Alessandro **Carrega**

Researcher · Ph.D. Software & Network Engineer

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*"**Powered** by **Improvements**"*

About

"Multa non quia difficilia sunt non audemus,
se quia non audemus sunt difficilia".
(Seneca)

Ph.D. **Alessandro** (*aka* Alex) **Carrega** is a **Software** and **Network** Engineer. He is currently a **Senior Researcher** at the **Consorzio Nazionale Interuniversitario per le Telecomunicazioni - National, Inter-University Consortium for Telecommunications (CNIT)** located in the **Genoa Research Unit (RU), Italy**.

He took part in the activities of **many national and European projects** (e.g. Horizon 2020 ASTRID, GUARD, ARCADIA and INPUT, FP7 Integrated Project (IP) ECOnet, PRIN EFFICIENT, FIRB GreenNet, and FICore) and he is an **active reviewer for many different international journals and conferences** (IEEE and ACM).

He has **co-authored several papers in international conference proceedings**. In 2010, he won the **best paper award** at the 3rd International Workshop on GreenCom 2010 co-located with the IEEE Global Communication Conference (GLOBECOM). In 2011 he was a **Visiting Ph.D. Scholar** at Portland State University (PSU), Portland, Oregon, USA under the supervisor of Prof. Suresh Singh as an active member of the Future InterNet Energy Efficiency (FINE2) Italy–USA collaboration project.

He received the **B.S.. and M.S. degrees in Computer Engineering** and the **Ph.D. degree in Green Networking** from the University of Genoa (UniGe) in 2005, 2007 and 2013, respectively. Alex's research is on **networking** (**energy-aware**, **performance optimization**, and **virtualization**), **software routers**, **Network Function Virtualization (NFV)** and **Software-Defined Networking (SDN)** (**OpenFlow**), **container-orchestration system** for **automating computer application deployment**, scaling, and management (**Kubernetes**) and cloud computing platforms (**Openstack**).

Finally, he is involved in **collaboration with many industries**, such as Telecom Italia Mobile (TIM), Broadcom, Nokia, Ericsson, Huawei, etc., and **industrial fora**, like Global Enabling Sustainability Initiative (GeSI).

Education

Ph.D. in Green Networking

Genoa, Italy

University of Genoa (UniGe) — *January 2010 – December 2012*

Thesis *Techniques for Optimal Exploitation of Green Networking Capabilities in Future Internet Devices*
Relators: Prof. R. Bolla, Dr. R. Bruschi.

Note Part of the activities (September 2011 – April 2012) done at Portland State University (PSU) under the supervision of Prof.. S. Singh inside the Future InterNet Energy Efficiency (FINE2).

M.S. in Computer Engineering

Genoa, Italy

University of Genoa (UniGe) — *September 2005 – December 2008*

Marks 110/110 with *honours*.

Thesis *Advanced Techniques for Propositional Satisfiability*
Relators: Prof. E. Giunchiglia, Dr. P. Marin.

B.S. in Computer Engineering

Genoa, Italy

University of Genoa (UniGe) — *September 2002 – September 2005*

Marks 110/110 with *honours*.

Thesis *Experimental Validation of Classification Methodologies for Multifrequency and PolSAR Images*
Relators: Prof. S.B. Serpico, Prof. M. Datcu,Dr. G. Moser.

Note Thesis activities done at Deutsches Zentrum für Luft- und Raumfahrt – German Aerospace Center (DRL) under the supervision of Prof. M. Datcu.

Experience

Senior Researcher

Genoa, Italy

S2N-Lab at CNIT

December 2017 – January 2022

Activities *Optimization models* for power consumption reduction of network devices.
Management and *research* in European projects.
Writing *scientific publications*.

Researcher

CNIT RU of Genoa, Italy

MATILDA Project

June 2017 – November 2017

Activities *Optimization models* for power consumption reduction of network devices.
Management and *research* in European projects.
Writing *scientific publications*.

Research Fellow

Genoa, Italy

TNT-Lab at UniGe

June 2013 – June 2016

Activities *Optimization models* for power consumption reduction of network devices.
Management and *research* in European projects.
Writing *scientific publications*.

Researcher

CNIT RU of Genoa, Italy

ARCADIA Project

January 2016 – December 2016

Activities Study for software solutions for the development of *Highly Distributed* applications.
Definition of the necessary requirements for the implementation of the innovative development framework for distributed applications.
Interim and final reports.

Researcher

CNIT RU of Genoa, Italy

ARCADIA Project

January 2015 – December 2015

Activities Study for software solutions for the development of *Highly Distributed* applications.
Definition of the necessary requirements for the implementation of the innovative development framework for distributed applications.
Interim and final reports.

Researcher

CNIT RU of Genoa, Italy

TREND Project

September 2013 – November 2013

Activities Validation of mechanisms related to the *data-center* power consumption reduction.
Dissemination of research results.
Interim and final reports.

Researcher

CNIT RU of Genoa, Italy

ECOnet Project

April 2013 – August 2013

Activities Study, development, analysis and verification of power consumption models of *software routers* in *multi-core* environments.
Support to the integration of models for the power consumption optimization of single devices and network.
Interim and final reports.

Researcher

CNIT RU of Genoa, Italy

ECOnet Project

April 2012 – December 2012

Activities Analysis and verification of models for the representation of the power consumption of *software routers* in *multi-core* environments.

Researcher

CNIT RU of Genoa, Italy – PSU

FINE2 Project

October 2011 – December 2012

Activities Study and development of interface for *power scaling* and *low power idle* in various contexts and functional parts of the devices under investigation.

Note The activities was done at Portland State University (PSU), Portland, OR, USA.

Researcher

CNIT RU of Genoa, Italy

ECOnet Project

January 2011 – December 2011

Activities Analysis and verification of models for the representation of the power consumption of *software routers* in *multi-core* environments.

Ph.D. Student *Genoa, Italy*

TNT-Lab at UniGe *January 2010 – December 2012*

Activities *Optimization models* for power consumption reduction of network devices.
Management and *research* in European projects.
Writing *scientific publications*.

Collaboration *Genoa, Italy*

TNT-Lab at UniGe *October 2009 – December 2009*

Activities *Optimization models* for power consumption reduction of network devices.
Management and *research* in European projects.
Writing *scientific publications*.

Teaching Assignments

Teaching Course

Fondamenti di Informatica A – Computer Science A *La Spezia, Italy*

University of Genoa *September 2020 – December 2020*

Topics Visual Basic for Applications (VBA)

Fondamenti di Informatica A – Computer Science A *La Spezia, Italy*

University of Genoa *March 2020 – June 2020*

Topics Visual Basic for Applications (VBA)

Fondamenti di Informatica A – Computer Science A *La Spezia, Italy*

University of Genoa *September 2018 – December 2018*

Topics Visual Basic for Applications (VBA)

Fondamenti di Informatica A – Computer Science A *La Spezia, Italy*

University of Genoa *March 2018 – June 2018*

Topics Visual Basic for Applications (VBA)

Thesis Relator

B.S. in Electronic Engineering *Genoa, Italy*

University of Genoa (UniGe) *June 2014*

Authors Vittoriofranco Vagge and Luca Ravera
Title *Automatizzazione in Ambiente LabVIEW di Unità Trasmissive Integrate in Tecnologia Elettro-Ottica per Sistemi d Trasmissione ad Alta- e Iper-Capacità*

M.S. in Telecommunication Engineering *Genoa, Italy*

University of Genoa (UniGe) *March 2011*

Author Paolo Lago
Title *Studio e validazione di un'innovativa architettura di Power Management per Linux Software Router*

M.S. in Telecommunication Engineering *Genoa, Italy*

University of Genoa (UniGe) *October 2010*

Author Chiara Lombardo
Title *Benchmarking Methodologies for the Evaluation of Power Consumption and Network Performance Metrics in Energy-Aware Internet Devices*

B.S. in Telecommunication Engineering *Genoa, Italy*

University of Genoa (UniGe) *November 2009*

Author Andrea Trevisani
Title *Meccanismi autonomici per l'inizializzazione e la gestione di un router distribuito*

Research Projects

EFFICIENT

MIUR

Progetti di Rilevante Interesse Nazionale – Research Projects of National Interest — *2009-2011*

Founding € 158.783,00 (of RU: € 36.087,00)
Main roles Member of Research Unit
Key Person

Energy-Efficiency of Mobile Phone Chargers

GeSI

Industrial Research Project — *2012*

Founding € 13.000,00
Main roles Technical management of development and study activities

Energy-Efficiency and Advanced Flexibility in the XLP Network Processors

NetLogic Microsystem

Industrial Research Project — *2011-2012*

Dimension 2 partners.
Founding € 52.000,00 + € 25.000,00 of hardware equipment.
Main roles Technical management of development and study activities

TREND

European Union

Network of Excellence — *2010-2013*

Project Towards Real Energy-efficient Network Design
Dimension 2 partners.
Coordinator Turin Politecnico (CNIT part of Consortium)
Cost € 4.429.312,00
Founding € 3.000.000,00 + (of RU: € 370.000,00)
Main roles Member of CNIT
Key Person

FINE2

Italian Ministry of Foreign Affairs

Bilateral Project Italy-USA for technical and scientific cooperation — *2012-2013*

Project Future InterNet Energy Efficiency
Dimension 2 partners.
Coordinator CNIT RU of Genoa, Italy
Cost € 170.000,00
Founding € 85.000,00
Main roles Member of Research Unit
Key Person

Green Network Technologies

Huawei Tech. Düsseldorf GmbH

Industrial Research Project — *2012-2013*

Dimension 2 partners.
Coordinator CNIT RU of Genoa, Italy
Founding € 60.000,00
Location Germany
Main roles Technical Leader
Key Person

ECOnet

European Union

Framework Programme 7 Integrated Project — *2010-2014*

Project low Energy COnsumption NETworks
Dimension 15 partners.
Coordinator CNIT RU of Genoa, Italy
Cost € 9.957.892,00
Founding € 6.155.907,00 + (of RU: € 1.057.469,00)
Main roles Researcher
Key Person
www https://www.econet-project.eu

GreenNet

MIUR

Futuro in Ricerca – Future in Research — *2011-2014*

Project Greening the Network
Dimension 3 partners.
Coordinator CNIT RU of Genoa, Italy
Cost € 719.000,00
Founding € 584.300,00 + (of RU: € 287.400,00)
Main roles Researcher

DWDM-EHC

MIUR – MISE

Fondo Agevolazioni alla Ricerca – Fund for Research Subsidies — *2014–2016*

Description Unità trasmissive integrate in tecnologia elettro-ottica per sistemi di trasmissione DWDM ad alta e ipercapacità e ridotto consumo di potenza
Dimension 3 partners.
Coordinator CNIT RU of Genoa, Italy
Cost € 9.821.915,00
Founding € 8.503.972,75 + (of RU: € 936.650,00)
Location Liguria Region, Genoa Province, Genoa City, Italy
Main roles Technical Leader
Key Person

INPUT

European Union

Horizon 2020 Research and Innovation Action — *2014–2017*

Project In-Network Programmability for next generation personal cloUd service support
Dimension 9 partners
Reference Call ICT7-2014 - *Advanced Cloud Infrastructures and Services*
Founding € 3.108.001,00 (of RU: € 527.645,18)
Main roles Researcher
www https://www.input-project.eu/

ARCADIA

European Union

Horizon 2020 Research and Innovation Action — *2014–2017*

Project A Novel Reconfigurable By Design Highly Distributed Applications Development Paradigm Over Programmable Infrastructure
Dimension 9 partners
Founding € 3.543.864,00 (of RU: € 360.415,54)
Main roles Researcher
Key Person
Work Package Leader
www https://cordis.europa.eu/project/id/645372

Competitive Call for Beneficiaries Providing FIWARE Lab Nodes Support

European Union

7th RTD FP7 Future Internet Core Platform Extension, Availability and Sustainability — *2016–2017*

Dimension 3 partners
Reference Call FIWARE-LAB-OPEN-CALL-2015
Founding € 199.800,00
of **RU**: € 94.800,00
of **UniGe**: € 53.400,00
Main roles Technical Leader
Key Person
www https://www.fiware.org
https://www.egm.io/en/portfolio-items/ficore-core-open-cloud-platform-for-future-internet-2

MATILDA

European Union

Horizon 2020 5G-PPP Innovation Action — *2017–2020*

Project A Holistic, Innovative Framework for the Design, Development and Orchestration of 5G-Ready Applications and Network Services over Sliced Programmable Infrastructure
Dimension 17 partners
Reference Call ICT-08-2017 - *5G PPP Convergent Technologies*
Cost € 8.378.945,36
Founding € 6.664.458,75 (of RU: € 781.250,00)
Main roles Researcher
www https://5g-ppp.eu/matilda

ASTRID

European Union

Horizon 2020 Innovation Action — *2018-2021*

Project AddreSsing ThReats for virtualIseD services
Dimension 9 partners
Reference Call DS-07-2017 *Cybersecurity PPP: Addressing Advanced Cyber Security Threats and Threat Actors*
Cost € 2.932.297,50
Founding € 2.932.297,50 (of RU: € 312.332,00)
Main roles Researcher
Key Person
Work Package Leader
www https://www.astrid-project.eu

GUARD *European Union*

Horizon 2020 Innovation Action *2019-2022*

Project A cybersecurity framework to GUArantee Reliability and trust for Digital service chains
Dimension 14 partners
Reference Call SU-ICT-01-2018 - *Dynamic countering of cyber-attacks*
Cost € 5.448.071,43
Founding € 4.684.700,00 (of RU: € 366.354,00)
Main roles Researcher
Key Person
Work Package Leader
www https://www.guard-project.eu

Publications

Thesis

Carrega, A. (2013). *Techniques for optimal exploitation of green networking capabilities in future internet devices* (Doctoral dissertation, University of Genoa).

Carrega, A. (2009). *Advanced techniques for propositional satisfiability* (Master's thesis, University of Genoa).

Carrega, A. (2005). *Experimental validation of classification methodologies for multifrequency and polsar images* (Bachelor's Thesis, University of Genoa).

Journal Articles

Repetto, M., **Carrega, A.**, & **Rapuzzi, R.** (2021). An architecture to manage security operations for digital service chains. *Future Generation Computer Systems*, *115*, 251–266. doi:https://doi.org/10.1016/j.future.2020.08.044

Repetto, M., **Striccoli, D.**, **Piro, G.**, **Carrega, A.**, **Boggia, G.**, & **Bolla, R.** (2021). An autonomous cybersecurity framework for next-generation digital service chains. *Journal of Network and Systems Management*, *29*(4), 37. doi:10.1007/s10922-021-09607-7

Carrega, A., & **Repetto, M.** (2020). Coupling energy efficiency and quality for consolidation of cloud workloads. *Computer Networks*, *174*, 107210. doi:https://doi.org/10.1016/j.comnet.2020.107210

Carrega, A., **Portomauro, G.**, **Repetto, M.**, & **Robino, G.** (2019). Energy efficiency for edge multimedia elastic applications. *Multimedia Tools and Applications*, *78*(17), 24739–24764. doi:10.1007/s11042-018-7050-x

Bolla, R., **Carrega, A.**, **Repetto, M.**, & **Robino, G.** (2018). Improving efficiency of edge computing infrastructures through orchestration models. *Computers*, *7*(2). doi:10.3390/computers7020036

Carrega, A., **Portomauro, G.**, **Repetto, M.**, & **Robino, G.** (2018a). Balancing QoS and power consumption in programmable 5g infrastructures. *Transactions on Emerging Telecommunications Technologies*, *29*(11), e3425. doi:https://doi.org/10.1002/ett.3425

Carrega, A., **Portomauro, G.**, **Repetto, M.**, & **Robino, G.** (2018b). Boosting energy efficiency and quality of service through orchestration tools. *IEEE Cloud Computing*, *5*(6), 38–47. doi:10.1109/MCC.2018.064181119

Bolla, R., **Bruschi, R.**, **Carrega, A.**, **Davoli, F.**, & **Pajo, J. F.** (2017). Corrections to: "green networking with packet processing engines: Modeling and optimization". *IEEE/ACM Transactions on Networking*, 1–1. doi:10.1109/TNET.2017.2761892

Carrega, A., **Repetto, M.**, **Gouvas, P.**, & **Zafeiropoulos, A.** (2017). A middleware for mobile edge computing. *IEEE Cloud Computing*, *4*(4), 26–37. doi:10.1109/MCC.2017.3791021

Bruschi, R., **Carrega, A.**, & **Davoli, F.** (2016). A game for energy-aware allocation of virtualized network functions. *Journal of Electrical and Computer Engineering*, *2016*, e4067186. doi:10.1155/2016/4067186

Bolla, R., **Bruschi, R.**, **Carrega, A.**, & **Davoli, F.** (2014). Green networking with packet processing engines: Modeling and optimization. *IEEE/ACM Transactions on Networking*, *22*(1), 110–123. doi:10.1109/TNET.2013.2242485

Bolla, R., **Bruschi, R.**, **Carrega, A.**, **Davoli, F.**, & **Lago, P.** (2014). A closed-form model for the IEEE 802.3az network and power performance. *IEEE Journal on Selected Areas in Communications*, *32*(1), 16–27. doi:10.1109/JSAC.2014.140103

Bolla, R., **Bruschi, R.**, **Carrega, A.**, **Davoli, F.**, **Suino, D.**, **Vassilakis, C.**, & **Zafeiropoulos, A.** (2012). Cutting the energy bills of internet service providers and telecoms through power management: An impact analysis. *Computer Networks*, *56*(10), 2320–2342. doi:10.1016/j.comnet.2012.04.003

Conference Proceedings

Repetto, **M.**, **Carrega**, **A.**, **Lamanna**, **G.**, **Yusupov**, **J.**, **Toscano**, **O.**, **Bruno**, **G.**, … **Cappelli**, **M.** (2021, June). Leveraging the 5g architecture to mitigate amplification attacks. In *2021 IEEE 7th international conference on network softwarization (NetSoft)* (pp. 443–449). ISSN: 2693-9789. doi:10.1109/NetSoft51509.2021.9492545

Sanchez, **O. R.**, **Repetto**, **M.**, **Carrega**, **A.**, & **Bolla**, **R.** (2021, June). Evaluating ML-based DDoS detection with grid search hyperparameter optimization. In *2021 IEEE 7th international conference on network softwarization (NetSoft)* (pp. 402–408). ISSN: 2693-9789. doi:10.1109/NetSoft51509.2021.9492633

Sanchez, **O. R.**, **Repetto**, **M.**, **Carrega**, **A.**, **Bolla**, **R.**, & **Pajo**, **J. F.** (2021, June). Feature selection evaluation towards a lightweight deep learning DDoS detector. In *ICC 2021 - IEEE international conference on communications* (pp. 1–6). ISSN: 1938-1883. doi:10.1109/ICC42927.2021.9500458

Carrega, **A.**, **Caviglione**, **L.**, **Repetto**, **M.**, & **Zuppelli**, **M.** (2020, June). Programmable data gathering for detecting stegomalware. In *2020 6th IEEE conference on network softwarization (NetSoft)* (pp. 422–429). doi:10.1109/NetSoft48620.2020.9165537

Bolla, **R.**, **Carrega**, **A.**, & **Repetto**, **M.** (2019). An abstraction layer for cybersecurity context. In *2019 international conference on computing, networking and communications (ICNC)* (pp. 214–218). doi:10.1109/ICCNC.2019.8685665

Carrega, **A.**, & **Repetto**, **M.** (2019). Data log management for cyber-security programmability of cloud services and applications. In *Proceedings of the 1st ACM workshop on workshop on cyber-security arms race* (pp. 47–52). event-place: London, United Kingdom. doi:10.1145/3338511.3357351

Repetto, **M.**, **Carrega**, **A.**, & **Lamanna**, **G.** (2019a). An architecture to manage security services for cloud applications. In *2019 4th international conference on computing, communications and security (ICCCS)* (pp. 1–8). doi:10.1109/CCCS.2019.8888061

Repetto, **M.**, **Carrega**, **A.**, & **Lamanna**, **G.** (2019b, November). Towards novel security architectures for network functions virtualization. In *2019 IEEE conference on network function virtualization and software defined networks (NFV-SDN)* (pp. 1–5). doi:10.1109/NFV-SDN47374.2019.9040068

Repetto, **M.**, **Carrega**, **A.**, **Yusupov**, **J.**, **Valenza**, **F.**, **Risso**, **F.**, & **Lamanna**, **G.** (2019). Automated security management for virtual services. In *2019 IEEE conference on network function virtualization and software defined networks (NFV-SDN)* (pp. 1–2). doi:10.1109/NFV-SDN47374.2019.9040069

Carrega, **A.**, & **Repetto**, **M.** (2018). Cloud applications consolidation through context information and heuristic optimization. In *2018 28th international telecommunication networks and applications conference (ITNAC)* (pp. 1–7). doi:10.1109/ATNAC.2018.8615406

Carrega, **A.**, **Repetto**, **M.**, **Risso**, **F.**, **Covaci**, **S.**, **Zafeiropoulos**, **A.**, **Giannetsos**, **T.**, & **Toscano**, **O.** (2018). Situational awareness in virtual networks: The ASTRID approach. In *2018 IEEE 7th international conference on cloud networking (CloudNet)* (pp. 1–6). doi:10.1109/CloudNet.2018.8549540

Carrega, **A.**, **Repetto**, **M.**, **Robino**, **G.**, & **Portomauro**, **G.** (2018). OpenStack extensions for QoS and energy efficiency in edge computing. In *2018 third international conference on fog and mobile edge computing (FMEC)* (pp. 50–57). doi:10.1109/FMEC.2018.8364044

Salam, **H. A.**, **Davoli**, **F.**, **Carrega**, **A.**, & **Timm-Giel**, **A.** (2018). Towards prediction of power consumption of virtual machines for varying loads. In *2018 28th international telecommunication networks and applications conference (ITNAC)* (pp. 1–6). doi:10.1109/ATNAC.2018.8615319

Carrega, **A.**, & **Repetto**, **M.** (2017a, January). A network-centric architecture for building the cloud continuum. In *2017 international conference on computing, networking and communications (ICNC)* (pp. 701–705). 2017 international conference on computing, networking and communications (ICNC). doi:10.1109/ICCNC.2017.7876215

Carrega, **A.**, & **Repetto**, **M.** (2017b). Energy-aware consolidation scheme for data center cloud applications. In *2017 29th international teletraffic congress (ITC 29)* (Vol. 2, pp. 24–29). doi:10.23919/ITC.2017.8065706

Carrega, **A.**, & **Repetto**, **M.** (2017c). Green and heuristics-based consolidation scheme for data center cloud applications. In **A. Piva**, **I. Tinnirello**, & **S. Morosi** (Eds.), *Digital communication. towards a smart and secure future internet* (pp. 230–250). Cham: Springer International Publishing.

Carrega, **A.**, & **Repetto**, **M.** (2016, December). Exploiting novel software development paradigms to increase the sustainability of data centers. In *2016 IEEE/ACM 9th international conference on utility and cloud computing (UCC)* (pp. 310–315).

Carrega, **A.**, **Singh**, **S.**, **Bolla**, **R.**, & **Bruschi**, **R.** (2012, May). Applying traffic merging to datacenter networks. In *2012 third international conference on future systems: Where energy, computing and communication meet (e-energy)* (pp. 1–9). 2012 third international conference on future systems: Where energy, computing and communication meet (e-energy). doi:10.1145/2208828.2208831

Carrega, **A.**, **Singh**, **S.**, **Bruschi**, **R.**, & **Bolla**, **R.** (2012, July). Traffic merging for energy-efficient datacenter networks. In *2012 international symposium on performance evaluation of computer telecommunication systems (SPECTS)* (pp. 1–5). 2012 international symposium on performance evaluation of computer telecommunication systems (SPECTS).

Bolla, **R.**, **Bruschi**, **R.**, **Carrega**, **A.**, & **Davoli**, **F.** (2011, April). Green network technologies and the art of trading-off. In *2011 IEEE conference on computer communications workshops (INFOCOM WKSHPS)* (pp. 301–306). 2011 IEEE conference on computer communications workshops (INFOCOM WKSHPS). doi:10.1109/INFCOMW.2011.5928827

Bolla, **R.**, **Bruschi**, **R.**, & **Carrega**, **A.** (2010a, July). GreenSim: An open source tool for evaluating the energy savings through resource dynamic adaptation. In *2010 international symposium on performance evaluation of computer and telecommunication systems (SPECTS)* (pp. 89–95). 2010 international symposium on performance evaluation of computer and telecommunication systems (SPECTS).

Bolla, **R.**, **Bruschi**, **R.**, & **Carrega**, **A.** (2010b). Power scaling in network devices. In *Proceedings of the ACM CoNEXT student workshop* (t). doi:10.1145/1921206.1921216

Bolla, **R.**, **Bruschi**, **R.**, **Carrega**, **A.**, & **Davoli**, **F.** (2010a, December). An analytical model for designing and controlling new-generation green devices. In *2010 IEEE globecom workshops* (pp. 1388–1393). 2010 IEEE globecom workshops. doi:10 . 1109 / GLOCOMW.2010.5700166

Bolla, **R.**, **Bruschi**, **R.**, **Carrega**, **A.**, & **Davoli**, **F.** (2010b, October). Theoretical and technological limitations of power scaling in network devices. In *2010 australasian telecommunication networks and applications conference* (pp. 37–42). 2010 australasian telecommunication networks and applications conference. doi:10.1109/ATNAC.2010.5680253

Books and Chapters

Repetto, **M.**, **Carrega**, **A.**, & **Duzha**, **A.** (2020, April). *A novel cyber-security framework leveraging programmable capabilities in digital services*. doi:10.5281/zenodo.4267987

Jarschel, **M.**, **Hossfeld**, **T.**, **Davoli**, **F.**, **Bolla**, **R.**, **Bruschi**, **R.**, & **Carrega**, **A.** (2015). SDN-enabled energy-efficient network management. In **K. Samdanis**, **P. Rost**, **Andreaseder**, **M. Meo**, & **C. Verikoukis** (Eds.), *Green communications* (pp. 323–338). doi:10.1002/9781118759257.ch17

Software

CNIT and TNT-Lab

MATLAB model for DWDM FAR project *2014-2016*

A. Carrega and G. Portomauro

Description MATLAB (http://mathworks.com/products/matlab) model for DWDM-EHC FAR project.
www https://gitlab.com/tnt-cnit-repositories/matlab-dwdm

LabVIEW model for DWDM FAR project *2014-2016*

A. Carrega and G. Portomauro

Description LabVIEW (http://www.ni.com/labview) model for DWDM-EHC FAR project.
www https://gitlab.com/tnt-cnit-repositories/labview-dwdm

Python Application for BroadBand Code of Conduct (BB-CoC) *2014-2017*

A. Carrega

Description Python (http://www.python.org) application for BB-CoC.
www https://gitlab.com/tnt-cnit-repositories/python-bb-coc

MATLAB Model for Game Theory NP *2015-2016*

A. Carrega and F. Davoli

Description MATLAB (http://mathworks.com/products/matlab) model for Game Theory Network Processor (NP).
www https://gitlab.com/tnt-cnit-repositories/matlab-game-theory-np

ARCADIA Energy Efficiency vs. QoS Optimization *2015-2017*

A. Carrega

Description Energy-Aware optimization problem for ARCADIA project (http://www.arcadia-framework.eu) built using the *OptaPlanner* (http://www.optaplanner.org) framework.
www https://gitlab.com/tnt-cnit-repositories/arcadia-ee_vs_qos-opt

MATLAB Energy-Aware optimization problem for ARCADIA project *2015-2017*

A. Carrega

Description MATLAB (http://mathworks.com/products/matlab) Energy-Aware optimization problem for ARCADIA project (http://www.arcadia-framework.eu).
www https://gitlab.com/tnt-cnit-repositories/matlab-arcadia

JuMPl Energy-Aware Optimization Problem for ARCADIA project *2015-2017*

A. Carrega

Description JuMPl (http://github.com/JuliaOpt/JuMP.jl) Energy-Aware optimization problem for ARCADIA project (http://www.arcadia-framework.eu).
www https://gitlab.com/tnt-cnit-repositories/jump-jl-arcadia

MathPlotLib Analysis of Energy-Aware Optimization Problem for ARCADIA Project

2015-2017

A. Carrega

Description MathPlotLib (http://matplotlib.org) analysis of Energy-Aware optimization problem for ARCADIA project (http://www.arcadia-framework.eu).
www https://gitlab.com/tnt-cnit-repositories/matplotlib-arcadia

ASTRID Context Broker (CB) Manager (CB-Manager)

2018-2021

A. Carrega and M. Repetto

Description APIs to interact with the Context Broker's database.
Through a REST Interface, it exposes data and events stored in the internal storage system in a structured way.
It provides uniform access to the capabilities of monitoring agents.
www https://github.com/astrid-project/cb-manager
Docs https://astrid-cb-manager.readthedocs.io
License MIT

ASTRID Local Control Plane (LCP)

2018-2021

A. Carrega and M. Repetto

Description In each local agent, the Control Plane is responsible for programmability, i.e., changing the behaviour of the Data Plane at run-time.
www https://github.com/astrid-project/lcp
Docs https://astrid-lcp.readthedocs.io
License MIT

ASTRID Framework

2018-2021

A. Carrega and M. Repetto

Description Main repository with all the components developed by the ASTRID consortium and the guideline to build the entire framework.
www https://github.com/astrid-project/astrid-framework
License MIT

GUARD Context Broker (CB) Manager (CB-Manager)

2019–2022

A. Carrega and M. Repetto

Description APIs to interact with the Context Broker's database.
Through a REST Interface, it exposes data and events stored in the internal storage system in a structured way.
It provides uniform access to the capabilities of monitoring agents.
www https://github.com/guard-project/cb-manager
Docs https://guard-cb-manager.readthedocs.io
License MIT

GUARD Local Control Plane (LCP)

2019–2022

A. Carrega and M. Repetto

Description In each local agent, the Control Plane is responsible for programmability, i.e., changing the behaviour of the Data Plane at run-time.
www https://github.com/guard-project/lcp
Docs https://guard-lcp.readthedocs.io
License MIT

CNIT Machine Learning (ML)

2019–2022

O. R. Sanchez, A. Carrega, and M. Repetto

Description Detects multiple DDoS attacks (multiclass) using Random Forests.
www https://github.com/guard-project/cnit_ml
License MIT

GUARD Platform

2019–2022

A. Carrega and M. Repetto

Description Main repository with all the components developed by the GUARD consortium and the guideline to build the entire framework.
www https://github.com/guard-project/guard-platform
License MIT

GUARD RESTable

2021-2022

A. Carrega

Description Make HTTP REST interface for standard CLI applications.
www https://github.com/guard-project/RESTable
Docs https://guard-restable.readthedocs.io
License MIT

Personal

pimp->my->REST

2019–2022

A. Carrega

Description Simplified the management and the data retrievement of REST applications.
www https://github.com/alexcarrega/pimp-my-rest
License MIT

prompt>able

2019–2022

A. Carrega

Description Add a powerful interactive CLI to each type of application.
www https://github.com/alexcarrega/prompt-able
License MIT

RESTable

2019–2022

A. Carrega

Description Make HTTP REST interface for standard CLI applications.
www https://github.com/alexcarrega/RESTable
License MIT

aweeziing

2019–2022

A. Carrega

Description *Awesome* or *Amazing*? *Usefulness*, nothing else matters.
www https://github.com/alexcarrega/awezing
License MIT

Oh my bash!

2019–2022

A. Carrega

Description Open source, community-driven framework for managing your *bash* configuration.
www https://github.com/alexcarrega/oh-my-bash
License GPL v2.0

gmapp

2019–2022

A. Carrega

Description Build your own custom client for *GMail*.
www https://github.com/alexcarrega/gmapp

wazapp

2019–2022

A. Carrega

Description Build your own custom client for *WhatsApp*.
www https://github.com/alexcarrega/wazapp

ProgressMeterPlus.jl

2019–2022

A. Carrega

Description Progress meter for long-running operations in *Julia*.
Additional functionalities to https://github.com/timholy/ProgressMeter.jl.
www https://github.com/alexcarrega/ProgressMeterPlus.jl

Afferents

SPECTS

IEEE/SCS

Symposium on Performance Evaluation of Computer and Telecommunication Systems

2010 – 2014

www https://scs.org
https://scs.org/spects

SRC

Sustainability and Resilience Conference (SRC) *2021*

www https://src21.uob.edu.bh

SOFTT *IEEE*

Symposium on Future Telecommunication Technologies *2021*

www https://softt.telkomuniversity.ac.id

SCS

Smart Cities Symposium *2021*

www https://www.4th-smartcities-2021.com

IoTaIS *IEEE*

International Conference on Internet of Things and Intelligent System *2021*

www https://iotais.org

IJRA *IAES*

International Journal of Robotics and Automation *2021*

www https://ijra.iaescore.com/index.php/IJRA

JEHS *iPMU*

Journal of Energy Harvesting and Storage *2021 – 2022*

www https://iaesprime.com/index.php/ehs

IJECS *IAES*

Indonesian Journal of Electronical Engineering and Computer Science *2021*

www https://www.ijecs.in/index.php/ijecs

IJECE *IAES*

International Journal of Electrical and Computer Engineering *2021*

www http://ijece.iaescore.com/index.php/IJECE

IJCDS

International Journal of Computing and Digital Systems *2021– 2022*

www https://journal.uob.edu.bh/handle/123456789/12

IJAI *IAES*

International Journal of Artificial Intelligence *2020– 2021*

www https://ijai.iaescore.com/index.php/IJAI

BEEI

Bulletin of Electrical Engineering and Informatics *2020– 2021*

www https://beei.org/index.php/EEI

IEACon *IEEE*

Industrial, Electronics and Applications Conference *2021*

www https://ieeeiecon.org

ICSECC

International Conference on Sustainable Engineering and Creating Computing *2021*

www https://icsecc.president.ac.id

ICon EEI

International Conference on Electrical Engineering and Informatics *2022*

www https://iconeei.id

ICOMITEE

International Conference on Computer Science, Information Technology, and Electronical Engineering *2021*

www https://icomitee.org

GLOBECOM *IEEE*

Global Communication Conference *2021*

www https://globecom2022.ieee-globecom.org

EECSI

International Conference on Electrical Engineering, Computer Science and Informatics *2021*

www http://eecsi.org/2021

DATA

International Conference on Data Analytics for Business and Industry *2021*

www https://data21.uob.edu.bh/

ISMODE

International Seminar on Machine Learning, Optimization and Data Science *2021*

www

APACE

Asia-Pacific Conference on Applied Electromagnetics *2021*

www https://apace2021.apmttemc.org

ISRIT

International Seminar on Research of Information Technology and Intelligent Systems *2021*

www https://isriti.akakom.ac.id

Revision Activties

Communication Letters *IEEE*

CommL

www urlhttps://www.comsoc.org/publications/journals/ieee-comml

Computer Networks *Elsevier*

ComNet

www https://www.journals.elsevier.com/computer-networks

Computer Communications *Elsevier*

ComComm

www https://www.journals.elsevier.com/computer-communications

Transaction on Computers *IEEE*

TC

www https://www.computer.org/csdl/journal/tc

Transactions on Networking *IEEE*

ToN

www https://newslab.ece.ohio-state.edu/ton

Transactions on Network and Service Management *IEEE*

TSM

www https://www.comsoc.org/publications/journals/ieee-tnsm

Transactions on Green Communications and Networking *IEEE*

TGCN

www https://www.comsoc.org/publications/journals/ieee-tgcn

Network *IEEE*

Net

www https://www.comsoc.org/publications/magazines/ieee-network

Communication Magazine *IEEE*

ComMag

www https://www.comsoc.org/publications/magazines/ieee-communications-magazine

Internet Computing *IEEE*

IC

www https://www.computer.org/csdl/magazine/ic

Transactions on Emerging Telecommunications Technologies *Wiley*

TETT

www https://www.wiley.com/en-us/Transactions+on+Emerging+Telecommunications+Technologies-p-9780JNRL31338

Awards

Best Paper Award

3RD *International Workshop on Green Communications* *2010*

Note Co-located with the IEEE GLOBECOM 2010
www http://www.green-communications.net/globecom10/program.html