Europass Curriculum Vitae

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Personal information

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Profile	

I am an assistant professor at the Department of Information Engineering and Computer Science (DISI) of the University of Trento (Italy). I received a Master in Computer Science and a Doctoral degree at the University of Florence respectively in 2004 and 2010, I am an IEEE member, an ACM member and a member of the Association for Progressive Communication (APC). My research focuses on the protocols, the privacy, the applications and the social aspects related to distributed networks, with particular interest to large mesh networks, such as Community Networks. I contributed to start a line of research on Community Networks in the Advanced Networked Systems (ANS) group of the DISI which evolved in various publications and at least three financed projects, with a strong focus on interdisciplinarity. I am the work-package technical coordinator of the netCommons project, an H2020 project coordinated by DISI.

My achievements include scientific publications and involvement in both research and industrial projects. I authored 16 Journals, 33 conference papers, 4 book chapters and 4 among patents and requests. I have been teaching network security and I was teaching assistant in courses organized by the University of Florence and Trento. I am the professor of the "Wireless Mesh and Vehicular Network" (shared with Prof. Renato Lo Cigno) and (starting 2018/2019) of the "Advanced Networks" courses. I co-advised more than 40 BS and MS students and two Ph.D. students (ongoing).

In 2010 I spent one year of internship in Selex Communications (one of the largest communications company in Italy, now Leonardo Finmeccanica) for a military research project. For the period 2011-2014 I was appointed of a Marie Curie Co-fund grant for the 'PAF-FPE' project dealing with privacy for pervasive ad-hoc and mesh networks. In 2014 I received an award as a starting grant for the RiseApp project. In 2017 I received the FFABR grant from the Italian Ministry. I participate to the technical program committees of several international conferences (IEEE INFOCOM 2019, IEEE ICDCS 2018, IFIP Networking, IEEE Globecom, IEEE ICC, etc.) and as a reviewer for international conferences and journals. I am in the editorial board of the Wiley "Security and Privacy" journal and for about two years I was in the editorial board of Wiley "Wireless Communications and Mobile Computing". I was twice invited as a speaker in Dagstuhl seminars. I was the organizer of a special track on Community Networks in the 2016 edition of the IEEE/IFIP WONS conference and in the organizing committee of the multidisciplinary conference on "Local and Community Networks" organized by the Faculty of Law of the University of Trento.

My expertise includes the development of solutions for real-world, large-scale wireless networks with special attention on protocols, security and privacy. I worked on mesh networks, sensor networks for IoT, named-data-networks, and peer-to-peer networks. According to Google Scholar, I have 572 citations and my H-index is 13, according to Scopus, I have 306 citations and my H-index is 11 (updated Mar. 2019). In March 2018 I received the national qualification for Associate Professor (Italian "Abilitazione Scientifica Nazionale, II Fascia, settori 01/B1 e 09/H1").

I am also an entrepreneur: I am an associate of Tracking4Fun, a start-up whose mission is to produce affordable tracking devices for non-professional athletes[1].

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[1] See www.tracking4fun.com

Early Achievements

University of Florence

I started my research career at the University of Florence, in the Department of Electronics and Telecommunications (DET). At the DET I focused on security issues in distributed networks, and I studied and proposed authentication protocols for wireless mesh and sensor networks. My group focused on applied research and my work before, during, and after my Ph.D was always supported by industry grants. I worked with the most important Italian telecommunications companies both in the civil and military applications. I proposed a novel re-authentication scheme for mesh networks [J.9] patented with Telecom Italia [P.1], and a new firewalling scheme for mesh networks leveraging Bloom filters [J.8]. I was also the author of one of the first security analysis of the IEEE 802.16 standard (Wi-Max), outlining some previously unknown vulnerabilities [C.4]. I worked side-by-side with important industries and produced directly exploitable research results [P.2]. As a post-doc I spent a one year internship in Selex Communications, coordinating the integration team of the ESSOR military research project involving some of the largest European Telecommunications companies. Most results are classified, some results are currently under patenting process [P.3].

In this first phase I had the chance to develop a solid, industrial-grade background on the way real wireless networks work, to develop team leadership, and to manage complex interactions with experienced researchers and industry leaders.

University of Trento

The second phase of my career is at the University of Trento in the Department of Information Engineering and Computer Science (DISI). I arrived at the DISI as the winner of a Co-Fund Marie Curie fellowship. DISI is constantly scoring among the best 3 computer science departments in Italy and it is highly competitive (48% faculties with h-index > 20, 28% > 30). In DISI I started a line of research on Community Networks (CNs). Community Networks are wireless mesh networks made of hundreds or even thousands of nodes that are growing in several world regions to defeat digital divide. The study of CNs require an interdisciplinary approach, including computer science, law and social science. For this reason I set-up joint activities with the department of Law in Trento and Social science in Padua and I published joint, interdisciplinary papers on Community Networks [J.7], strengthening my visibility in the field. I am now the work-packages technical coordinator of the netCommons project (ending Dec. 2018), the largest interdisciplinary research effort on CNs, and I daily coordinate the work of top-notch European professors of Computer Science, Social Science and Law. My professional growth is mirrored in my career in the DISI. In April 2016 I become an assistant professor, with 3(+2) year position financed by netCommons (RTD-A), in 2018 I received the national qualification for Associate Professor.

In this second phase I joined one of the best Italian computer science department, and I elevated the quality of my scientific production. I am now doing interdisciplinary research for the analysis of networks, Community Networks in particular [J.1].

Independent Thinking

In both the phases of my career (including the early stages) I showed to be able to independently set the agenda of my research and to open new research interests in the group I work in. At the University of Florence I contributed to open a new line of research on network security in the group of Romano Fantacci (my Ph.D advisor). Similarly, at the DISI I introduced the theme of Community Networks, which was not previously among the subject of research of the group I am currently part of.

The ability to sustain new directions of research in an independent way must be supported by key skills in fund-raising. I received a Marie Curie and a prize from the CHEST FP7 project, and after the Marie Curie grant, I was able to fund the research on Community Networks with a number of financed projects focusing on my research theme. It is relevant to note that in the period 2011-2017 the overall funding we received for research on Community Networks summed to more than €1.000.000. In all of these projects I was the main creator (present in the key personnel), in some of them the lead researcher or the technical coordinator. Among them, the netCommons project is surely the most relevant one. netCommons is Coordinated by DISI and I am the Work-Package Technical Coordinator for the whole project and coordinator of the Work Package 3. The details of projects and grants are reported in the following of this document.

Current Research Themes

Community Networks

The scientific interest in CNs is steadily growing: in the last few years, several European projects were financed on this theme[2], and the GAIA ("Global Access to the Internet for All") IRTF group was set-up to merge the various disciplines studying CNs. Since in 2017 still more than 50% of the world population was disconnected, the academic interest in this technology will grow in the future, as the potential market growth for Internet Services is substantial. In netCommons I work on three fields: scalable protocols for CNs [C.1][C.2][J.2], cross-layer P2P applications for CNs [J.6], techno-social analysis [J.1]. The common thread among these works is porting centrality metrics from network analysis into real-life protocols and applications. While centrality has been used in the networking field for a-posteriori analysis [J.5], I am proposing to embed it into network protocols, which opens the way to boost protocol efficiency in a fully back-compatible way [C.2]. I also contributed to the theoretical advances in the algorithms for centrality computation, proposing the first exact distributed load centrality metric [C.1]. I am able to carry on this process from the theoretical foundation down to the analysis of practical constraints of real world applications [C.3]. Building on my background in network security, I am also working on the application of Blockchains and Cryptocurrencies to CNs, which can help to re-create at a small scale the same distributed monetary incentive system that made the Internet possible. We have early works (WONS 2018) and we are setting-up collaborations with relevant players in the field.

CNs have a real world impact beyond the usual academic impact, and provides visibility from relevant institutions. Being among the coordinators of netCommons, I am well positioned to be on the edge of this trend: I co-authored a chapter of the report from the 2016 United Nation Internet Governance Forum on Community Connectivity, I was invited to give a talk to the European Parliament and to the UNESCO on CNs[3]. These activities gave international recognition to both netCommons and my department.

Since 2017 I am the professor of the "Wireless Mesh and Vehicular Network" course, in which I share with the students the fundamentals of my research efforts in CNs.

Ongoing and future activities: Data Science for Networks

I am currently involved in several ongoing research activities bridging data analysis and networking with some of the most visible researchers in the field:

– A multi-layer analysis of a CN is described in [J.1]. The goal is to apply network science to identify points of failure, analysing the physical layer, the communication layer, and also the social network of the participants. Similarly in [A.1] with Andrea Passerini (University of Trento, one of the emerging researchers in Machine Learning for data mining) we propose Big Data tools and ML to perform failure detection, prevention and network security analysis.

– I am the coordinator of the Trento unit in a national PRIN project proposal (under review) focusing on the use of Big Data and machine learning techniques to identify privacy-infringing websites and enable a Blockchain-based transparent data-market. The architecture is described in [R.1]. Marco Mellia (Politecnico di Torino, PI of the project, co-author) is one of the most internationally known researcher in the area of Big Data for networks.

– I am preparing a new H2020 project initiative proposing a data-based methodology to study and forecast the growth of bottom-up networks and compare their performance against other options (e.g. fiber, 5G, TVWS...). The proposal starts from open data (demographics, income, street map, terrain, building altitude etc.) to produce topology generators and analytic models that mimic the growth of a network in a specific place, with the constraints given by a specific technology (wireless/wired, planned/unplanned etc.). Such tools will estimate the network cost, performance, and penetration, taking into account not only 'bit/s' but also the social diffusion and impact a network can produce. The initial seed of this work is described in [R.2]. The interdisciplinary consortium will include Stefania Milan (University of Amsterdam, ERC grantee).

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[2]See the CONFINE, CLOMMUNITY, P2PValue, RIPE and netCommons EU-financed projects
[3]See respectively `http://bibliotecadigital.fgv.br/dspace/handle/10438/17528` and `https://netcommons.eu/?q=content/eu-parliament-workshop-community-networks-and-telecom-regulation`

Selected Publications
(J:Journal, C:Conference,
P:Patent)

[J.1] L. Maccari, "Detecting and Mitigating Points of Failure in Community Networks: a Graph-based Approach", IEEE Transactions on Computational Social Systems, vol 9, issue 1, Feb. 2019

[J.2] L. Maccari and R. Lo Cigno, "Improving Routing Convergence with Centrality: Theory and Implementation of Pop-Routing", IEEE Transactions on Networking, vol. 26, pp. 2216–2229, Oct. 2018

[J.3] L. Maccari, M. Maischberger, R. Lo Cigno "Where have all the MPRs gone? On the Optimal Selection of Multi-Point Relays". Elsevier Ad Hoc Networks, 2018.

[J.4] L. Baldesi, L., Maccari, R. Lo Cigno. "On the Use of Eigenvector Centrality for Cooperative Streaming". IEEE Communications Letters, 2017.

[J.5] L. Maccari and R. Lo Cigno, "A week in the life of three large Wireless Community Networks," Elsevier Ad Hoc Networks, 2015.

[J.6] L. Baldesi, L. Maccari, and R. L. Cigno, "Improving P2P streaming in wireless community networks," Elsevier Computer Networks, 2015.

[J.7] S. Crabu, F. Giovanella, L. Maccari, and P. Magaudda, "A transdisciplinary gaze on wireless community networks," TECNOSCIENZA: Italian Journal of Science & Technology Studies, 2015.

[J.8] R. Fantacci, P. Neira Ayuso, L. Maccari, and R. Martinez Gasca, "Efficient packet filtering in wireless ad-hoc networks," IEEE Communication Magazine, 2008.

[J.9] L. Maccari, R. Fantacci, T. Pecorella, and F. Frosali, "Analysis of secure handover for IEEE 802.1x-based wireless ad hoc networks," IEEE Wireless Communications, 2007.

[C.1] L. Maccari, L. Ghiro, A. Guerrieri, A. Montresor, and R. Lo Cigno, "On the Distributed Computation of Load Centrality and Its Application to DV Routing," International Conference on Computer Communications (INFOCOM), 2018

[C.2] L. Maccari and R. Lo Cigno, "Pop-Routing: Centrality-based Tuning of Control Messages for Faster Route Convergence," International Conference on Computer Communications (INFOCOM), 2016.

[C.3] D. Kirchner, R. Ferdous, R. Lo Cigno, L. Maccari, M. Gallo, D. Perino, and L. Saino, "Augustus: a CCN router for programmable networks," in ACM Conference on Information-Centric Networking (ICN), 2016.

[C.4] L. Maccari, M. Paoli, and R. Fantacci, "Security analysis of IEEE 802.16," in IEEE International Conference on Communications, (ICC) 2007.

[P.1] L. Costa, G. Fregulia, F. Federico, R. Fantacci, L. Maccari, and T. Pecorella, "Short authentication procedure in wireless data communications networks," EU Patent WO2007000179, 2008 and US Patent US8621201B2, 2008.

[P.2] L. Maccari, G. Mandó, L. Piccinocchi, and M. Rosi, "Modified ad-hoc on-demand distance-vector routing protocol," Patent Request to EPO WO2009144756, 2008.

[P.3] N. Privitera, C. Armani, L. Adamo, L. Maccari, and D. Marabissi, "Two-level routing communication method for a manet network, network node and mobile network implementing this communication method," EU Patent request WO2014167550, 2014.

Ongoing (submitted) Works
(A: Accepted)
(R: under Review)
References include clickable
links to available on-line drafts

[A.1] L. Maccari, A. Passerini "A Big Data and Machine Learning Approach for Network Monitoring and Security". Wiley Security and Privacy journal (accepted for publication). Draft available at: my personal page.

[R.1] M. Aiello, E. Cambiaso, R. Canonico, L. Maccari, M. Mellia, A. Pescapé. "IPPO: A Privacy-Aware Architecture for Decentralized Data-sharing", Elsevier ICT Express. Draft available in my personal page.

[R.2] L. Maccari, G. Gemmi, R. Lo Cigno, M. Karaliopoulos, L. Navarro. "Assistive Growth: Towards Scalable Community Networks Topologies" Elsever Ad Hoc Networks (needs "moderate" revision). Draft available in my personal page.

Summary of Titles for the Career Evaluation (Specific to the Italian Law)	This section serves as a summary of the official indicators valid for career evaluation in the Italian university. All details can be found in the following sections of the CV.
Dottorato di ricerca (Ph.D.)	I received a Ph.D in Informatics, Multimedia and Telecommunications from the university of Florence. The Ph.D program is coordinated by the Media Integration and Communication Lab (MICC), a center of excellence in the area of media and Communications, with an innovative and international approach to research. My advisor was full professor and IEEE fellow Romano Fantacci, one of the most visible Italian professor in the area of wireless networking. Prof. Fantacci was also president of the TICom Consortium, a Public-Private consortium including the University of Florence and some of the most important telecommunication companies in Italy, like Selex Communications (now Leonardo Finmeccanica). Part of my activities related to the cutting edge industrial research carried on in the consortium. In TICom I had the chance to participate to international research projects and R&D industry projects both in the civilian and military area.
Attivitá didattica (Teaching)	For the second year I am the professor of the Wireless Mesh and Vehicular Networks course at the master of computer science in the University of Trento (together with Prof. Lo Cigno). I am also professor of Advanced Networks for the bachelor of computer science. I taught twice the course of "Large Scale Distributed Wireless Networking" at the Ph.D school at the university of Florence and Trento. I have extensive experience in professional training on security for professionals both inside (at the post-master's level) and outside the academia. I was co-advisor of more than 40 student thesis and 2 Ph.D students. I was chosen in the Ph.D evaluation commission for two Ph.D candidates in the university of Seville, and UPC (Spain), I am an adjunct member of the Ph.D school committee of the ICT school of Trento.
Organizzazione, direzione e coordinamento di gruppi di ricerca nazionali e internazionali, o partecipazione agli stessi (participation to research groups)	I have spent my career in two highly recognized Italian departments. Currently I work in the Computer Science department at the University of Trento (DISI): According to the Times Higher Education ranking 2018, Trento is the second best Italian university in computer science and the 91th worldwide. I have publications with co-authors coming from 10 companies, 14 universities and 3 research centers for a total of 9 different countries. As a member of the TiCom consortium I spent one year in the research lab of Selex Communications.
Attivitá di formazione o di ricerca presso qualificati istituti italiani o stranieri (training and research)	I spent one month as an invited researcher at the Universitat Politecnica de Catalunia, the top institution in Spain in Computer Science and 6th in Europe. As a student I spent 6 months studying at the University of Seville, Spain.
Realizzazione di attività progettuale (projects)	I participated to about 15 research projects with various roles: I was the PI of a Marie Curie Project, the WP coordinator and technical coordinator of European projects, I participated to industrial projects and projects financed by the European Institute of Technology. Since I am at the DISI our group obtained more than 1M€ in funding on the area of Community Networks which I started.
Titolaritá di brevetti e Trasferimento Tecnologico (professional activity)	I am among the authors of one US and EU patent, and two requests, I am an associate of a start-up based in Florence.
Relatore a congressi (participation to scientific congresses)	I was twice invited as a speaker to a Dagstuhl seminar, I was involved in the organization of two international workshops, I presented a paper in more than 15 international conferences, including several editions of the IEEE ICC conference (flagship conference for the IEEE communication society) and IEEE INFOCOM conference. I was in the technical program committee of 20 international conferences, including two top conferences like IEEE INFOCOM (2019) and IEEE ICDCS (2018).
Premi e riconoscimenti nazionali e internazionali per attività di ricerca (prizes)	I own the Italian National Qualification (abilitazione nazionale, seconda fascia) in two areas (09/H1 and 01/B1), I received a personal award of 6000€ for a research activity named RiseApp, and a FFABR prize of 3000€ from the Italian Ministry. I was invited to give a talk to the European Parliament and to the UNESCO on the theme of Community Networks, to consult on the new Telecom Package and Connectivity Universal Indicators. This shaped the final decisions of the two bodies.
Comitati Editoriali (editorial boards)	I have been in the editorial board of two international journals edited by Wiley, I am routinely serving as a reviewer for top journals in my area such as IEEE Transactions on Networking, Wireless Communications, Elsevier Ad Hoc Networks.

Detailed Work Experience

2016-(2019)	Assistant Professor
Main activities	Work-Package technical coordinator for the whole project and coordinator of WP3 for the netCommons H2020 project
Employer	D.I.S.I. University of Trento
2015-	Post-doc researcher
Main activities	Research activity in the EIT-ICT Lab project Programmable Networks, and UniTn project 'Strengthening Wireless Community Networks'
Employer	D.I.S.I. University of Trento
2011-2014	Post-doc researcher
Main activities	Winner of an EU Marie Curie Co-fund grant for the PAF-FPE project on privacy for pervasive networks[4]
Employer	D.I.S.I. University of Trento
2010	Research fellowship - Internship at Selex Communications
Main activities	Involved in the Industry-driven research project ESSOR, European Secure Software Radio Programme. I was stably in the research laboratories of Selex Communications, one of the largest Italian companies on telecommunications and networks (7400 employees in 2011, now merged in Leonardo Finmeccanica).
Employer	D.E.T. University of Florence - TiCom (University/Industry research consortium including Selex)
2007-2009	Ph.D student. Graduated April 2010
Main activities	During my Ph.D. I was involved in the Italian PRIN research project PROFILES on the security of p2p networks, and in the industrial research projects "Study, simulation and implementation [...] of routing protocols for Wireless Mesh Networks", and "Analysis and Implementation of a AAA server for multi-function Tetra-WiMax network", in cooperation with Selex Communications.
Employer	D.E.T. and D.S.I (Department of Computer Science), University of Florence
2004-2006	Consultant and Research fellowship
Main activities	Involved in C.R.U.I.S.E. EU-financed Network of Excellence on Wireless Sensor Networks. Lead technical researcher for the project "Security for IEEE 802.11 Mesh networks" in cooperation with Telecom Italia Laboratories.
Employer	D.E.T. University of Florence.

Research Projects Involvement

POPROW, 2017	Technical Project Manager of the POPROW project, financed under the H2020 WISHFUL FIRE call for for experimental research projects. POPROW experimented Pop-Routing in the real-world test-bed provided by the WISHFUL project (received grant, €50.000)
netCommons, 2016-2019	The ANS group of the DISI is the coordinator for the netCommons project, a multi-disciplinary research project financed by H2020 that focuses on Community Networks under the lens of three different disciplines: computer science, law and sociology. I am the Work-Packages technical coordinator for the project and the coordinator for WP3 (received grant, ≃ €650.000)
Strengthening Wireless Community Networks, 2015-2016	The University of Trento finances research projects on cross-layer topics on wide research themes which foresee joint interdisciplinary initiatives. This project focuses on an interdisciplinary research on Community Networks that mixes computer science and Law. It is a follow-up of my previous activities on Community Networks and previous interdisciplinary projects (received grant, ≃ €100.000)

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[4]The appointed contract was of the kind "Co.Co.Co".

EIT Programmable Networks, 2015	The Programmable Networks project is financed for the year 2015 by the EIT-ICT Labs. I participated to the cooperation with Alcatel Lucent for the design and test of innovative software-defined-networking techniques on virtualized networks
NoCatCommunity project, 2014	The project, financed by the CARITRO foundation is a multi-disciplinary effort to study wireless Community Networks under the technical, social and legal point of view[5]. I contributed to the technical research of the project (received grant, €30.000)
OSPS/CONFINE project, 2013	CONFINE is a FIRE FP7 project dealing with wireless Community Networks made of thousands of nodes[6], UniTn has entered the project with the OSPS sub-project through the first open-call. I analyzed network properties of such large mesh networks, with focus on privacy and robustness (received grant, €50.000)
University of Trento, 2011-2014	Responsible for the PAF-FPE project, a Marie-Curie Co-Fund project for the design and development of a privacy-aware content filtering platform focused on future pervasive wireless networks (received grant, $\simeq$ €150.000)
ESSOR, with Selex Communications, 2010	ESSOR was a 200M Euro European Defence Agency project aimed at realizing a network protocol for a clustered military mesh network. It involved 6 European partners, I was the main designer and coordinator of the development of the integrated simulation platform for the whole project
TWNet, with Selex Communications: 2009	TWNet: the project was aimed at the design of a mixed Tetra-Wifi mesh network, expanding the capability of Tetra-DMO with multi-hop wireless features. I was the designer of the security features of the network
Selex Communications, 2007-2008	Several projects including: innovative metrics for AODV routing protocols, protocols for network formation in mesh-networks and analysis, design and development of a security architecture for a WiMax infrastructure network, with the integration on the freeRadius AAA server. I was the main analyst and developer on embedded GNU/Linux platforms
Italian Dept. of research 2007-2008	PROFILES (PeeR-to-peer beyOnd FILE Sharing) was a two-year Italian research project (MIUR financed). The project addressed the study of peer-to-peer communication systems. I was involved in the analysis of the security of the Kademlia/Kad protocol
Siemens (Munich), 2007	The research project was aimed at the development of a simulation environment to evaluate the capacity of IEEE 802.11 network in specific situation of traffic load. I was involved as a simulator designer and developer
CRUISE NoE 2006	The CRUISE Network of Excellence focused on the communication and application aspects of wireless sensor networking, including all related and supportive technologies. My role was to design security protocols for wireless sensor networks
Telecom Italia, 2004-2005	Two research projects aimed at the design and implementation of an authentication method that optimizes secure hand off in ad-hoc/mesh/manet networks, based on token exchanges. I was the main protocol designer and developer

Teaching Activities

2019	Teacher of the course of Advanced Networks at the Bachelor of Computer Science, DISI, University of Trento (48 hrs, starting Feb. 2019). I also am part of the exam commission.
2018	Teacher of the Ph.D. Course in Large Scale Distributed Wireless Networking at the DISI, University of Trento (20 hrs, Fall 2018).
2016-on	I am part of the Ph.D. Doctoral School Committee of the DISI, as such, for six times I was part of the commissions for students' qualifying exams (an intermediate exam after one year of Ph.D.).
2017-ongoing	Co-supervisor of Luca Baldesi and Lorenzo Ghiro, Ph.D. students at the DISI
2017-on	Teacher of the course in Wireless Mesh and Vehicular Networks at the Master of Computer Science, DISI, University of Trento (16 hrs). I also am part of the exam commission.
2017	Teacher of the Ph.D. Course in Large Scale Distributed Wireless Networking at the DSI, University of Florence (16 hrs).
2016, 2017	Mentor for the Google Summer of Code project that implements Pop-Routing in OLSRv1 and OLSRv2 [7]

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[5]See the web page of the project http://goldstein.disi.unitn.it/caritro/
[6]See the web page of the project http://osps.disi.unitn.it/
[7]See http://blog.freifunk.net/2016/implementing-poprouting

2015	Teacher of the "Privacy, Security and Trust" course in the Post-master's programme Smart Community Design and Management (SCoDeM) organized by the DISI (13 hrs)
2005-Now	I co-advised more than 40 BS and MS students, two of them where appointed with the "Innovating Information Security" prize from the Italian Association for Information Security (CLUSIT). For at least 20 of them I participated to the Thesis Commission.
2010	I was part of the Ph.D commission for the thesis of Pablo Neira Ayuso in the Computer Science department of the University of Sevilla
2005,2011,2012,2017	Teacher of the professional training course "Security of Wireless Networks" organized by the Center for Informatics Services of the University of Florence (CSIAF), for a total of 76 hrs. The course was aimed to the Univesity technical staff and ICT professionals.
2005-2010	Throughout my career in the University of Florence I held seminars on security for the various curses: Security and Network Management, Telematics Laboratory, Telecommunication networks. In the first course I did 10 hours per year, and I was also part of the exam commission.
2008	Teacher in the Post-secondary, Higher Technical Education and Training course (IFTS) for the "Network Security" organized by the Province of Pistoia and co-financed by the EU (40 hrs).
2006	Invited teacher of the first school organized by the European network of Excellence C.R.U.I.S.E. giving a seminar on security in Wireless Sensor Networks at the Aalborg University (Denmark)

Prizes

2014	I received a personal award of €6000 for a research proposal named RiseApp, from the CHEST FP7 Project. RiseApp goal was to build a mobile application to share and publish media contents in situations in which human rights are at risk (such as protests and riots) and Internet connectivity is filtered, censored or temporarily blocked.

Organization of Scientific Meetings

2016	I was in the program committee of the IEEE WONS workshop, where I organized a special session on Community Networks[8]
2016	I was in the scientific committee of the interdisciplinary workshop "Local and Community Networks" organized by the University of Trento[9]

Invited Talks and Panels

1/2019	Invited seminar at the Computer Science Department, University of Rome "La Sapienza" with a presentation entitled: "Community Networks and beyond: a socio-technical approach to study networks"
12/2018	Invited seminar at the Computer Science Department of the University of Venice, with a presentation entitled "Community Networks: a theme for Networking Research"
2018	I held an invited seminar to the UNESCO on the theme of Community Networks. The outcome of this presentation, together with the efforts from the netCommons project was the modification of the Internet Universality Indicators, the new indicators used by UNESCO to evaluate state policies for telecommunications, which now take into consideration Community Networks[10].
2017	I held an invited seminar to the European Parliament on the theme of Community Networks. The outcome of this presentation, together with the efforts from the net-Commons project was the modification of the Telecom Package, the new framework for Telecommunications in Europe, which now explicitly consider Community Networks[11].
2017	I participated as an invited panelist to the RightsCon conference session on "Sustainable Connectivity"

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[8]See http://2016.wons-conference.org/
[9]See http://webmagazine.unitn.it/evento/giurisprudenza/10495/local-and-community-networks
[10]See the https://netcommons.eu/?q=news/netcommons-unesco for details
[11]See the https://netcommons.eu/?q=content/netcommons-guidelines-telecom-policy-makers for details

2016	I moderated the session "Challenges in carrying it into practice" in the Barcelona Workshop on community networking infrastructures[12]
2014,2017	Twice invited as a speaker to Dagsuthl seminars: Nov. 2014 "Towards an Affordable Internet Access for Everyone: The Quest for Enabling Universal Service Commitment (Dagstuhl Seminar 14471)" and Nov 2017 "Internet of People (Dagstuhl Seminar 17412)"
2010	Invited seminar at the Computer Science University of Seville (Spain), on the theme of distributed network security

Institutional Roles

2018	In March I received the national qualification for Associate Professor (Italian "Abilitazione Scientifica Nazionale, II Fascia, settori 01/B1 and 09/H1").
2018	I entered (by invitation) REPRISE, the database of expert reviewers created by the Italian Ministry of Education, Universities and Research to bring together qualified experts from Italy and around the world in all fields of scientific enquiry. The peer-reviewing for all research projects funded by MIUR relies on this database.
2017	Member of the Ph.D commission for the thesis of Emmanoil Dimogerakis in the Computer Science department of the Politecnical University of Barcelona (Spain)
2016-	Member of the Faculty Committee, DISI, University of Trento
2016-	Member of the Ph.D. Doctoral School Committee of the ICT Doctoral School of the University of Trento
2010	Member of the Ph.D commission for the thesis of Pablo Neira Ayuso in the Computer Science department of the University of Seville (Spain)

Commission of Trust

Editorial Board	I am in the editorial board of Wiley "Security and Privacy" journal (launched in 2018), between 2016 and 2018 I was in the Editorial Board of Wiley "Wireless Communications and Mobile Computing"
TPC	TPC in several conferences including top conferences in the networking area, such as: IEEE INFOCOM (2019), IEEE ICDCS (2018), IFIP Networking (2017, 2018); and several other relevant conferences, such as: CNBuB (2014-2016), IEEE Globecom (2019, 2018, 2016, 2009, 2008), IEEE ICC (2011, 2009, 2007), IEEE/IFIP WONS (2016, 2012), ACM DIYNet (2015), IEEE COMNESAT (2018), GECON (2015, 2015).
Reviewer	Reviewer in several conferences and journals, including IEEE INFOCOM, IFIP Networking, IEEE Globecom, IEE ICC; IEEE Transactions on Networking, Wireless Communications, Communications Magazine, and "Access"; Elsevier Ad Hoc Networks, Mobile Networks & applications, and Future Generation Computer Systems; Springer International Journal of Information Security and "Computing", Wiley Security and Communication Networks and International Journal of Communication Systems.

Major Collaborations

Technical Universities	In the netCommons project I have active cooperation with the group of Leandro Navarro from the Universitat Politecnica de Barcelona (UPC), and with the group of Iordanis Koutsopoulos of the Athens University of Economics and Business. I had previous cooperation with Pablo Neira (lead developer of the netfilter module in the Linux kernel and researcher at the University of Seville, Spain).
Interdisciplinary	I cooperated with Paolo Magaudda from the Social Science department of the University of Padua, I was involved in two projects with Roberto Caso from the Law department of the University of Trento. In netCommons I daily cooperate with Melanie Dulong de Rosnay (CNRS), and Christian Fuchs (Univ. of Westminster), two widely recognized researchers in Law and Social Science

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[12]See http://netcommons.eu/?q=content/workshop-community-networking-infrastructures

Industry	I am co-author of 4 among patents and requests with researchers from Telecom Italia Lab and Selex Communication (now Leonardo Finmeccanica). In 2010 I spent a one year internship in Selex, coordinating the development of a network simulator for the European Defence Agency project ESSOR, involving companies like SAAB, RAD-MOR, Thales (with whom I had daily interactions and meetings). I authored a 2016 paper with researchers from Bell-Labs, Google Inc., and Telefonica Research as a product of an EIT (European Institute of Technology) Project. I had activities with small enterprises like Phoops SRL that produced the discovery of a security vulnerability of the Wireless Protected Set-up Wi-Fi protocol (see publication at INFOCOM Conference, 2013). In 2018 I co-authored a paper with a researcher from Here Technologies (once Navteq and Nokia Maps).
Entrepreneurship	I am an associate of Tracking4Fun[13], a forming start-up based in Florence (Italy) whose mission is to create affordable devices to track athletes using wireless localization. The company uses cutting-edge technology to provide high precision localization for outdoor and indoor sports. I am contributing to the design of advanced localisation techniques for large-scale scenarios leveraging my expertise on distributed wireless networks.

Education and training

2007-2010	Ph.D at the University of Florence, graduated with a thesis entitled "Security protocols for distributed networks"
1997-2004	Faculty of Computer Science Engineering in Florence. Master Thesis: "Analysis and Development of security protocols for mesh networks". Graduated with 109/110. The thesis is among the 5 finalists of the Marconi Junior Prize for the best 2004 Italian thesis in ICT sector
2000-2001	Spent a semester at the Escuela Superior de Ingenieros de Sevilla as Erasmus student.
-1997	Scientific studies at Leonardo da Vinci institute, Florence.

Personal skills

Mother tongue	Italian
Other language(s)	English, Spanish

Self-assessment
European level[*]

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
C2	C2	C2	C2	C2
C1	C1	C1	C1	C1

[*]Common European Framework of Reference (CEF) level

English (row 1: C2), Spanish (row 2: C1)

Social skills and competences	Participation and presentation of talks to various national and international conferences, both academic (such as flagship IEEE conferences, see publications) or industrial (such as Italian InfoSecurity conference). I write for on-line and printed newspapers, I have been active in politics and cooperated with the Municipality of Florence for the realization of laws on digital commons
Organisational skills and competences	As a student, I organized various University-founded conferences on network security and open source with more than 100 attendees
Computer skills and competences	Expert in System administration with focus on GNU/Linux and embedded systems (OpenWRT OS). Expert in mesh-networks and wireless routing. Expert in wireless and wired network security and software development (IEEE 802.11, IEEE 802.16 and experience with Wireless Sensor Networks). Expert of peer-to-peer software networks and distributed wireless mesh networks. Programming languages: C, C++, Python, basic skills in PHP, Java

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[13]See http://www.tracking4fun.com/

List of Publications

Conference	L. Baldesi, L. Maccari, and R. Lo Cigno, "On the properties of infective flooding in low-duty-cycle networks," in Accepted to IEEE Wireless On-demand Network systems and Services Conference (WONS), 2019
Journal	L. Maccari and A. Passerini, "A Big Data and Machine Learning Approach for Network Monitoring and Network Security," Wiley Security and Privacy, 2018

Journal	L. Maccari, "Detecting and Mitigating Points of Failure in Community Networks: a Graph-based Approach," IEEE Transactions on Computational Social Systems, vol. 9, Feb. 2019
Journal	L. Maccari and R. Lo Cigno, "Improving Routing Convergence with Centrality: Theory and Implementation of Pop-Routing," IEEE Transactions on Networking, vol. 26, pp. 2216–2229, Oct. 2018
Journal	L. Maccari, M. Maischberger, and R. Lo Cigno, "Where have all the MPRs gone? On the Optimal Selection of Multi-Point Relays," Elsevier Ad Hoc Network, vol. 77, pp. 69–83, Aug. 2018
Journal	L. Maccari, N. Facchi, L. Baldesi, and R. Lo Cigno, "Optimized P2P Streaming for Wireless distributed Networks," Elsevier Journal of Pervasive and Mobile Computing, vol. 42, pp. 335–350, Dec. 2017
Journal	L. Baldesi, L. Maccari, and R. Lo Cigno, "On the Use of Eigenvector Centrality for Cooperative Streaming," IEEE Communications Letters, vol. 21, pp. 1953–1956, Sept. 2017
Journal	L. Baldesi, L. Maccari, and R. Lo Cigno, "Improving P2P streaming in wireless community networks," Computer Networks, vol. 93, Part 2, pp. 389–403, 2015
Journal	L. Maccari and R. Lo Cigno, "A week in the life of three large wireless community networks," Ad Hoc Networks, vol. 24, Part B, pp. 175–190, 2015
Journal	L. Maccari, R. Fantacci, T. Pecorella, G. Ghettini, and F. Chiti, "Protecting mobile agents communications in pervasive networks with a trusted distributed mediator for id-based RSA," Wiley Security and Communication Networks, vol. 7, pp. 1887–1899, 2014
Journal	L. Maccari and R. Lo Cigno, "Betweenness estimation in OLSR-based multi-hop networks for distributed filtering," Elsevier Journal of Computer and System Sciences special issue on Wireless Networks Intrusion, vol. 80, no. 3, pp. 670–685, 2014
Journal	L. Maccari and R. Lo Cigno, "Waterwall: a cooperative, distributed firewall for wireless mesh networks," SpringerOpen/EURASIP Journal on Wireless Communications and Networking, vol. 2013, no. 225, p. 225
Journal	R. Fantacci, P. Neira Ayuso, L. Maccari, and R. Martínez Gasca, "Efficient packet filtering in wireless ad-hoc networks," IEEE Communication Magazine, vol. 46, no. 2, pp. 104–110, 2008
Journal	F. Chiti, R. Fantacci, L. Maccari, D. Marabissi, and D. Tarchi, "A broadband wireless communication system for emergency management," IEEE Wireless Communication Magazine, vol. 15, no. 3, pp. 8–14, 2008
Journal	A. Mitseva, P. Todorova, R. Aguero, A. Garcia Armada, C. Panayiotou, A. Timm-Giel, L. Maccari, and N. Prasad, "Cruise research activities towards ubiquitous intelligent sensing environments," IEEE Wireless Communication Magazine, vol. 15, no. 4, pp. 52–60, 2008
Journal	R. Fantacci, F. Chiti, and L. Maccari, "Fast distributed bi-directional authentication for wireless sensor networks," Wiley journal on Security and Communication Networks, vol. 1, no. 17-24, 2008
Journal	R. Fantacci, L. Maccari, T. Pecorella, and F. Frosali, "Analysis of secure handover for ieee 802.1x-based wireless ad hoc networks," IEEE Wireless Communication Magazine, vol. 14, no. 5, pp. 21–29, 2007

Journal	F. Giovanella, S. Crabu, L. Maccari, and P. Magaudda, "Hackivism in community networks: the italian case of ninux.org," The Journal of Peer Production, 2016

Journal	S. Crabu, F. Giovanella, L. Maccari, and P. Magaudda, "A transdisciplinary gaze on wireless community networks," TECNOSCIENZA: Italian Journal of Science and Technology Studies, vol. 6, no. 2, 2015

——— Patents ———

Patent	L. Costa, G. Fregulia, F. Federico, R. Fantacci, L. Maccari, and T. Pecorella, "Short authentication procedure in wireless data communications networks," US Patent US Patent US8 621 201B2, 2008., 2008
Patent	L. Costa, G. Fregulia, F. Federico, R. Fantacci, L. Maccari, and T. Pecorella, "Short authentication procedure in wireless data communications networks," EU Patent WO2 007 000 179 (PCT), EP1 900 170 (EU), 2008
Patent request	N. Privitera, C. Armani, L. Adamo, L. Maccari, and D. Marabissi, "Two-level routing communication method for a manet network, network node and mobile network implementing this communication method," EU Patent WO2 014 167 550 (EPO Patent Request), 2014
Patent request	M. Gianluca, L. Piccinocchi, M. Rosi, and L. Maccari, "Modified ad-hoc on-demand distance-vector routing protocol," EU Patent Request to EPO WO2009144756 (PCT), 2008

——— Book Chapters ———

Book Chapter	L. Maccari, "Decentralized, multi-hop networks: Are they really different from the internet?" in Towards an Affordable Internet Access for Everyone: The Quest for Enabling Universal Service Commitment (Report from Dagstuhl Seminar 14471). Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik, 2015, vol. 4
Book Chapter	L. Maccari and T. Bailoni, "Wireless community networks: una liberation technology per l'internet del futuro." in Reti di libertà. Wireless Community Networks: un'analisi interdisciplinare. Università degli studi di Trento, 2015, vol. 9
Book Chapter	L. Adamo, R. Fantacci, and L. Maccari, "Wimax networking security," in WiMAX Security and Quality of Service: Providing an End to End Explanation. Wiley, 2009
Book Chapter	F. Chiti, R. Fantacci, L. Maccari, D. Marabissi, and D. Tarchi, "The role of wimax technology in distributed wide area monitoring applications," in WiMAX Evolution: Emerging Technologies and Applications. Wiley, 2008

——— Conferences ———

Conference	L. Maccari, L. Ghiro, A. Guerrieri, A. Montresor, and R. Lo Cigno, "On the Distributed Computation of Load Centrality and Its Application to DV Routing," in IEEE International Conference on Computer Communications (INFOCOM), Honolulu (USA), April 2018
Conference	L. Maccari, M. Karaliopoulos, I. Koutsopoulos, L. Navarro, F. Freitag, and R. Lo Cigno, "5G and the Internet of EveryOne: Motivation, Enablers, and Research Agenda," in European Conference on Networks and Communications (EUCNC), Ljubljana, Slovenia, June 2018
Conference	M. Segata, N. Facchi, L. Maccari, G. Gemmi, and R. Lo Cigno, "Centrality-based Route Recovery in Wireless Mesh Networks," in IEEE International Conference on Communications (ICC), Kansas City, (USA), May 2018
Conference	M. Segata, N. Facchi, L. Maccari, and R. Lo Cigno, "RoRoute: Tools to Experiment with Routing Protocol Robustness in WMN," in IEEE/IFIP Wireless On-demand Network systems and Services Conference, Isola 2000, France, February 2018
Conference	L. Ghiro, L. Maccari, and R. Lo Cigno, "Proof of networking: Can blockchains boost the next generation of distributed networks? (short paper)," in IEEE/IFIP Wireless On-demand Network systems and Services Conference, Isola 2000, France, February 2018
Conference	D. Kirchner, R. Ferdous, R. Lo Cigno, L. Maccari, M. Gallo, D. Perino, and L. Saino, "Augustus: a CCN router for programmable networks," in ACM Conference on Information-Centric Networking (ICN), Kyoto (Japan), Sept. 2016
Conference	L. Maccari, Q. Nguyen, and R. Lo Cigno, "On the Computation of Centrality Metrics for Network Security in Mesh Networks," in IEEE Global Communications Conference (Globecom), Washington DC (USA), Dec. 2016
Conference	L. Baldesi, L. Maccari, and R. Lo Cigno, "Optimized Cooperative Streaming in Wireless Mesh Networks," in IFIP Networking Conference (NETWORKING), Vienna, (Austria), April 2016

Conference	L. Maccari, "On the Technical and Social Structure of Community Networks," in IFIP Internet of People Workshop,IoP, Vienna (Austria), April 2016
Conference	L. Baldesi and L. Maccari, "NePA TesT: Network Protocol and Application Testing Toolchain for Community Networks," in Conference on Wireless On-demand Network Systems and Services (WONS), Cortina D'Ampezzo (Italy), January 2016
Conference	L. Maccari and R. Lo Cigno, "Pop-Routing: Centrality-based Tuning of Control Messages for Faster Route Convergence," in IEEE International Conference on Computer Communications (INFOCOM), San Francisco (USA), April 2016
Conference	L. Cerdá-Alabern, A. Neumann, and L. Maccari, "Experimental evaluation of BMX6 routing metrics in a 802.11n wireless-community mesh network," in International Workshop on Community Networks and Bottom-up-Broadband (CNBuB), Rome (Italy), Aug. 2015
Conference	L. Maccari, L. Baldesi, R. Lo Cigno, J. Forconi, and A. Caiazza, "Live video streaming for community networks, experimenting with peerstreamer on the Ninux community," in Workshop on Do-it-yourself Networking: an Interdisciplinary Approach (co-located with ACM Mobisys), Florence (Italy), May 2015
Conference	L. Baldesi, L. Maccari, and R. Lo Cigno, "Improving p2p streaming in community-lab through local strategies," in International Workshop on Community Networks and Bottom-up-Broadband (CNBuB), Larnaca (Cyprus), Oct. 2014
Conference	L. Baldesi, L. Maccari, and R. Lo Cigno, "Live p2p streaming in communitylab: Experience and insights," in Mediterranean Ad Hoc Networking Workshop (MED-HOC-NET), Piran (Slovenia), June 2014
Conference	L. Maccari and R. Lo Cigno, "Urban wireless community networks: Challenges and solutions for smart city communications." in ACM International Workshop on Wireless and Mobile Technologies for Smart Cities (WiMobCity), Philadelphia (USA), 2014
Conference	L. Maccari, "An analysis of the Ninux wireless community network," in International Workshop on Community Networks and Bottom-up-Broadband (CNBuB), Lyon, (France), Oct. 2013
Conference	L. Maccari and M. Rosi, "Re-breaking wireless protected setup," in Poster to the IEEE Conference on Computer Communications (Infocom), Turin (Italy), April 2013
Conference	L. Maccari, "A collaborative firewall for wireless ad-hoc social networks," in Proceedings of the International Conference on Security and Cryptography, Rome (Italy), April 2012
Conference	L. Maccari and R. Lo Cigno, "How to reduce and stabilize MPR sets in OLSR networks," in IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), Barcelona (Spain), Oct. 2012
Conference	L. Maccari and R. Lo Cigno, "Privacy in the pervasive era: A distributed firewall approach," in Wireless On-demand Network Systems and Services (WONS), poster session, Courmayeur (Italy), Dec. 2012
Conference	L. Bencini, R. Fantacci, and L. Maccari, "Analytical model for performance analysis of ieee 802.11 DCF mechanism in multi-radio wireless networks," in IEEE International Conference on communications (ICC), Cape Town (South Africa), May 2010
Conference	R. Fantacci, L. Maccari, M. Rosi, L. Chisci, L. M. Aiello, and M. Milanesio, "Avoiding eclipse attacks on kad/kademlia: An identity based approach," in IEEE International Conference on Communications, (ICC), Dresden (Germany), June 2009
Conference	A. Barbieri, R. Fantacci, and L. Maccari, "A novel interface selection scheme for multi-interface wireless mesh networks." in IEEE International Conference on Communications, (ICC), Dresden (Germany), June 2009
Conference	P. Neira Ayuso, L. Maccari, L. Lefevre, and R. Martínez Gasca, "Stateful firewalling for wireless mesh networks," in IEEE International Conference on New Technologies, Mobility and Security, (NTMS), Nov 2008
Conference	L. Maccari, M. A. Marchitti, N. Prasad, R. Fantacci, and L. Mainardi, "Lightweight, distributed access control for wireless sensor networks supporting mobility," in IEEE International Conference on Communications, (ICC), Bejing (China), May 2008
Conference	F. Chiti, R. Fantacci, L. Maccari, K. Murray, D. Pesch, S. Tomic, R. Aguero, J. Perez Solano, T. Suihko, and N. Prasad, "The approach of european network of excellence CRUISE to heterogeneous wireless sensor networks design and integration," in International Conference on Sensor Technologies and Applications, 2007

Conference	L. Maccari, R. Fantacci, P. Neira Ayuso, and R. Gasca Martínez, "Mesh network firewalling with Bloom filters," in IEEE International Conference on Communications (ICC), 2007
Conference	L. Maccari, M. Paoli, and R. Fantacci, "Security analysis of IEEE 802.16," in IEEE International Conference on Communications, (ICC), Valencia (Spain), Oct. 2007
Conference	M. Rosi, L. Maccari, and R. Fantacci, "S.t.r.e.s.s.: Stress testing and reverse engineering for system security," in IEEE International Conference on Communications, (ICC), Glasgow (Scotland), June 2007
Conference	L. Maccari, R. Fantacci, T. Pecorella, and F. Frosali, "Secure, fast handhoff techniques for 802.1x based wireless network," in IEEE International Conference on Communications (ICC), Istanbul (Turkey), June 2006
Conference	R. Fantacci, L. Maccari, T. Pecorella, and F. Frosali, "A secure and performant token-based authentication for infrastructure and mesh 802.1 x networks," in IEEE Conference on Computer Communications (Infocom), poster session, Barcelona (Spain), April 2006

Additional information

Artistic and Other skills	I was involved in the free-software and open source movement since the early 2000s. I am among the founder of the Ninux.org network in Florence and of the free-software lab of the University of Florence (lilik.it). I organised and chaired conferences on social and technological themes, I have worked with the Major Deputy of Florence to propose the switch of the public IT infrastructure to open source and Creative Commons.
Privacy Statement	Le dichiarazioni rese nel presente curriculum sono da ritenersi rilasciate ai sensi degli artt. 46 e 47 del D.P.R 445/2000