

Luca Caviglione

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Date of birth: 26 May 1978 Nationality: Italian

WORK EXPERIENCE

[31 May 2020 – Current]

Senior Research Scientist

National Research Council of Italy, Institute for Applied Mathematics and Information Technologies

City: Genova | Country: Italy

Research activities and project coordination in the fields of information hiding, network security, and networking.

[31 Dec 2019 – Current]

Member of the Board of Directors

Istituto Internazionale delle Comunicazioni di Genova

City: Genova | Country: Italy

CNR representative within the Board of Directors.

[30 Nov 2019 – Current]

Head of the IMATI – CNIT Research Unit

National Inter-University Consortium for Telecommunications

City: Genova | Country: Italy

Head of the IMATI – CNIT Research Unit. The Unit performs research in cloud/edge computing architectures, network virtualization and security.

[30 Apr 2020 – Current]

PhD Course in Security, Risk and Vulnerability

University of Genova

City: Genova | Country: Italy

Member of the board of the PhD Course “Security, Risk and Vulnerability” for the curriculum in cybersecurity and reliable AI.

Contract professor for the course “Information Hiding” delivered to PhD Students.

[Dec 2022 – Current]

Member of the Scientific Technical Committee

Start 4.0 Competence Center

City: Genova | Country: Italy

Member of the Scientific Technical Committee to support the Board of Directors in decisions related to cybersecurity

[Jul 2023 – Current]

Member of the Scientific Technical Committee

SIIT ScpA

City: Genova | Country: Italy

Member of the Scientific Technical Committee to support the Distretto Tecnologico Ligure sui Sistemi Intelligenti Integrati to plan the overall funding strategy. Within

SIIT ScpA, I also serve as a member of the Scientific Technical Committee of Polo SOSIA - Gestione dei rischi ambientali e controllo del territorio, Cybersecurity delle infrastrutture critiche, Sistemi innovativi ICT per la Fabbrica Intelligente ed automazione (Funded by POR-FESR-2014-2020-asse 1).

[1 Oct 2008 – 29 May 2020]

Research Scientist

National Research Council of Italy

City: Genova | **Country:** Italy

Worked both at the Institute for Applied Mathematics and Information Technologies and the Institute for Intelligent Systems for Automation doing research activities and project coordination in the fields of wireless/heterogenous networks, optimization of large-scale data centers, and security & privacy.

[31 Dec 2005 – 29 Sep 2008]

Research Fellow/Senior Research Assistant

CNIT and National Research Council of Italy

City: Genova | **Country:** Italy

Worked both for CNIT and ISSIA doing research activities in the fields of satellite communications and peer-to-peer networking.

EDUCATION AND TRAINING

[2002 – 2006]

PhD in Electronic and Computer Engineering

University of Genova

City: Genova | **Country:** Italy | **Field(s) of study:** networking | **Thesis:** Traffic Analysis and Resource Allocation for Peer-to-Peer Systems in Wireless and Cabled Networks

Main research topics: peer-to-peer networking, traffic analysis, scalability issues of application-layer frameworks, and resource management.

[1996 – 2002]

Laurea degree in Telecommunications Engineering

University of Genova

City: Genova | **Country:** Italy | **Field(s) of study:** Networking | **Final grade:** 108/110 - Dignità di Stampa | **Thesis:** Design and Performance Evaluation of a Dedicated Protocol Architecture for Satellite Environments (in Italian)

[1990 – 1997]

Perito Industriale in Elettronica e Telecomunicazioni

Istituto Tenico Industriale Statale, Enrico Fermi

City: Mantova | **Country:** Italy |

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

english

LISTENING C1 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

My Digital Skills

macOS | Linux | C | Objective-C | Python | TCP/IP | LaTeX

PUBLICATIONS

- [2023] [A Long-term Perspective of the Internet Susceptibility to Covert Channels](#)
Reference: IEEE Communications Magazine, Vol. 61, No. 10, October 2023, pp. 171 - 177
- [2022] [Code Layering for the Detection of Network Covert Channels in Agentless Systems](#)
Reference: Transactions on Network and Service Management, Vol. 19, No. 3, September 2022, pp. 2282 - 2294,
- [2021] [Kernel-level Tracing for Detecting Stegomalware and Covert Channels in Linux Environments](#)
Reference: Computer Networks, Vol. 191, March 2021.
- [2021] [Cyber Reconnaissance Techniques: Evolution and Countermeasures](#)
Reference: Communications of the ACM, Vol. 64, N. 3, pp. 86 - 95, March 2021.
- [2021] [Multiobjective Placement for Secure and Dependable Smart Industrial Environments](#)
Reference: IEEE Transactions on Industrial Informatics, Vol. 17, No. 2, pp. 1298-1306, February 2021.
- [2019] [Model Predictive Control for Energy-Efficient, Quality-Aware, and Secure Virtual Machine Placement](#)
Reference: IEEE Transactions on Automation Science and Engineering, Vol. 16, No. 1, pp. 420-432, June 2019.
- [2016] [Seeing the Unseen: Revealing Mobile Malware Hidden Communications via Energy Consumption and Artificial Intelligence](#)
Reference: IEEE Transactions on Information Forensics & Security, Vol. 11, No. 4, April 2016, pp. 799-81.

PROJECTS

- [15 Jan 2023 – Current] **SERICS - Security and Rights in the CyberSpace**
Responsible for the overall CNR participation of the research activities of Spoke 4 - Operating Systems and Virtualization Security and responsible for CNR - IMATI of the research activities of Spoke 3 - Attack and Defenses, within the PE SERICS, Grant Agreement N. PE00000014 of the Italian PNRR - Next Generation EU. Managed Funding: 252,000€.
- [30 Apr 2019 – 29 Apr 2022] **SIMARGL - Secure Intelligent Methods for Advanced RecoGnition of malware and stegomalware**
SIMARGL - Secure Intelligent Methods for Advanced RecoGnition of malware and stegomalware, Grant Agreement N. 833042, H2020-SU-ICT-2018. Total cost: 6,076,050€. EU contribution: 4,984,260€. Development of detection and mitigation techniques against steganographic threats and covert channels. Managed funding:

250,000€. Project duration: 2019 – 2022. PI for the Institute of Applied Mathematics and Information Technologies of the National Research Council of Italy

[2013 – 2017] **START-ECO – Soluzioni e Tecnologie Avanzate per Reti di Telecomunicazioni ECOsostenibili**

START-ECO – Soluzioni e Tecnologie Avanzate per Reti di Telecomunicazioni ECOsostenibili, DM62554, Evaluation of energy consumption of security algorithms. Total cost: 1,795,860€. Managed funding: 47,000€. Project duration: 2014 – 2017. PI for the Institute for Intelligent Systems for Automation of the National Research Council of Italy.

[Mar 2021 – Apr 2021] **Second NGI POINTER Open Call**

Project Evaluator for the Second NGI POINTER Open Call (within the framework of the H2020 Project NGI POINTER - Grant Agreement No: 871528).

[Jun 2020 – Jul 2020] **First NGI POINTER Open Call**

Project Evaluator for the First NGI POINTER Open Call (within the framework of the H2020 Project NGI POINTER - Grant Agreement No: 871528).

[Jan 2013 – Mar 2013] **Objective ICT-2013.1.5 Trustworthy ICT within the 7th Framework Programme**

Project Evaluator for the Objective ICT-2013.1.5 Trustworthy ICT within the 7th Framework Programme (Appointment Letter: AL00117568). Reference period: February – March 2013.

PATENTS

[2019] **EP3161586B1 - Method and system for regulating in real time the clock frequencies of at least one cluster of electronic machines**

L. Caviglione, A. Pisano, "Method and system for regulating in real time the clock frequencies of at least one cluster of electronic machines", 8/5/2020, EP3161586B1.

[2006] **EP1835661A1 - Mobile terminal assisted peer-to-peer based self organisation of attachment points**

F.-U. Andersen, L. Caviglione, F. Davoli, T. Hossfeld, S. Oechsner, P. Tran-Gia, K. Tutschku, "Mobile terminal assisted peer-to-peer based self organisation of attachment points", 19/9/2007, EP1835661A1.

[2006] **EP1835769A1 - Method and node enabling the construction of an overlay network within a communications system**

F.-U. Andersen, L. Caviglione, F. Davoli, T. Hossfeld, "Method and node enabling the construction of an overlay network within a communications system", 19/9/2007, EP1835769A1.

[2006] **EP1835774A1 - Method and node for distributing information to a plurality of nodes in a communications network**

F.-U. Andersen, L. Caviglione, F. Davoli, T. Hossfeld, "Method and node for distributing information to a plurality of nodes in a communications network", 19/9/2007, EP1835774A1.

[2006] **WO2007104718A1 - Method and node for providing handover information to a requestor in a communications system**

F.-U. Andersen, L. Caviglione, F. Davoli, T. Hossfeld, S. Oechsner, P. Tran-Gia, K. Tutschku, "Method and node for providing handover information to a requestor in a communications system", 21/9/2007, WO2007104718A1.

COMMUNICATION AND INTERPERSONAL SKILLS

Communication Skills

- Very good communication skills, especially in live talks and presentations.
- Keen to work with people and establish new relationships.

Job-related Skills

- Ability of performing independent research and coordinate international teams.
- Writing funding and project proposals and evaluating research projects (both at national and international level).
- Previous experiences in standardization activities.

MANAGEMENT AND LEADERSHIP SKILLS

Organizational Skills

- Good organizational skills gained during coordination of projects, PhD/MSc students, research units and laboratory infrastructures.

ADDITIONAL INFORMATION

Memberships

- EURASIP Special Area Team on Biometrics, Data Forensics, and Security (January 2018, today).
- Steering Committee of the "Criminal Use of Information Hiding" initiative within the European Cybercrime Centre – Europol (2016, today).
- WG-Leader of the "Private Sector" for the Italian Task Force for IPv6 (2005, today).

Conferences

- Member of the Technical Program of more than 110 International Conferences.
- Organization of several International Workshops (e.g., GEAS and IWSMR).

Editorial Activity

- Conference Chair, Program Chair and Session Organizer of many conferences (e.g., EICC2020, INGRID 2010, CoCoNet 2015, AINA 2017, and IWSMR 2019).
- Organization of several special issues in top-ranked journals and magazines. Among the others: IEEE Security and Privacy Magazine, Future Generation Computer Systems, and Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications.
- Associate Editor of the "Transactions on Emerging Communications Technologies", Wiley (April 2011, September 2017).
- Associate Editor of the "International Journal of Computers and Applications", Taylor&Francis (June 2016, today).
- Associate Editor of the "Transactions on Information Forensics and Security", IEEE (October 2023, today).

Bibliometrics

- From 2021, I am included in the Stanford List of Top 2% Scientists, see the work of Ioannidis and colleagues: <https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/3>.
- Scholar – citations: 2789, h-index: 28. Scopus – citations: 1764, h-index: 24.
- A (partial) list of my research papers is available on DBLP: <https://dblp.org/pid/76/6202.html>.

Others

- Speakers in many seminars, keynotes, schools and master/specialization courses.
- Professional Engineer (No. 9140A, 14 May 2007).

DRIVING LICENCE

Cars: B

HOBBIES AND INTERESTS

Bass Player

Bass player mainly in progressive and jazz music.

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Genova, 11 Jun 2023