magazine*, 55 (7), 2017. ISSN 01636804. doi: 10.1109/MCOM.2017.1600955   Slowcomm: Design, development and performance evaluation of a new slow DoS attack. *Journal of Information Security and Applications*, 35, 2017. ISSN 22142126. doi: 10.1016/ j.jisa.2017.05.005

Remotely Exploiting at Command Attacks on ZigBee Networks. *Security and Communication Networks*, 2017, 2017. ISSN 19390122. doi: 10.1155/2017/1723658

A Network Traffic Representation Model for Detecting Application Layer Attacks. *International Journal of Computing and Digital Systems*, 5(1):31–42, 2016. doi: 10.12785/ijcds/ 050104

Are mobile botnets a possible threat? the case of SlowBot Net. *Computers and Security*, 58, 2016. ISSN 01674048. doi: 10.1016/j.cose.2016.02.005

Profiling DNS tunneling attacks with PCA and mutual information. *Logic Journal of IGPL*, pages 1–14, 2016. doi: 10.1093/jigpal/jzw056

Feature transformation and Mutual Information for DNS tunneling analysis. In *International Conference on Ubiquitous and Future Networks, ICUFN*, volume 2016-Augus, 2016. ISBN 9781467399913. doi: 10.1109/ICUFN.2016.7536939

Malware development on mobile environments. In *Proceedings - 2016 4th International Conference on Future Internet of Things and Cloud Workshops, W-FiCloud 2016*, 2016. ISBN 9781509039463. doi: 10.1109/W-FiCloud.2016.62

Implementation of SlowDroid: Slow DoS Attack Performed by a Smartphone. *International Journal of Computing and Digital Systems*, 4(3):165–173, 2015. doi: 10.12785/ijcds/040303

Mobile executions of Slow DoS attacks. *Logic Journal of the IGPL*, 24(1), 2014. ISSN 13689894. doi: 10.1093/jigpal/jzv043

Designing and modeling the slow next Dos attack, volume 369. 2015. ISBN 9783319197128. doi: 10.1007/978-3-319-19713-5_22

Detection of DoS attacks through Fourier transform and mutual information. In *IEEE International Conference on Communications*, volume 2015-Septe, 2015. ISBN 9781467364324. doi: 10.1109/ICC.2015.7249476

Perpetrate network attacks from mobile devices. In *International Conference on Ubiquitous and Future Networks, ICUFN*, volume 2015-Augus, 2015. ISBN 9781479989935. doi: 10. 1109/ICUFN.2015.7182614

Understanding DDoS Attacks from Mobile Devices. In *Proceedings - 2015 International Conference on Future Internet of Things and Cloud, FiCloud 2015 and 2015 International Conference on Open and Big Data, OBD 2015*, 2015. ISBN 9781467381031. doi: 10.1109/ FiCloud.2015.19

Mobile Botnets Development: Issues and Solutions. *International Journal of Future Computer and Communication*, 3(6):385–390, 2014a. doi: 10.7763/IJFCC.2014.V3.333

Slowreq: A weapon for cyberwarfare operations. Characteristics, limits, performance, remediations, volume 239. 2014. ISBN 9783319018539. doi: 10.1007/978-3-319-01854-6_55

SlowDroid: Turning a smartphone into a mobile attack vector. In *Proceedings - 2014 International Conference on Future Internet of Things and Cloud, FiCloud 2014*, 2014. ISBN 9781479943586. doi: 10.1109/FiCloud.2014.72

An on-line intrusion detection approach to identify low-rate DoS attacks. In *Proceedings - International Carnahan Conference on Security Technology*, volume 2014-Octob, 2014b. doi: 10.1109/CCST.2014.6987039

Slow DoS attacks: definition and categorisation. *Int. J. Trust Management in Computing and Communications*, 1(3-4):300–319, 2013. ISSN 2048-8378. doi: 10.1504/IJTMCC.2013. 056440

A similarity based approach for application DoS attacks detection. In *Proceedings - International Symposium on Computers and Communications*, 2013. ISBN 9781479937554. doi: 10.1109/ISCC.2013.6754984

Taxonomy of slow DoS attacks to web applications, volume 335 CCIS.   2012.   ISBN 9783642341342. doi: 10.1007/978-3-642-34135-9_20

Technical reports

Utilizzo del software implementato in grado di importare le timbrature orarie del personale all'interno dei relativi fogli presenza. Technical report, IEIIT-CNR n. 1197/2021, 2021

IoT-Flock: guida all'installazione ed utilizzo di un tool per generare traffico IoT attraverso i protocolli MQTT e CoAP. Technical report, IEIIT-CNR n. 924/2020, 2020

Esecuzione di attacchi Denial of Service su apparati per l'ufficio ed IoT. Technical report, IEIIT-CNR-190313, 2019a

Controllo di una pompa peristaltica Marlow Watson 323du attraverso creazione di hardware e software ad-hoc. Technical report, IEIIT-CNR Prot. 1094, 2019b

Protezione di dati a fronte di attacchi di tipo ransomware, attraverso utilizzo di soluzioni cloud-based. Technical report, IEIIT-CNR Prot. 1420, 2019c

Progettazione e costruzione di un sito di gruppo IEIIT attraverso un approccio "dynamic-tostatic". Technical report, IEIIT-CNR-180911, 2018a

Processo di stampa 3D con FormLabs Form 2. Technical report, IEIIT-CNR-181029, 2018b

Survey su algoritmi di encryption, hashing e HMAC. Technical report, IEIIT-CNR-141217, 2017a

Analisi del ransomware WannaCry. Technical report, IEIIT-CNR-170517, 2017b

Analysis of the ESP8266 Chip. Technical report, IEIIT-CNR-160822, 2016a

Analysis of the ZigBee protocol. Technical report, IEIIT-CNR-160822, 2016b

Analysis of an Android Suspect Application. Technical report, IEIIT-CNR-160906, 2016c

Analysis of Wireless Attacks using Kali Distribution. Technical report, IEIIT-CNR-160908, 2016d

Analysis of Dirty COW Exploit. Technical report, IEIIT-CNR-161103, 2016e

Analysis of the Mirai botnet. Technical report, IEIIT-CNR-161116, 2016f Soluzioni innovative per la progettazione di un'infrastruttura di telecomunicazioni affidabile. Technical report, IEIIT-CNR-150212, 2015a

Scelta dei protocolli di rete per la progettazione di una rete affidabile. Technical report, IEIIT-CNR-150213, 2015b

Analisi degli aspetti di sicurezza, affidabilità, riservatezza (SAR) negli Intelligent Transportation Systems (ITS). Technical report, IEIIT-CNR-150216, 2015c

Analysis of the Logjam attack. Technical report, IEIIT-CNR-150608, 2015d

Tecnologie Wi-Fi ed Utilizzo nelle Reti Cittadine.Technical report, IEIIT-CNR-120615, 2015e

Infrastruttura Informatica Virtualizzata attraverso VMware. Technical report, IEIIT-CNR150824, 2015f

DDoS Botnets: Operations and Toolkits. Technical report, IEIIT-CNR-01/2014-GE, 2014a

Analysis of the Heartbleed Bug. Technical report, IEIIT-CNR-02/2014-GE, 2014b

The Insider Threat Problem. Technical report, IEIIT-CNR-03/2014-GE, 2014c

Users Authentication Security. Technical report, IEIIT-CNR-04/2014-GE, 2014d

Database Security. Technical report, IEIIT-CNR-05/2014-GE, 2014e

An Approach for Structuring and Organizing Scientific Results. Technical report, IEIIT-CNR06/2014-GE, 2014f

Implementation of the isDown Federated Network. Technical report, IEIIT-CNR-07/2014GE, 2014g

Performance Analysis of DNS Tunneling Methodologies. Technical report, IEIIT-CNR08/2014-GE, 2014h

A Survey on Current Tunneling Techniques. Technical report, IEIIT-CNR-09/2014-GE, 2014i

Analysis of the Shellshock bug. Technical report, IEIIT-CNR-10/2014-GE, 2014j   Design and Development of an Intrusion Detection System for Detecting Tunneling Attacks. Technical report, IEIIT-CNR-11/2014-GE, 2014k

IT Communications Security Fundamentals.   Technical report, IEIIT-CNR-12/2014-GE, 2014l

Panoramica delle Implementazioni di Attacchi di Tipo "Slow DoS Attacks" e Relativi Algoritmi di Intrusion Detection. Technical report, IEIIT-CNR-13/2014-GE, 2014m

Introducing the SlowNext Attack. Technical report, IEIIT-CNR-09/2013-GE, 2013

Analisi delle problematiche di sicurezza in ambiente Cloud.   Technical report, IEIIT-CNR-02/2012-GE, 2012

Keynote speechs

International Conference on Intelligent Systems and Computation (ICISC-2022), 2022, "The evolution of Denial of Service attacks"

Other speechs

NFT: La tecnologia al servizio della certificazione di autenticità, 2022, "NFT: la tecnologia alla base dei non-fungible token"

Discovered CVEs

CVE-2020-138549

CVE-2017-18868

Conference and workshop chair

The 3rd International Workshop on Cyber-Physical Security for Critical Infrastructures Protection (CPS4CIP 2022), 2022 The 2nd International Workshop on Cyber-Physical Security for Critical Infrastructures Protection (CPS4CIP 2021), 2021

1st International Workshop on Cyber-Physical Security for Critical Infrastructures Protection (CPS4CIP 2020), 2020

Editorial Board

SCIREA, Journal of Computer, 2020

Acta Scientific Computer Sciences, 2019

Acta Scientific Computer Sciences, 2019

Science Publishing Group Communications, 2018

Journals reviewer

Computers & Security, Elsevier, 2021

MDPI Electronics, 2021

MDPI Network, 2021

Computers & Security, Elsevier, 2020

Computers & Security, Elsevier, 2019

International Journal of Computing and Digital Systems (IJCDS), 2019

Computer Modeling in Engineering & Sciences (CMES), 2019

Advances in Systems Science and Applications (ASSA), 2019

Springer Human-centric Computing and Information Sciences (HCIS), 2019

Elsevier Computers and Electrical Engineering, 2019

MDPI Sensors, 2019

ScienceDomain International - Archives of Current Research International (ACRI), 2018

Applied Sciences, 2018

ScienceDomain International – Asian Journal of Research in Computer Science (AJRCoS), 2018

ScienceDomain International – Asian Journal of Advanced Research and Reports (AJARR), 2018

Journal of Computer and System Sciences (JCSS), 2018

ScienceDomain International – Current Journal of Applied Science and Technology (CJAST), 2018

IET Information Security, 2018

ScienceDomain International - Journal of Advances in Mathematics and Computer Science (JAMCS), 2018

Cluster Computing, 2018

Journal of Information Technology and Management, 2017

IEEE Security & Privacy, 2017

Future Internet, MDPI, 2017

IEEE Communication Letters, 2017

International Journal of Computing and Digital Systems (IJCDS), 2017

Computers & Security, Elsevier, 2017

Energies, MDPI, 2017

International Journal of Computing and Digital Systems (IJCDS 2016), 2016

Logic Journal of the IGPL, 2016

International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE), 2016

MDPI Electronics, 2016

Journal of Computer and System Sciences (JCSS), 2016

Computer Communication & Collaboration, 2016

Applied Sciences, 2016

International Journal of Computing and Digital Systems (IJCDS' V3), 2013

Conferences reviewer

International Conference on Cybernetics & Informatics (CYBI 2020), 2020

ITASEC20, 2020

2020 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT2020), 2020

2020 International Conference on Decision Aid Sciences and Application (DASA'20), 2020

ITASEC2019, 2019

IEEE Middle East and North Africa Communication Conference (MENACOMM 2019), 2019

2019 8th International Conference on Modeling, Simulation and Applied Optimization (ICMSAO'19), 2019

2019 10th IEEE-GCC Conference and Exhibition (IEEE-GCCCE 2019), 2019

2019 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT'19), 2019

1st International Workshop on Security for Critical Infrastructures and Services (FINSEC 2019), 2019

2018 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT'18), 2018

International Conference on Social Networking and Computational Intelligence (SCI-2018), 2018

The Sustainability and Resilience 2018 (SRC'18), 2018

International Conference on Advances in Computing, Communications and Informatics (ICACCI-2017), 2017

Mobile Applications (MobiApps 2017), 2017

The 2nd International Conference on Computer Science and Technology (CST2017), 2017

International Symposium on Cloud Computing and Cyber-Security (SCCCS-17), 2017

International Workshop on Cyber-Security in IoT-based Healthcare Systems & Cloud Computing (CS-HSC'17), 2017

IEEE-GCC Conference and Exhibition (IEEE-GCC 2017), 2017

2017 3rd Advanced Research in Material Sciences, Manufacturing, Mechanical and Mechatronic Engineering Technology International Conference (AR4MET'2017), 2017

2017 3rd International Conference on Education (ICOED'2017), 2017

Fifth International Symposium on Security in Computing and Communications (SSCC'17), 2017

Design and Performance of Networks on Chip 2016 (DPNoC'2017), 2017

International Information Security and Privacy Conference (IFIPSEC2017), 2017

International Conference on Advances in Computing, Communications and Informatics (ICACCI-2016), 2016

2016 Advanced Research in Material Sciences, Manufacturing, Mechanical and Mechatronic Engineering Technology International Conference (AR4MET'2016), 2016

Fourth International Symposium on Security in Computing and Communications (SSCC'16), 2016

Mobile Applications (MobiApps 2016), 2016

2016 International Symposium on Web of Things and Big Data (WoTBD 2016), 2016

Design and Performance of Networks on Chip 2016 (DPNoC 2016), 2016

9th IEEE-GCC Conference and Exhibition 2016 (IEEE-GCC 2016), 2016

IEEE International Conference on Signal Processing, Informatics, Communication and Energy Systems 2015 (IEEE SPICES 2015), 2015

International Conference on Advances in Computing, Communications and Informatics (ICACCI-2015), 2015

International Conference on Computing in Mechanical Engineering (ICCME-2015), 2015

2015 Advanced Research in Material Sciences, Manufacturing, Mechanical and Mechatronic Engineering Technology International Conference (AR4MET'2015), 2015

The 2nd International Workshop on Mobile Applications (MobiApps 2015), 2015

2015 International Symposium on Web of Things and Big Data (WoTBD 2015), 2015

15th IEEE International Symposium on Signal Processing and Information Technology 2015 (ISSPIT-2015), 2015

International Conference of Security in Computer Networks and Distributed Systems (SNDS 2014), 2014

The 2014 International Workshop on the Design and Performance of Networks on Chip (DPNoS 2014), 2014 The 2014 International Conference on Electronic Publishing and Information Technology (ICEPIT 2014), 2014

Mobile Applications (MobiApps 2014), 2014

Selected software

Dynamic W3C Validator. Design and development of a sistem based on the HTML iframe tag to dynamically validate a web page..

H2020 Database and Website. Design and development of an internal website to retrieve information on teh results of Horizon 2020 research projects..

isDown. Design and development of a federated network to distributely check the reachability of a remote Internet service..

Mail Logger. Design and development of a system used to log emails opening without asking for confirmation to the recipient..

SlowDroid Report. Design and development of a system used to monitor and analyse the users of the SlowDroid app..

Conference. Design and development of a web platform able to autonomously retrieve upcoming conferences events and journals special issues on the ICT research field.. http://conference.ieiit.cnr.it (private)

DNS Crawler. Design and development of an Internet crawler to find DNS services vulnerable to amplification denial of service attacks..

Heartbleed Crawler. Design and development of an Internet crawler looking for services vulnerable to the Hearthbleed bug..

Tor Network Analyzer. Design and development of a Tor analysis system able to periodically retrieve information on the nodes belonging to the Tor network..

Assets and Research Data Wiki. Design and development of an extension for the MediaWiki platform able to simplify network assets and research projects categorization.. http://wiki.ge.cnr.it (private)

CNR-IEIIT Template for Drupal. Design and development of the Drupal template of the (former version of the) CNR-IEIIT website..

Messenger (Unofficial). Design and development of a public extension for the Google Chrome browser adopted by more than 350.000 users..

SlowDroid. Design and development of a network stress testing tool known as SlowDroid and available as an Android mobile app..

Calll. Design and development of an Android app used to reduce the electromagnetic exposure of the user during calls.. https://github.com/auino/calll

cnr-cv. Design and development of a software able to build a curriculum vitae from raw data.. https://github.com/auino/cnr-cv

cookidump. Design and development of a software able to dump data of the Cookidoo web platform.. https://github.com/auino/cookidump

Other

Co-author of the document "Il Futuro della Cyber Security in Italia" (2015) by Laboratorio Nazionale di Cyber Security Consorzio Interuniversitario Nazionale per l'Informatica (CINI).

Co-author of the document "Il Futuro della Cybersecurity in Italia: Ambiti Progettuali Strategici" (2018) by Laboratorio Nazionale di Cyber Security Consorzio Interuniversitario Nazionale per l'Informatica (CINI). URL https://www.consorzio-cini.it/index.php/it/labcs-home/ libro-bianco

Contributor of the book "Mastering Ethereum - Implementing Digital Contracts" (2018) by Andreas M. Antonopoulos and Gavin Wood, distributed by OReilly Media.´ ISBN: 978-1491971949 - URL https://github.com/ethereumbook/ethereumbook/blob/develop/ preface.asciidoc

FINANCED RESEARCH
PROJECTS

Participant of the following research projects.

Main investigator

Cybersecurity delle infrastrutture critiche, analisi e definizione di framework metodologici (CYBIC) - GFT agreement, 2020

Cybersecurity delle infrastrutture critiche, analisi e definizione di framework metodologici (CYBIC) - SEASTEMA agreement, 2020

Cybersecurity delle infrastrutture critiche, analisi e definizione di framework metodologici (CYBIC) - CETENA agreement, 2019

Participant

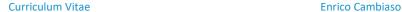ANalisi del risCHio e crOwd modelling di teRminal portuali (ANCHOR), 2021

MObility REgulation THinking ANd THoroughly Innovative inSpired (More Than This), 2021

Smart Stop, 2021

Advances in pneumology via ICT and data analytics (PNEULYTICS), 2020

5G Genova, 2020

CASTORE - Componente di intelligenza Artificiale per l'integrazione Sicura Terminalportuale/terminal-pubblico per Ottimizzare l'operatività e la Relazione e l'analisi rispetto ad Eventi e stati legati ai flussi di passeggeri tra spazio urbano e porto, 2020

Integrated Framework for Predictive and Collaborative Security of Financial Infrastructures (FINSEC), 2018

Advanced Networked Agents for Security and Trust Assessment in CPS/IOT Architectures (ANASTACIA), 2017

Maturing and Extending the FREETOOL Tool development Initiative (FreeTool v2.0), 2016

My Health - My Data (MH-MD), 2016

Educational plan for environmentally sustainable smart mobility - Mobilità Intelligente Ecosostenibile (MIE), 2014

Piattaforma per la mobiLità Urbana con Gestione delle INformazioni da sorgenti eterogenee (PLUG-IN), 2014

Manufacturing Execution Systems (MES) basati su tecnologia Cloud (CMES), 2014

Analisi ed integRazione di soluzIoni per la soprAvvivenza di sistemi complessi in preseNza di gravi eveNti accidentAli (ARIANNA), 2014

Vulnerability and Risk Assessment (VaRA), 2014

Soluzioni e tecnologie avanzate per le reti di telecomunicazioni ecosostenibili (STARTECO), 2013

Tecnologie orientate ai servizi per lo sviluppo e per l'integrazione di piattaforme ICT (GESTEC), 2013

Monitoring And Rescue Automation (MAREA), 2013

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
B2	B2	B2	B2	B2

LANGUAGES

Mother tongue(s) Italian

Other language(s) English

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user Common European Framework of Reference (CEF) level

IT SKILLS

Software development Experience of procedural (Ansi C), object oriented (C++, Java, C#, Visual Basic, Python), functional (CaML) and logic (Prolog) programming languages.

Web development #WebServices #PHP #Asp.Net #HTML5 #CSS3 #Javascript #Ajax #Django #VbScript

Mobile development Experience of development on the following environments: Android, iOS, Firefox OS.

Database Experience on both relational and NoSQL database management systems.

Data analysis Adoption of the following software tools: MathWorks Matlab, WaveMetrics Igor Pro, Rulex Analytics.

Operating systems Experience on Microsoft Windows, Linux and Apple macOS environments.
Advanced knowledge of Unix systems: bash, configuration, dynamic libraries replacement, kernel level packets management and interception, etc.

Virtualization environments	Virtualization environments like VMWare, VirtualBox or Synology Virtual Machine Manager, creation and management of Docker containers.
Network security	Advanced exprience in the network security topic, result of years of experience in the research field.
Blockchain	Experience of design and implementation on the following blockchain based platforms: Hyperledger, Ethereum, MultiChain.
Productivity	Experience on the following techniques: Getting Things Done (GTD), Pomodoro technique.

Project samples are available at the following GitHub page: github.com/auino

ADDITIONAL INFORMATION

Driving license	Obtained European driving license, B level.
Other licenses	Obtained boat licence for motor boats up to 12 miles from the coast. Obtained drone driving license, A1/A3 levels.
Membership	Member of Consorzio Nazionale Interuniversitario per le Telecomunicazioni (CNIT) since 29/03/2017, with affiliation to Laboratorio Nazionale di Smart, Sustainable and Secure Internet Technologies and Infrastructures (S3ITI). IEEE member from 2013 to 2020, Italian section (membership n. 92486754).
Web	Online interview for *L'Androide Minimalista*, as computer software developer for the Android mobile platform. URL http://bit.ly/androideminimalista
	Online interview for *Il Setup*, as computer scientist. URL (archive) http://bit.ly/ilsetup_ archive
	Online interview for *ProntoPRO*, as owner and ideator of the Italia Webcam website. URL http://bit.ly/italiawebcam_prontopro
	Mention inside of the Italian podcast "Digitalia" (episodes 164, 344), as expert in the cybersecurity topic and as supporter of the podcast. Mention inside of the Italian podcast "EasyApple" (episode 294).
	Mention inside of the international magazine "Linux Format", as computer software developer (June 2016). URL http://bit.ly/linuxformat_uk_062016
	Mention inside of the magazine "Master Linux", as computer software developer (NovemberDecember 2018).
Photography	Photographer hobbyist, with publication on the website http://500px.com/auino. Classified 3rd over about 800 candidates for the premiation of the Italia Photo Marathon of Genoa, Italy (April 2, 2017, for the "Fonte di vita" topic.)

In compliance with the Italian legislative Decree no. 196 dated June 30, 2003, I hereby authorize you to use and process my personal details contained in this document.