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Lingue

Italiano, madre lingua
Inglese, fluente

Titoli di studio

2013–2015	Ph.D. in Information and Communication Technology Reggio Emilia Premio di miglior tesi di dottorato	Università di Modena e Reggio Emilia
2010–2012	Laurea Magistrale in Informatica 110/110 con lode	Università degli studi di Bologna
2007–2010	Laurea Triennale in Informatica 110/110 con lode	Università di Modena e Reggio Emilia
2002–2007	Diploma Tecnico in Elettr. & Telecom. 100/100	I.T. Enrico Fermi, Modena

Esperienza Universitaria

Ricerca

2023–now	Università di Modena e Reggio Emilia Ricercatore di tipo B: SSD ING-INF/03	Modena, Italy
2022–2023	Università di Modena e Reggio Emilia Assegnista di Ricerca Topic: IoT, QoS e Digital Twin	Modena, Italy
2017–2022	Università di Modena e Reggio Emilia Ricercatore di tipo A: SSD ING-INF/03	Modena, Italy
2016–2017	Università di Modena e Reggio Emilia Assegnista di Ricerca Creazione ed analisi di algoritmi AQM per il controllo della congestione	Modena, Italia
2013–2015	Università di Modena e Reggio Emilia Studente di Dottorato in ICT Sviluppo di soluzioni di livello networking per la QoS in reti wireless/satellitari. Topic investigati: • Packet Scheduling • Active Queue Management • Soluzioni Middleware e Cross-Layering • Transmission Control Protocol • Controllo di Congestione • SDN	Modena, Italia
2014–2015	Università di Modena e Reggio Emilia Co.Co.Co Sviluppo di soluzioni middleware per reti di emergenza	Modena, Italia

Esperienza Editoriale

2020–now	Sensors Topic Board	MDPI
2017–now	Computer Communication Technical Committee	Elsevier
2019–2020	Telecom - Special Issue ``Vehicular Communications'' Guest Editor	MDPI

Didattica

2018–now	Automotive Connectivity Corso da 6CFU tenuto in lingua inglese per le magistrali di Advanced Automotive Electronic Engineering (UniBo/UniMoRe), Electronic Engineering e Computer Engineering (UniMoRe)	Alma Mater Studiorum UniBo & UniMoRe
2020–2023	Communication Systems: Theory & Measurement UniBo Corso da 6CFU tenuto in lingua inglese per la magistrale Electrical Vehicle Engineering (UniBo)	Alma Mater Studiorum
2021–now	In-vehicle connectivity Corso di due ore tenuto nelle ultime due edizione della “Winter School for higher education on Future of automotive for intelligent mobility”	Motor-vehicle University of Emilia-Romagna - MUNER

Progetti & Collaborazioni

2024–now	BiREX Open Project: partner Sma-RTy & Smartea ICS: In-City Sensing	Bologna, Italia
2023–now	Progetto di Ricerca con l'Agenzia Spaziale Europea (ESA) SURPRISE: Standardised groUnd softwaRe comPonents for oRchestrating hIgh throughput Satellite sERVICES	Roma, Italia
2023–now	POR-FESR IGNITE 5.0: IntelliGent and secure Networking in IndusTRial Environments: towards Industry 5.0	Modena, Italia
2022–now	Responsabile Living-Lab PNRR Spoke 6 Centro Nazionale per la MObilità' SosTenibile (MOST)	Modena, Italia
2020–now	Responsabile scientifico per Ferrari, Mercedes, Maserati, Lamborghini, Tesla, Ducati, Bosch, EDAG, Quest-Global e CNH Tirocini e collaborazioni sui topic di connettività veicolare	Europa
2018–2019	Progetto di ricerca: Alstom Group Titolo: "V2X communications and distributed architectures for road safety-related applications" Sito Web: http://www.netlab.unimore.it/	Modena, Italia
2017–now	Progetto di ricerca: EarthCloud NPO Titolo: "IoT-based Seismic Alert Systems" Sito Web: http://www.earthcloud.it/	Modena, Italy
2013-2015	Progetto Europeo FP7: PPDR-TC Public Protection and Disaster Relief Transformation Center Sito Web: http://www.ppdr-tc.eu/	Modena, Italia
2013-2014	Progetto Europeo FP7: E-SPONDER A holistic approach towards the development of the first responder of the future Sito Web: http://www.e-sponder.eu/	Modena, Italia
2012	Progetto Europeo EU-FET: HATS Highly Adaptable and Trustworthy Software using Formal Method Sito Web: http://www.hats-project.eu/	Bologna, Italia

Premi & Riconoscimenti

2023	ASN Abilitazione Scientifica Nazionale alle funzioni di professore universitario di seconda fascia nei Settori Concorsuali 09/F2 - Telecomunicazioni e 01/B1 - Informatica	Ministero dell'Università e della Ricerca
2017	Best Ph.D. Student Premio per la miglior attività di ricerca: XXVIII Ciclo	Scuola di Dottorato ICT, UniMoRe
2014	Lettera di Benemerenzza Premio per essersi distinto nella ricerca internazionale conferito dal Magnifico Rettore, Modena	Università di Modena e Reggio Emilia
2013	Miglior Presentazione Premio per la miglior presentazione svolta alla scuola estiva di dottorato SSIE, Bressanone	Università di Padova
2012	Lettera di Merito Premio ai migliori di studenti dell'ateneo dal Magnifico Rettore, Bologna	Università di Bologna
2010	Borsa di Studio Premio per la miglior tesi triennale	Università di Modena e Reggio Emilia

Presentazioni

2013–now	Interventi	Conferenze/Workshop
	• Workshop SFINGI'13, Modena • IEEE ICC'14, Sydney • INW Workshop'15, Cavalese • IEEE WiMob'15, Abu Dhabi • IEEE ConTEL'17, Zagabria • IEEE WiMob'17, Roma • IEEE PIMRC'18, Bologna • IEEE WiMob'19, Barcellona • IEEE WiMob'21, Virtual Conf.	• SSIE Summer School'13, Brixen • IEEE WiMob'14, Larnaca • IEEE PerCom'15, St.Louis • IEEE ICC'17, Parigi • IEEE RTSI'17, Modena • IEEE ISNCC'18, Roma • IEEE WiMob'18, Limassol • IEEE ICC'20, Virtual Conf. • IEEE WiMob'22, Salonicco

Interessi

professionali: Sistemi Linux e stack TCP-IP, algoritmi di networking, comunicazioni wireless, protocolli di comunicazione veicolari, analisi formale, algoritmi di controllo delle code.

personali: video editing, ukulele, corsa, snooker, cubo di Rubik.

Pubblicazioni

Articoli Pubblicati su Rivista/Magazine

- [22] L. Lusvarghi, Carlo A. Grazia, M. Klapez, M. Casoni and M.L. Merani
Awareness Messages by Vulnerable Road Users and Vehicles: Field Tests Via LTE-V2X
IEEE Transactions on Intelligent Vehicles; 10.1109/TIV.2023.3280744, 2023
- [21] Carlo A. Grazia, N. Patriciello, T. Høiland-Jørgensen, M. Klapez and M. Casoni
Aggregating Without Bloating: Hard Times for TCP on Wi-Fi
IEEE/ACM Transactions on Networking; 10.1109/TNET.2022.3171594, 2022 - 10 May 2022
- [20] M. Klapez, Carlo A. Grazia, M. Casoni
Experimental Evaluation of IEEE 802.11p in High-Speed Trials for Safety-Related Applications
IEEE Transactions on Vehicular Technology; 10.1109/TVT.2021.3111289, 2021 - 9 Sep 2021
- [19] M. Klapez, Carlo A. Grazia, M. Casoni
Application-level Performance of IEEE 802.11p in Safety-related V2X Field Trials
IEEE Internet of Things Journal, 7(5), pp. 3850-3860, <https://doi.org/10.1109/JIOT.2020.2967649>
- Jan 2020
- [18] M. Klapez, Carlo A. Grazia, M. Casoni
Minimization of IEEE 802.11p Packet Collision Interference through Transmission Time Shifting
J. Sens. Actuator Netw. 2020, 9(2), 17; <https://doi.org/10.3390/jsan9020017> - 26 Mar 2020
- [17] M. Klapez, Carlo A. Grazia, M. Casoni
The Energy Footprint of 5G Multi-RAT Cellular Architectures
IEEE Access, early access, 10.1109/ACCESS.2021.3122797 - 26 Oct 2021
- [16] Carlo A. Grazia, M. Klapez, M. Casoni
The New TCP Modules on the Block: A Performance Evaluation of TCP Pacing and TCP Small Queues
IEEE Access, Volume 9; 10.1109/ACCESS.2021.3113891 - 20 Sep 2021
- [15] Carlo A. Grazia
Future of TCP on Wi-Fi 6
IEEE Access 2021, Volume 9; <https://doi.org/10.1109/ACCESS.2021.3102022> - 3 Aug 2021
- [14] Carlo A. Grazia
A Performance Model for Wi-Fi Frame Aggregation Considering Throughput and Latency
IEEE Communication Letters 2020; <https://doi.org/10.1109/LCOMM.2020.2995590> - 19 May 2020
- [13] Carlo A. Grazia, M. Klapez, M. Casoni
BBRp: Improving TCP BBR Performance Over WLAN
IEEE Access 2020, Volume 8; <https://doi.org/10.1109/ACCESS.2020.2977834> - 2 Mar 2020
- [12] M. Klapez, Carlo A. Grazia, M. Casoni, S. Zennaro, M. Cozzani
Processing and Communication Delays in EWS: On the Performance of the Earthcloud Prototype
Wireless Communications and Mobile Computing, March 2019, DOI: 10.1155/2019/6206854
- [11] Carlo A. Grazia, N. Patriciello, M. Klapez, M. Casoni
Transmission Control Protocol and Active Queue Management together against congestion: cross-comparison through simulations
Simulation: Transactions of the Society for Modeling and Simulation International, November 30, 2018, DOI: 10.1177/0037549718814626

- [10] M. Casoni, Carlo A. Grazia, M. Klapez
SDN-Based Resource Pooling to Provide Transparent Multi-Path Communications
IEEE Communication Magazine, DOI: 10.1109/MCOM.2017.1601214
- [9] M. Klapez, Carlo A. Grazia, M. Casoni
A Hybrid Algorithm to combine Redundancy and Concurrency in Virtual Network Resource Pooling
Internet Technology Letters, John Wiley & Sons, DOI: 10.1002/itl2.18
- [8] M. Casoni, Carlo A. Grazia, M. Klapez, N. Patriciello
How to avoid TCP Congestion without dropping Packets: an Effective AQM called PINK
accepted for publication in the Computer Communications Journal, Elsevier, ISSN: 0140-3664 , available online DOI: 10.1016/j.comcom.2017.02.010
- [7] M. Casoni, Carlo A. Grazia, P. Valente
Achieving a High Throughput and a Low Latency through a Modular Packet Scheduler
accepted for publication in the International Journal of Communication Networks and Distributed Systems, Inderscience Publishers, ISSN: 1754-3916.
- [6] M. Casoni, Carlo A. Grazia, M. Klapez
A software defined 5G cellular network with links virtually pooled for public safety operators
Transactions on Emerging Telecommunications Technologies, John Wiley & Sons, 2016, DOI: 10.1002/ett.3092
- [5] M. Casoni, Carlo A. Grazia, M. Klapez, N. Patriciello
QRM: a Queue Rate Management for fairness and TCP flooding protection in mission-critical networks
Computer Networks, Elsevier, pp. 54-65, Vol.93, December 2015, ISSN: 1389-1286, DOI: 10.1016/j.comnet.2015.10.010
- [4] M. Casoni, Carlo A. Grazia, M. Klapez, N. Patriciello
A congestion control middleware layer with dynamic bandwidth management for satellite communications
International Journal of Satellite Communications and Networking, John Wiley & Sons, 2015, ISSN: 1542-0981, DOI: 10.1002/sat.1129
- [3] M. Casoni, Carlo A. Grazia, M. Klapez, N. Patriciello
Integration of Satellite and LTE for Disaster Recovery
Communications Magazine, IEEE, March 2015, Pages 47-53, DOI: 10.1109/MCOM.2015.7060481
- [2] M. Casoni, Carlo A. Grazia, P. Valente
TEMPEST: a new Test Environment for Performance Evaluation of the Scheduling of packets
Simulation Modelling Practice and Theory (SIMPAT), Elsevier, Volume 49, December 2014, Pages 258–276, ISSN: 1569-190X, DOI: 10.1016/j.simpat.2014.10.005
- [1] M. Casoni, Carlo A. Grazia, P. Valente
A Green, Modular and Fair Packet Scheduler for boosting Throughput over Wireless Links
Journal of Networking Technology (JNT), Vol. 4, Issue 4, pp. 192-202, December 2013, ISSN: 0976-898X

Articoli Pubblicati a Conferenze/Workshop Internazionali

- [38] Carlo A. Grazia, M. Klapez, M. Casoni
Comparing different GPS solutions for the Cooperative Awareness Messages Distribution
IEEE WiMob 2023, VN4RRSR Workshop, Montreal, Canada
- [37] Bjørn I. Teigen, N. Davies, K.O. Ellefsen, T. Skeie, Carlo A. Grazia and J. Torresen
A Lower Bound on Latency Spikes for Capacity-Seeking Network Traffic
IEEE ICC'23, 2023, Rome, Italy

- [36] M. Klapez, Carlo A. Grazia, M. Casoni
The Impact of Transmission Power on the Safety-Related Performance of IEEE 802.11p
IEEE WiMob 2021, STWiMob Workshop, Virtual Conference
- [35] Carlo A. Grazia, M. Klapez, M. Casoni
IRONMAN: Infrastructured RSSI-based Opportunistic routing in Mobile Adhoc Networks
IEEE WiMob 2020, ICT4PPRR Workshop, Virtual Conference
- [34] Carlo A. Grazia, N. Patriciello, M. Klapez, M. Casoni
BBR+: improving TCP BBR Performance over WLAN
IEEE ICC, 2020, International Conference on Communications, Virtual Conference
- [33] Carlo A. Grazia
IEEE 802.11n/ac Wireless Network Efficiency under different TCP Congestion Controls
EN4PPDR'19, 2019, WiMob Sixth International Workshop on ICT Systems for Public Protection and Risk Reduction
- [32] M. Klapez, Carlo A. Grazia, M. Casoni
IEEE 802.11p field trials on interference minimization for safety-related V2X applications
EN4PPDR'19, 2019, WiMob Sixth International Workshop on ICT Systems for Public Protection and Risk Reduction
- [31] M. Klapez, Carlo A. Grazia, L. Rold, M. Casoni
IEEE 802.11p under congestion in an Infrastructure-to-Vehicle communication approach
2019 AEIT International Conference of Electrical and Electronic Technologies for Automotive (AEIT AUTOMOTIVE).
- [30] Carlo A. Grazia
Towards 1 ms WLAN Latency
Accepted in IEEE 2018 WiMob workshop on Emergency Networks for Public Protection and Disaster Relief, EN4PPDR'18, October 15-17, 2018, Limassol, Cyprus.
- [29] M. Klapez, Carlo A. Grazia, S. Zennaro, M. Cozzani, M. Casoni
First Experiences with Earthcloud, a Low-Cost, Cloud-Based IoT Seismic Alert System
Accepted in IEEE 2018 WiMob workshop on Emergency Networks for Public Protection and Disaster Relief, EN4PPDR'18, October 15-17, 2018, Limassol, Cyprus.
- [28] Carlo A. Grazia
On the Performance of IEEE 802.11P Outside the Context of a BSS Networks
Proc. of IEEE 2018 International Symposium on Personal, Indoor and Mobile Radio Communications (IEEE PIMRC), June 9-12, 2018, Bologna, Italy.
- [27] Carlo A. Grazia, N. Patriciello, Toke Hoiland-Jorgensen, M. Klapez, M. Casoni, J. Mangués-Bafalluy
Adapting TCP Small Queues for IEEE 802.11 Networks
Proc. of IEEE 2018 International Symposium on Personal, Indoor and Mobile Radio Communications (IEEE PIMRC), June 9-12, 2018, Bologna, Italy.
- [26] M. Klapez, Carlo A. Grazia, M. Casoni
Energy Savings of Sleep Modes enabled by 5G Software-Defined Heterogeneous Networks
Proc. of IEEE 2018 International Forum on Research and Technologies for Society and Industry, RTSI 2018, September 10-13, 2018, Palermo, Italy.
- [25] M. Klapez, Carlo A. Grazia, M. Casoni
Quantifying Sleep-Related Energy Savings in Indoor LTE HetNets Radio Access
Proc. of IEEE 2018 International conference on selected topics in Mobile and Wireless Networking, MoWNet 2018, June 20-22, 2018, Tangier, Morocco.
- [24] Carlo A. Grazia, M. Klapez, M. Casoni
The Bufferboost Effect: when Drops and Redundancy boost the Throughput

Proc. of IEEE 2018 International Symposium on Networks, Computers and Communications (ISNCC): Wireless and Mobile Communications & Networking, June 19-21, 2018, Rome, Italy.

[23] Toke Hoiland-Jorgensen, Carlo Augusto Grazia, Per Hurtig, Anna Brunstrom
Flent: The FLExible Network Tester
ValueTools Conference, December 5-7, 2017, Venice, Italy, DOI: 10.1145/3150928.3150957

[22] Carlo A. Grazia, M. Casoni
Technology independent Scheduling Architecture for V2X Communications
IEEE WiMob Conference, Workshop EN4PPDR, October 9-11, 2017, Rome, Italy, DOI: 10.1109/WIMOB.2017.8115826

[21] Carlo A. Grazia, N. Patriciello, M. Klapez, M. Casoni
Which AQM fits IoT better?
accepted at the next IEEE RTSI workshop, Modena, Italy, September 11-13 2017.

[20] M. Klapez, Carlo A. Grazia, M. Casoni
Reducing Cellular Networks Power Consumption: the Role of Resource Pooling and Cooperation
Proc. of the IEEE ConTEL Conference, Zagreb, Croatia, 28-30 June 2017, pp.107-114, ISBN:9789531842242.

[19] Carlo A. Grazia, N. Patriciello, M. Klapez, M. Casoni
A Cross-Comparison between TCP and AQM Algorithms: which is the Best Couple for Congestion Control?
Proc. of the IEEE ConTEL Conference, Zagreb, Croatia, 28-30 June 2017, pp.75-82, ISBN:9789531842242.

[18] Carlo A. Grazia, N. Patriciello, M. Klapez, M. Casoni
Mitigating Congestion and Bufferbloat on Satellite Networks through a Rate-Based AQM
Proc. of the IEEE ICC International Conference on Communications, May 21-25, 2017, Paris, France, pp.4477-4482.

[17] Carlo A. Grazia, N. Patriciello, M. Klapez, M. Casoni
Enabling Smart Environments by avoiding TCP Congestion through PINK: a no-drop AQM
Proc. of the IEEE WiMob Conference, Workshop SEUNET, October 17-19, 2016, New York, USA.

[16] M. Klapez, Carlo A. Grazia, M. Casoni
Towards Massively Multipath Transmissions for Public Safety Communications
Proc. of the IEEE WiMob Conference, Workshop EN4PPDR, October 17-19, 2016, New York, USA.

[15] N. Patriciello, Carlo A. Grazia, J. Nunez-Martinez, J. Baranda, J. Mangués-Bafalluy, M. Casoni
Performance Evaluation of Backpressure Routing in Integrated Satellite-terrestrial Backhaul for PPDR Networks
Proc. of the IEEE WiMob Conference, Workshop EN4PPDR, October 17-19, 2016, New York, USA.

[15] M. Casoni, Carlo A. Grazia, M. Klapez
Enabling Resource Pooling in Wireless Networks through Software-Defined Orchestration
Proc. of the IEEE ICC International Conference on Communications, May 22-27, 2016, Kuala Lumpur, Malaysia.

[14] M. Casoni, Carlo A. Grazia, M. Klapez
An SDN and CPS based opportunistic Upload Splitting for mobile users
Proc. of the EAI International Conference on CYber physiCaL systems, IoT and sensors Networks (CYCLONE), October 26, 2015, Rome, Italy.

[13] M. Casoni, Carlo A. Grazia, M. Klapez, N. Patriciello

DyBRA: a Dynamic Bandwidth Reservation Algorithm to enhance Satellite Communications
Proc. of the IEEE Global Communications Conference (GLOBECOM), December 6-10, 2015, San Diego, California (USA).

[12] M. Casoni, Carlo A. Grazia, M. Klapez, N. Patriciello
A Cooperative Middleware for Enhancing TCP Performance over High Delay Networks
Proc. of the IEEE Global Communications Conference (GLOBECOM), December 6-10, 2015, San Diego, California (USA).

[11] Carlo A. Grazia, M. Klapez, N. Patriciello, M. Casoni
PINK: Proactive INjection into ack, a queue manager to impose fair resource allocation among TCP flows
Proc. of the IEEE WiMob Conference, Workshop EN4PPDR, October 19-21, 2015, Abu Dhabi, UAE.

[10] Carlo A. Grazia, M. Klapez, N. Patriciello, M. Casoni, H. Gierszal, P. Tyczka, K. Pawlina, A. Amditis, E. Sdongos
Performance Evaluation and Economic Modelling of PPDR Communication Systems
Proc. of the IEEE WiMob Conference, Workshop EN4PPDR, October 19-21, 2015, Abu Dhabi, UAE.

[9] M. Casoni, Carlo A. Grazia, M. Klapez, N. Patriciello
Implementation and Validation of TCP Options and Congestion Control Algorithms for ns-3
Proc. of the 2015 ACM Workshop on ns-3 (WNS3), 13-14 May 2015, Barcelona (Spain), pp. 112-119, DOI: 10.1145/2756509.2756518

[8] M. Casoni, Carlo A. Grazia, M. Klapez, N. Patriciello
Towards Emergency Networks Security with Per-Flow Queue Rate Management
International Workshop on Pervasive Networks for Emergency Management (PerNEM), March 27, 2015, St. Louis, Missouri

[7] M. Casoni, Carlo A. Grazia, M. Klapez, N. Patriciello
Reducing Latency in Satellite Emergency Networks through a Cooperative Transmission Control
Proc. of IEEE Global Communications Conference (GLOBECOM), December 8-12, 2014, Austin, Texas

[6] Carlo A. Grazia, M. Casoni, P. Valente
TEMPEST: Test EnvironMent for Performance Evaluation of the Scheduling of packeTs
Proc. of IEEE Emergency Networks for Public Protection and Disaster Relief (EN4PPDR) Workshop within IEEE WiMob 2014, 8 October 2014, Larnaca (Cyprus), pp.300-307.

[5] Carlo A. Grazia, M. Klapez, N. Patriciello, M. Casoni, A. Amditis, E. Sdongos, H. Gierszal, D. Kanakidis, C. Katsigiannis, K. Romanowski, P. Simplicio, A. Oliveira, S. Sonander, J. Jackson
Integration between Terrestrial and Satellite Networks: the PPDR-TC vision
Proc. of IEEE Emergency Networks for Public Protection and Disaster Relief (EN4PPDR) Workshop within IEEE WiMob 2014, 8 October 2014, Larnaca (Cyprus), pp.202-209.

[4] M. Casoni, Carlo A. Grazia, P. Valente
A Low-Latency and High-Throughput Scheduler for Emergency and Wireless Networks
IEEE International Conference on Communications (ICC), June 10-14, 2014, Sydney, Australia

[3] M. Casoni, Carlo A. Grazia, N. Patriciello
On the Performance of Linux Container with Netmap/VALE for Networks Virtualization
IEEE International Conference On Networking (ICON), December 11-13, 2013, Singapore

[2] M. Casoni, Carlo A. Grazia, P. Valente
A Flexible and Green Scheduler for providing QoS and High Throughput over Wireless Links

IEEE ICCST, October 04-06, 2013, Hammamet, Tunisy, pp.218-225, ISBN: 978-9938-9511-6-5

[1] E. Giachino, Carlo A. Grazia, C. Laneve, M. Lienhardt, P. Wong
DeadLock Analysis of Concurrent Objects - Theory and Practice
iFM Conference, Springer, June 10-14, 2013, Turku, Finland