

# Curriculum of the scientific, didactic, and professional activity

**Dr. Engr. Raffaele Carli**

Department of Electrical and Information Engineering  
Polytechnic of Bari – Italy

**Updated to August 2022**

## Personal information

### Biographical data

First name: Raffaele

Family name: Carli

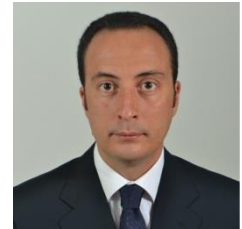
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### Current position

- **Assistant Professor (RTD-B)** in Systems and Control Engineering (research field 09/G1) at Polytechnic of Bari - Dept. of Electrical and Information Engineering - Decision & Control Laboratory.
- **Associate professor** habilitation according to art. 16 of Italian Law n. 240/2010 for sector 09/G1 Automatica (year 2018, since June 2021).

### Qualification

- Ph.D. in Electrical and Information Engineering (Polytechnic of Bari). Ph.D. thesis: R. Carli, “Decision and Control Techniques for Energy Management Systems in Smart Cities”, Polytechnic of Bari, Bari - Italy 2016. Supervisor: Prof. Mariagrazia Dotoli.
- Acoustic Expert Qualification (Italian law 447/95), Polytechnic of Bari, Bari – Italy, 2012.
- Italian State Examination and Professional Qualification to practice as an Engineer, Polytechnic of Bari, Bari – Italy, 2002, 2nd session.
- Master Degree in Electronic Engineering 2002 (marks 110/110 with honors, at Polytechnic of Bari - Italy): Master Degree thesis: R. Carli, “Study, design and realization of a K-band last mile wireless system: transmission front-end”. Supervisor: Prof. Gianfranco Avitabile.
- Scientific Degree 1997 (marks 60/60, at the Scientific High School G. Galilei of Bitonto - Bari).

## Foreign languages

Italian: mother tongue  
English: written and spoken proficient  
French: written and spoken fundamental.

## Skills and competences

- Organisational
  - Good experience in project and team management (acquired on the job).
- Technical
  - Excellent knowledge of definition and implementation of optimization models (acquired on the job):
    - Matlab, CPLEX, SCIP.
  - Excellent knowledge of modeling and simulation of complex systems (acquired on the job).
  - Excellent knowledge of Information Systems architecture, design, specification, and development (acquired on the job).
  - Good knowledge of Weapon System architecture, design, specification, and development (acquired on the job).
  - Good competence with Model Based Engineering (acquired on the job and by training).
  - Good competence with Vessel Traffic System and Near Coast Navigation was acquired during military service.
  - Good Competence with electronic equipments and machineries have been acquired during academic experiments.
- Computer
  - Excellent command of general-purpose applications acquired on the job and through self-study
  - Fluent knowledge of the following Computer Languages (mainly acquired on the job and by training):
    - Fortran, C, C++.
  - Good competence with the following engineering tools (mainly acquired on the job and by training):
    - Calculation: MathCad, Mathematica.
    - Data processing: Matlab, Python.
    - Systems modelling, simulation and design: Simulink, Stateflow.
    - Model Based Engineering (SysML/Architectural Framework): Artisan Studio.
    - Model Based Engineering (UML): IBM Rational Rose.
    - GIS: ARC/INFO, ArcView.
    - Configuration Management: CVS Tortoise, IBM Clear Case.
    - PDM: TeamCenter.
    - Project management: MS Project.
  - Good knowledge of the following technical applications (acquired through leisure activities):
    - CAD: AutoCAD.
    - Light Planning: Dialux, Relux.
    - Acoustics: dBTrait, Mithra, SoundPlan.
    - Condominium documents generation: CTM, Quantus.
    - Building management/simulations: Primus, Certus, Termus, EnergyPlus.

## Didactic Activity

### Official Teaching Appointments

He holds or held the courses:

- “Control systems for e-transition and e-mobility” (6 ECTS) in Electrical Engineering Master’s Degree at Polytechnic of Bari - Academic Year 2022/23.
- “Fundamental of Control Systems Engineering” (first and second module, 12 ECTS) in Management Engineering Bachelor’s Degree at Polytechnic of Bari - Academic Years 2021/22, 2022/23.
- “Fundamental of Control Systems Engineering” (first module, 6 ECTS) in Electronic and Telecommunication Engineering Bachelor’s Degree at Polytechnic of Bari - Academic Years 2020/21, 2019/20, 2018/19.
- “Optimization and Control of Complex System” (2 ECTS) at Doctorate School – Academic Years 2020/21, 2022/23 - course given in English language.
- “Management and control approaches for flexible and efficient smart grids” (3 ECTS) at Doctorate School – Academic Year 2018/19, course given in English language.
- “Optimization and Control of Complex System” (3 ECTS) at Doctorate School – Academic Years 2016/17, 2015/16, course given in English language.
- “Systems Analysis and Simulation” (6 ECTS) in Management Engineering (5-Years Laurea) at Polytechnic of Bari - Academic Year 2017/18.

### Didactic Activity as an Assistant to Other Courses

He develops or developed the numerical and experimental laboratory of the following courses:

- “Dynamical Systems Theory” in Automation Engineering (5-Years Laurea) at Polytechnic of Bari - Academic Years 2021/22, 2020/21, 2019/20, 2018/19, 2017/18.
- “Systems Analysis” in Management Engineering (5-Years Laurea) at Polytechnic of Bari - Academic Years 2016/17, 2015/16, 2014/15, 2013/14.
- “Fundamentals of Control Systems Engineering” in Electronics and Telecommunications Engineering (3-Years Laurea) at Polytechnic of Bari - Academic Year 2014/15.
- “Fundamentals of Control Systems Engineering” in Agricultural Logistic System Engineering (3-Years Laurea) at University of Foggia- Academic Years 2017/18, 2016/17, 2015/16.

### Teaching activity abroad

He holds or held the following didactic activity in foreign Universities:

- Academic Year 2019-2020, lectures on “Decentralized and Distributed Optimization for Energy Scheduling of Smart Users” (8 hours), “Department of Automatic Control (ESAII)” of Universitat Politècnica de Catalunya (Spain) – May 2022.
- Academic Year 2018-2019, lectures on “Decentralized and Distributed Optimization for Energy Scheduling of Smart Users” (8 hours), “Department of Computer Science and their interactions” of Aix-Marseille Université (France) – April 2019.

### Tutoring Activity

He has been the official co-tutor of more than 30 Master and Bachelor Theses at Politecnico di Bari, many of which have been developed in collaboration with co-tutors belonging to institutions and companies of the local regional territory.

He is currently co-tutor of 6 PhD candidate:

- Engr. Paolo Scarabaggio, Ph.D. student in Electrical and Information Engineering, Politecnico di Bari, Italy, XXXV cycle (a.y. 2019-2022), on "Control and management of the energy storage as an integrated element of the distribution network".

- Engr. Bahman Askari, Ph.D. student in Electrical and Information Engineering, Politecnico di Bari, Italy, XXXVI cycle (a.y. 2020-2023), on: “Digital twin of manufacturing lines for the performance and maintenance optimization in Industry 4.0”.
- Engr. Silvia Proia, Ph.D. student in Industry 4.0 (Interuniversity PhD Course of Polytechnic of Bari in collaboration with Università degli Studi di Bari “Aldo Moro”), XXXVI cycle (a.y. 2020-2023) on: “Decision and control techniques for collaborative robotic systems in industry 4.0”.
- Engr. Lucilla Dammacco, Ph.D. student in Industry 4.0 (Interuniversity PhD Course of Polytechnic of Bari in collaboration with Università degli Studi di Bari “Aldo Moro”), XXXVI cycle (a.y. 2020-2023), on: “Virtual and augmented reality in manufacturing lines for performance and maintenance optimization in industry 4.0”.
- Engr. Augusto Bozza, Ph.D. student in Electrical and Information Engineering, Politecnico di Bari, Italy, XXXVII cycle (a.y. 2021-2024), on: “Digital Twin for controlling industrial systems”.
- Engr. Nicola Mignoni, Ph.D. student in Electrical and Information Engineering, Politecnico di Bari, Italy, XXXVII cycle (a.y. 2021-2024), on: “Control techniques for green and efficient energy communities”.

He was co-tutor of 1 PhD candidate:

- Engr. Mohsen Seyed Hosseini, Ph.D. student in Electrical and Information Engineering, Politecnico di Bari, Italy, XXXIII cycle (a.y. 2017-2020), on "Distributed and Decentralized Scheduling and Control of Smart Electrical Energy Systems".

#### Didactic services

He is member of the Council of professors:

- from April 2021 (cycles XXXVII-XXXVIII) ongoing: Electrical and Information Engineering PhD Course of Politecnico di Bari.
- from November 2022 (cycle XXXVIII) ongoing: National PhD Program in Autonomous Systems (DAuSy).

## **Scientific activity**

### **Technical direction**

He is the technical responsible for the Decision and Control Laboratory (coordinated by prof. Mariagrazia Dotoli) at the Department of Electric and Information Engineering of Polytechnic of Bari since May 2020 (<http://dclab.poliba.it/>). The main objectives of the Decision and Control Laboratory are: the promotion of the results of the scientific research obtained in collaboration with both Public and Private Partners on Regional, National, and International Levels in the field of Automation (09/G1), together with the advancement of technology transfer of these research results.

### **Research topics**

The scientific activity addressed mainly the following fields of automation:

- Management and control of complex systems;
- Modelling, control and optimization for industrial applications;
- Management and control of energy systems.

## Scientific recognitions

Achievement of:

- *Associate professor* habilitation according to art. 16 of Italian Law n. 240/2010 for sector 09/G1 Automatica (year 2018, since May 2021).

He is the recipient of the following researcher grant:

- from December 2020 to December 2023: “Decision and control algorithm for flexible and efficient Energy Communities”, Call n. 2/FSE/2019 “Research for Innovation (REFIN)” - Apulia Region, POR PUGLIA FESR-FSE 2014/2020, project no. C9A3735B.

He was the recipient of the following fellowships in Systems and Control Engineering (research field 09/G1):

- from April 2019 to December 2020: “Distributed decision and control techniques for industrial processes in automotive” at Polytechnic of Bari – Supervisor: Prof. M. Dotoli.
- from November 2016 to March 2019: “Definition and development of Control and Optimization techniques for energy management of smart buildings and smart cities” at Polytechnic of Bari – Supervisor: Prof. M. Dotoli.
- from January 2016 to October 2016: “Sensor and acquisition systems for geotechnical instrumentation in smart cities” at Polytechnic of Bari – Supervisors: Prof. M. Dotoli, Prof. A. M. L. Lanzolla.

## Collaborations with national and international research groups

He collaborate with the following national and international research groups:

- research group guided by Prof. Carla Seatzu (University of Cagliari);
- research group of Dr. Nicola Epicoco and Dr. Mario Di Ferdinando (University of L’Aquila)
- research group led by Prof. Sergio Grammatico (Delft University of Technology, Netherlands);
- research group led by Prof. Bart De Schutter (Delft University of Technology, Netherlands);
- research group guided by Prof. Alessandra Parisio (Manchester University, UK);
- research group led by Prof. Slim Hammadi (CRISAL Laboratory - Ecole-Central of Lille, Lille, France);
- research group led by Prof. Haitham Ramadan (Electrical Power and Machines Department of the Zagazig University, Zagazig, Egypt - FEMTO-ST Institute and FCLAB of the University Bourgogne Franche-Comté, Belfort, France);
- research group of prof. João Paulo Ribeiro Pereira (Departamento de Informática e Comunicações, Instituto Politécnico de Bragança, Portugal).

## Editorial Activity

He is guest editor (with G. Cavone, M. Di Ferdinando, and N. Epicoco) of the upcoming (in 2021) special issue of the international journal “Electronics” - section "Systems & Control Engineering on “Novel Approaches to Improve the Efficiency and Resiliency of Dynamical Systems”.

Since 2019 he is a member of the Editorial Board for the following international journals:

- \* MDPI Sustainability
- \* MDPI Electronics
- \* Hindawi Mathematical Problems in Engineering

### I was awarded:

- 2020 MDPI Energies Outstanding Reviewer
- 2021 MDPI Sustainability Outstanding Reviewer.

Since 2013 he is reviewer for international journals and conferences:

- \* IEEE Transactions on Automation Science and Engineering
- \* IEEE Transactions on Systems, Man and Cybernetics
- \* IEEE Transactions on Automatic Control
- \* IEEE Transactions on Control Systems Technology
- \* IEEE Transactions on Control of Network Systems
- \* IFAC Automatica
- \* IEEE Robotics and Automation Letters
- \* IEEE Control Systems Letters
- \* ELSEVIER Computers & Operations Research
- \* ELSEVIER Discrete Applied Mathematics
- \* MDPI Energies
- \* MDPI Sustainability
- \* MDPI Electronics
- \* IEEE International Control and Decision Conference
- \* IEEE International European Control Conference
- \* IEEE International Conference on Automation Science and Engineering
- \* IEEE International Conference on Intelligent Transportation Systems

He is a member since 2017 of the International Federation of Automatic Control Technical Committee on Control for Smart Cities (TC 9.3).

He is a member since 2017 of the International Federation of Automatic Control Technical Committee on Transportation System (TC 7.4).

He is a member since 2018 of the IEEE Technical Committee on Intelligent Systems to Human Aware Sustainability.

### **Invited Talks**

- “Control Framework for Energy Resource Trading and Sharing in Energy Communities”, plenary talk at the 2022 7th International Conference on Renewable Energy and Conservation (ICREC 2022), November 18-20, Paris, France.
- “Optimization and control for enhancing the resilience of power grids” at the Specialization Course in Homeland Security (“Systems, methods, and tools for security and crisis management”), 13rd edition, organized by Università Campus Bio-Medico di Roma.
- “Decentralized and Distributed Optimization For Energy Scheduling of Interconnected Smart Homes”, workshop “Energy management for large-scale smart systems” at the 2015 IEEE International Conference on Automation Science and Engineering (CASE 2015), August 20-24, 2015, Gothenburg, Sweden.

### **Organization of International Scientific Events**

#### Organizational responsibilities

He is *Finance Chair and Special Session Chair* of the international conference:

- Automation Science and Engineering, 2024 IEEE International Conference on, August 26-30, Bari - Italy (CASE 2024).

He is *General Co-chair* of the international conference:

- 2022 7th International Conference on Renewable Energy and Conservation (ICREC 2022), November 18-20, Paris, France.

He was *Young career Chair* of the international conference:

- Automation Science and Engineering, 2020 IEEE International Conference on, August 20-24, Hong Kong (CASE 2020).

He was *Publication Co-chair* of the international conference:

- Automation Science and Engineering, 2017 IEEE International Conference on, August 20-23, 2017, Xi'an China (CASE 2017).

#### Belonging to committees and editorial activity

He has been Associate Editor for the following international conferences:

- Automation Science and Engineering (CASE), IEEE International Conference on – 2017, 2018, 2019, 2020, 2021, 2022.
- Systems, Man and Cybernetics (SMC), IEEE International Conference on – 2019, 2020, 2021, 2022.
- Control Technology and Applications (CCTA), IEEE International Conference on – 2017, 2018.
- Mediterranean Conference on Control and Automation (MED) – 2021, 2022.

He has been member of the International Program Committee of the following international Conferences and Symposia:

- 16th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES), Dubrovnik, Croatia, October 10-15, 2021.
- 2020 International Conference on Control Theory and Applications (ICoCTA 2020), February 14-16, 2020, Sydney, Australia.
- 4th South East European Conference on Sustainable Development of Energy, Water and Environment Systems (AP.SDEWES2020), Sarajevo, Bosnia and Herzegovina, June 28 - July 02, 2020.
- 1st Asia Pacific Conference on Sustainable Development of Energy, Water and Environment Systems (AP.SDEWES2020), Gold Coast, Australia, April 6-9, 2020.
- 2nd Latin American Conference on Sustainable Development of Energy, Water and Environment Systems (LA.SDEWES2020), Buenos Aires, Argentina, February 9-12, 2020.
- 14th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES), Dubrovnik, Croatia, October 1-5, 2019.
- The Eleventh International Conference on Emerging Networks and Systems Intelligence (EMERGING 2019), September 22 - 26, 2019 in Porto, Portugal
- Industrial Control Track, Complex Systems and Systems Engineering Track - the 24th IEEE International Conference on Emerging Technologies and factory Automation, Zaragoza, Spain, September 10-13, 2019.
- Development of Ultra Complex Man-Made Engineering Systems - the first Conference on Societal Automation, Krakow, Poland on September 4-6, 2019.
- The Eighth International Conference on Smart Cities, Systems, Devices and Technologies (SMART 2019), July 28, 2019 to August 02, 2019 - Nice, France
- IFAC Workshop on Control of Smart Grid and Renewable Energy Systems (CSGRES 2019), Jeju, Korea, June 10-12, 2019.

- 5th International Conference on Vehicle Technology and Intelligent Transport Systems (VEHITS 2019), Heraklion, Greece, May 3-5, 2019.
- The Seventh International Conference on Smart Cities, Systems, Devices and Technologies (SMART 2018) July 22, 2018 to July 26, 2018 - Barcelona, Spain
- Industrial Control Track, Complex Systems and Systems Engineering Track - the 23th IEEE International Conference on Emerging Technologies and factory Automation, Torino, Italy, September 4-7, 2018.

He has been member of the Program Committee of the following national Conferences:

- “Automatica.it 2022” National Conference of the Italian Society of Professors and Researchers in Automation (SIDRA) - September 1-3, 2022, Cagliari, Italy.
- “Automatica.it 2021” National Conference of the Italian Society of Professors and Researchers in Automation (SIDRA) - September 9-10, 2021, Catania, Italy.

He has been the chair/co-chair in the following sessions of international Conferences and Symposia:

- “Control and Optimization of Transportation and Energy Systems” - 29th Mediterranean Conference on Control and Automation (MED 2021), Bari Italy, June 22-25, 2021.
- “Smart Control Strategies of Energy Storage Systems” - 29th Mediterranean Conference on Control and Automation (MED 2021), Bari Italy, June 22-25, 2021
- “Nonlinear Systems and Nonlinear Control III” - 29th Mediterranean Conference on Control and Automation (MED 2021), Bari Italy, June 22-25, 2021
- “Intelligent energy system I” (regular session) - Systems, Man and Cybernetics (SMC), IEEE International Conference on (SMC), Toronto, Canada, October 11 - 14, 2020.
- “Smart energy systems” (regular session) - 13rd Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES), Palermo, Italia, September 30 - October 4, 2018.
- “Planning, scheduling, coordination, and allocation of resources in logistics and transportation systems” (invited session) - 2017 IEEE International Conference on Service Operations and Logistics, and Informatics, September 18-20, 2017, Bari, Italy.
- “Automation and Optimization for Energy Systems” (special session) - IEEE International Conference on Networking, Sensing and Control, May 16-18, 2017, Calabria, Southern Italy.

#### Invited sessions organization

He has been the organizer of the following invited sessions of international Conferences and Symposia:

- “Control and optimization of coupled transportation and energy systems” - 29th Mediterranean Conference on Control and Automation (MED 2021), Bari Italy, June 22-25, 2021.
- “Smart Control Strategies of Energy Storage Systems” - 29th Mediterranean Conference on Control and Automation (MED 2021), Bari Italy, June 22-25, 2021.
- “Planning, scheduling, coordination, and allocation of resources in logistics and transportation systems”, 2017 IEEE International Conference on Service Operations and Logistics, and Informatics, September 18-20, 2017, Bari, Italy.

#### **Participation to research projects**

He takes part in the following international research program:



- “Smart Design and Control of Energy Storage Systems” research project (Annex 37) supported by the ECES (Energy Conservation through Energy Storage) Technical Collaboration Program of IEA (International Energy Agency). This working group is currently investigate the present situation of smart design and control strategy of energy storage systems for both demand side and supply side.

He takes or took part in the following national research programs:

- 2019-2022, MAIA (Railway infrastructure active monitoring) project, funded by the Italian Ministry for Education, University and Research in the context of the National Research Program 2015-2020 for the development of innovative solutions aimed at a thorough assessment of the safety and security of the railway infrastructure;
- 2018-2022, PICO&PRO (integrated and connected processes for the industrial production evolution) project, funded by the Italian Ministry for Education, University and Research in the context of the National Research Program 2015-2020 for the development of smart manufacturing in automotive;
- 2018-2021, RAFAEL (System for risk Analysis and Forecast for critical infrastructure in the ApenninEs dorsaL Regions) project, funded by the Italian Ministry for Education, University and Research in the context of the National Research Program 2015-2020 for critical infrastructure risk management and forecast in South Italy;
- 2013-2015, RES NOVAE (Networks, Buildings, Roads: New virtuous objectives for the Environment and Energy) project, funded by the Ministry for Education, University and Research and by the Ministry of the Economic Development in the context of the National Operative Program for Research and Competitiveness 2007-2013 for the development of Smart Cities.

He takes or took part in the following regional research projects:

- 2016-2019, UCCSM (Urban Control Center for the sustainable management of energy flows in Metropolitan Smart cities) project, funded by the Italian Apulia Region under the Innovation Technology Cluster call;
- Urgent remediation of Taranto area, funded by the Taranto Special Commissioner (Commissioner Decree n.38 of 15.06.2015);
- SEMINA (Evolved Systems for the Intelligent Mobility in Urban Agile Networks) funded by the Apulian Region in the call “Apulian ICT Living Lab” of the Operative Regional Program FESR 2007-2013.

Coordination of University research projects:

- 2021, research project “Control techniques for the optimal sharing of community energy storage systems in microgrids” funded by the University Research Fund of Politecnico di Bari, 5 k€, 12 months, scientific coordinator.

## **Research collaborations**

### *Collaborations with Authorities and Enterprises of the Territory*

He collaborates or has collaborated with the following authorities and enterprises of the territory:

- e-distribution SpA (Enel group), the largest electricity operator in Italy and Europe's second listed utility for installed capacity.
- Centro Ricerche Fiat SpA, an Italian company that develops innovative power units, vehicle systems, materials, methods and processes for the Fiat Chrysler Automobiles N.V. (FCA) products.
- IBM Italia SpA, world leader company in the computers industry.

- Elettric80 SpA, world leader company in automated logistic solutions for daily consumer goods manufacturing in the beverage, food and tissue sectors and other diversified areas.
- Masmec SpA, an Italian company specialising in precision technologies, robotics and mechatronics, which are applied to automotive and biomedical.
- Icam Srl, an Italian company specialising in automated solutions for the storage, distribution and sales of goods.
- Tera Srl, an Italian company that develops ICT solutions aimed at the energy efficiency of smart homes and smart buildings.
- Planetek in Bari, an Italian company that develops ICT solutions based on the use of geo-localized data.
- Best Srl, a spin-off of Polytechnic of Bari.
- Innolab Srl, a spin-off of Polytechnic of Bari.

### Collaborations with foreign Enterprises

He collaborated with the following foreign enterprises:

- Samsø Energy Academy, Samsø, Denmark, a small enterprise focused on energy efficiency solutions.

### **Bibliometric indices**

- *Number of papers* in the Scopus database: 71.
- *Number of citations* in the Scopus database: 1117.
- *h-index* in the Scopus database: 22.
- First median overpass for full professor: YES - 24 international journal papers in the last 10 years in Scopus (median value 17).
- Second median overpass for full professor: YES. 1117 citations in the last 15 years in Scopus (median value 497).
- Third median overpass for full professor: YES. 22 h-index in the last 15 years in Scopus (median value 12).

(Scopus accessed on 2022 August the 16th)

### **Publication list**

Since 2013 he has been co-author of +70 scientific papers for international journals and conferences (see the publication list below), which are registered in the following databases:

- <https://scholar.google.it/citations?user=OvXT8Y0AAAAJ&hl=it&oi=ao>
- <https://www.scopus.com/authid/detail.uri?authorId=56027814000>

Articles accepted for publication in International Journals:

- j1 Dammacco, L.; **Carli, R.**; Lazazzera, V.; Fiorentino, M.; Dotoli, M. “Designing Complex Manufacturing Systems by Virtual Reality: a Novel Approach and its Application to the Virtual Commissioning of a Production Line,” *Computers in Industry*, 2022. In press.
- j2 Nasiri, F., Ooka, R., Haghghat, F., Shirzadi, N., Dotoli, M., **Carli, R.**, ... & Sadrizadeh, S. (2022). Data Analytics and Information Technologies for Smart Energy Storage Systems: A State-of-the-Art Review. *Sustainable Cities and Society*, 104004.

- j3 Tresca, G.; Cavone, G.; **Carli, R.**; Cerviotti, A.; Dotoli, M., “Automating Bin Packing: a Layer Building Optimization Module for Cost Effective Logistics”, in *IEEE Transactions on Automation Science and Engineering (TASE)*, vol. 19, no. 3, pp. 1599-1613, 2022. doi: 10.1109/TASE.2022.3177422.
- j4 Cavone, G.; Bozza, A.; **Carli, R.**; Dotoli, M., “MPC-based Process Control of Deep Drawing: an Industry 4.0 Case Study in Automotive”, in *IEEE Transactions on Automation Science and Engineering (TASE)*, vol. 19, no. 3, pp. 1586-1598, 2022. doi: 10.1109/TASE.2022.3177362.
- j5 Scarabaggio P.; **Carli, R.**; Dotoli, M., “Noncooperative Equilibrium Seeking in Distributed Energy Systems under AC Power Flow Nonlinear Constraints”, *IEEE Transactions on Control of Network Systems (TCNS)*, 2022. in press. doi: 10.1109/TCNS.2022.3181527.
- j6 **Carli, R.**; Cavone, G.; Pippia, T.; De Schutter, B.; Dotoli, M., “Robust Optimal Control for Demand Side Management of Multi-Carrier Microgrids”, in *IEEE Transactions on Automation Science and Engineering (TASE)*, vol. 19, no. 3, pp. 1338-1351, 2022. doi: 10.1109/TASE.2022.3148856.
- j7 Proia, S.; **Carli, R.**; Cavone, G.; Dotoli, M., “Control Techniques for Safe, Ergonomic, and Efficient Human-Robot Collaboration in the Digital Industry: a Survey,” in *IEEE Transactions on Automation Science and Engineering (TASE)*, vol. 19, no. 3, pp. 1798-1819, 2022. doi: 10.1109/TASE.2021.3131011.
- j8 Scarabaggio, P.; **Carli, R.**; Cavone, G.; Epicoco, N.; Dotoli, M., “Non-Pharmaceutical Stochastic Optimal Control Strategies to Mitigate the COVID-19 Spread,” in *IEEE Transactions on Automation Science and Engineering (TASE)*, vol. 19, no. 2, pp. 560-575, 2022. doi: 10.1109/TASE.2021.3111338.
- j9 Helmi, A. M.; **Carli, R.**; Dotoli, M.; Ramadan, H. S., “Efficient and Sustainable Reconfiguration of Distribution Networks via Metaheuristic Optimization,” in *IEEE Transactions on Automation Science and Engineering (TASE)*, 2021, vol. 19, no. 1, pp. 82-98, Jan. 2022. doi: 10.1109/TASE.2021.3072862.
- j10 Scarabaggio P.; Grammatico S.; **Carli, R.**; Dotoli, M., “Distributed Demand Side Management with Stochastic Wind Power Forecasting”, *IEEE Transactions on Control Systems Technology (TCST)*, vol. 30, no. 1, pp. 97-112, 2022. doi: 10.1109/TCST.2021.3056751.
- j11 Hosseini, S. M.; **Carli, R.**; Dotoli, M., “Robust Optimal Energy Management of a Residential Microgrid under Uncertainties on Demand and Renewable Power Generation,” *IEEE Transactions on Automation Science and Engineering (TASE)*, vol. 18, no. 2, pp. 618-637, 2021. doi: 10.1109/TASE.2020.2986269.
- j12 **Carli, R.**; Cavone, G.; Epicoco, N.; Scarabaggio, P.; Dotoli, M., “Model predictive control to mitigate the COVID-19 outbreak in a multi-region scenario”, *Annual Reviews in Control*, 2020, 50, pp.373-393. doi: 10.1016/j.arcontrol.2020.09.005.
- j13 Scarabaggio, P.; **Carli, R.**; Cavone, G.; Dotoli, M., “Smart Control Strategies for Primary Frequency Regulation through Electric Vehicles: A Battery Degradation Perspective”, *Energies*, 2020, 13, 4586. doi: 10.3390/en13174586.
- j14 **Carli, R.**; Dotoli, M.; Digiesi, S.; Facchini, F.; Mossa, G. “Sustainable Scheduling of Material Handling Activities in Labor-Intensive Warehouses: A Decision and Control Model”, *Sustainability*, 2020, 12, 3111. doi: 10.3390/su12083111.
- j15 Hosseini, S. M.; **Carli, R.**; Cavone, G.; Dotoli, M., “Distributed Control of Electric Vehicle Fleets Considering Grid Congestion and Battery Degradation,” *Internet Technology Letters*, 2020, 3:e161. doi: 10.1002/itl2.161.
- j16 **Carli, R.** and Dotoli, M., “A dynamic programming approach for the decentralized control of energy retrofit planning in large-scale street lighting systems,” *IEEE Transactions on Automation Science and Engineering (TASE)*, vol. 17, no. 3, pp. 1140-1157, July 2020. doi: 10.1109/TASE.2020.2966738.
- j17 **Carli, R.**; Dotoli, M.; Jantzen, J.; Kristensen, M.; Othman, S. B., “Energy Scheduling of a Smart District Microgrid with Shared Photovoltaic Panels and Storage: the case of the Ballen marina in Samsø”, *Energy – The International Journal*, 198, 117188, 2020. doi: 10.1016/j.energy.2020.117188.
- j18 **Carli, R.**; Cavone, G.; Othman, S. B.; Dotoli, M., “IoT based architecture for Model Predictive Control of HVAC systems in Smart Buildings,” *Sensors* 2020, 20, 5; doi:10.3390/s20010005.
- j19 **Carli, R.** and Dotoli, M., “Distributed Alternating Direction Method of Multipliers for Linearly-constrained Optimization over a Network,” *IEEE Control Systems Letters*. vol. 4, no. 1, pp. 247-252, Jan. 2020. doi: 10.1109/LCSYS.2019.2923078. The contents of this paper were also selected by CDC Program Committee for presentation at the *Decision and Control (CDC), 2019 58th IEEE Conference on*, Nice (France), 2019 - participation in the conference and presentation of the work.
- j20 **Carli, R.** and Dotoli, M., “Decentralized Control for Residential Energy Management of a Smart Users’ Microgrid with Renewable Energy Exchange,” *IEEE/CAA Journal of Automatica Sinica*, vol. 6, no. 3, pp. 641-656, 2019. doi: 10.1109/JAS.2019.1911462.
- j21 **Carli, R.**; Dotoli, M.; Pellegrino, R. A Multi-Period Approach for the Optimal Energy Retrofit Planning of Street Lighting Systems. *Applied Science*. 2019, 9, 1025. doi: 10.3390/app9051025.

- j22 **Carli, R.**; Dotoli, M.; Pellegrino, R., “Multi-criteria Decision-Making for Sustainable Metropolitan Cities Assessment,” *Journal of Environmental Management*, vol. 226, pp. 46-61, 2018. doi: 10.1016/j.jenvman.2018.07.075.
- j23 **Carli, R.**; Dotoli, M.; Pellegrino, R., “A decision-making tool for energy efficiency optimization of street lighting,” *Computers and Operations Research* (2018), vol. 96, pp. 223-235, August 2018. doi: 10.1016/j.cor.2017.11.016.
- j24 **Carli, R.** and Dotoli, M., “A Distributed Control Algorithm for Waterfilling of Networked Control Systems via Consensus,” *IEEE Control Systems Letters*, vol. 1, no. 2, pp. 334-339, Oct. 2017. doi: 10.1109/LCSYS.2017.2716190. The contents of this paper were also selected by CDC Program Committee for presentation at the *Decision and Control (CDC), 2017 56th IEEE Conference on*, Melbourne (Australia), 2017.
- j25 **Carli, R.**; Dotoli, M.; Epicoco, N., “Monitoring traffic congestion in urban areas through probe vehicles: A case study analysis,” *Internet Technology Letters*, 2017;e5. doi: 10.1001/itl2.5.
- j26 **Carli, R.**, Dotoli, M., Pellegrino, R.; Ranieri, L., “A decision making technique to optimize a building stock energy efficiency”, *IEEE SMC-A (Transactions on Systems, Man and Cybernetics: Systems)*, vol. 47, no. 5, pp. 794-807, May 2017. doi: 10.1109/TSMC.2016.2521836.
- j27 **Carli, R.**, Dotoli, M., Pellegrino, R., “A Hierarchical Decision Making Strategy for the Energy Management of Smart Cities”, *IEEE TASE (Transactions on Automation Science and Engineering)*, vol. 14, no. 2, pp. 505-523, April 2017. doi: 10.1109/TASE.2016.2593101.

#### Preprints submitted for publication in International Journals:

- j28 Mignoni, N.; Scarabaggio, P.; **Carli, R.**; and Dotoli, M. “Control Frameworks for Transactive Energy Storage Services in Energy Communities,” *Control Engineering Practices*, 2022. second review round.
- j29 Scarabaggio P.; **Carli, R.**; Dotoli, M., “A Novel Heuristic Approach for Fast and Effective Influence Spread Maximization in Social Networks”, *IEEE SMC-A (Transactions on Systems, Man and Cybernetics: Systems)*, 2022. in review.
- j30 Mignoni, N.; **Carli, R.**; and Dotoli, M. “Optimal Decision Strategies for the Generalized Cuckoo Card Game,” *IEEE Transaction on Games (ToG)*, 2022. in review.
- j31 Scarabaggio P.; **Carli, R.**; Grammatico S.; Dotoli, M., “Clarke's Local Generalized Nash Equilibria with Nonconvex Coupling Constraints,” *IEEE Transactions on Automatic Control (TAC)*, 2022. in review.

#### Chapters of International Books:

- b1 **Carli, R.** and Dotoli, M., “Connected Autonomous Shared Electric Vehicles: Current Trends”. The decision-making process for infrastructural investment choices, 233. 2020. ISSN: 978-88-917-9081-1.

#### Articles accepted for publication in International Conference Proceedings with acceptance based on submission of full paper and peer-review:

- c1 Cavone, G.; **Carli, R.**; Dotoli, M., “Decision and control approaches for enhancing the resilience of distribution networks: a survey”, *1st IFAC Workshop on Control of Complex Systems (COSY 2022)*, November 24-25, Bologna, Italy.
- c2 Askari, B.; Cavone, G.; **Carli, R.**; Dotoli, M., “Data-Driven Fault Prognosis in a Complex Hydraulic System based on Early Classification”, *1st IFAC Workshop on Control of Complex Systems (COSY 2022)*, November 24-25, Bologna, Italy.
- c3 Dammacco, L.; **Carli, R.**; Lazazzera, V.; Fiorentino, M.; Dotoli, M. “Simulation-based Design for the Layout and Operation of AGVs in Sustainable and Efficient Manufacturing Systems,” *IEEE International Conference on Cyber-physical Social Intelligence (ICCSI 22)*, October 21-24, 2022, Nanjing, China. (submitted).
- c4 Proia, S.; Cavone, G.; Camposeo, A.; Ceglie, F.; **Carli, R.**; Dotoli, M., “Safe and Ergonomic Human-Drone Interaction in Warehouses”, *2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022)*, October 23-27, Kyoto, Japan.
- c5 Proia, S.; Cavone, G.; **Carli, R.**; Dotoli, M., “A Multi-objective Optimization Approach for Trajectory Planning in a Safe and Ergonomic Human-Robot Collaboration”, *Automation Science and Engineering, 2022 IEEE International Conference on (CASE 2022)*, August 20-24, Mexico City, Mexico.

- c6 Bozza, A.; Askari, B.; Cavone, G.; **Carli, R.**; Dotoli, M., “An Adaptive Model Predictive Control Approach for Position Tracking and Force Control of a Hydraulic Actuator”, *Automation Science and Engineering, 2022 IEEE International Conference on (CASE 2022)*, August 20-24, Mexico City, Mexico.
- c7 Scarabaggio, P.; **Carli, R.**; Parisio, A.; Dotoli, M., “On Controlling Battery Degradation in Vehicle-to-Grid Energy Markets”, *Automation Science and Engineering, 2022 IEEE International Conference on (CASE 2022)*, August 20-24, Mexico City, Mexico.
- c8 Hosseini, S. M.; **Carli, R.**; Jantzen, J.; and Dotoli, M. “Multi-block ADMM Approach for Decentralized Demand Response of Energy Communities with Flexible Loads and Shared Energy Storage System,” *30th Mediterranean Conference on Control and Automation (MED 2022)*, June 28 – July 1, 2022, Athens, Greece.
- c9 Mignoni, N.; Scarabaggio, P.; **Carli, R.**; and Dotoli, M. “Game Theoretical Control Frameworks for Multiple Energy Storage Services in Energy Communities,” *8th International Conference on Control, Decision and Information Technologies (CODIT 2022)*, May 17-20, 2022, Istanbul, Turkey.
- c10 Hosseini, S. M.; **Carli, R.**; and Dotoli, M. “Robust Optimal Demand Response of Energy-efficient Commercial Buildings,” *20th European Control Conference (ECC 2022)*, July 12-15, 2022, London, UK.
- c11 Dammacco, L.; **Carli, R.**; Gattullo, M.; Lazazzera, V.; Fiorentino, M.; Dotoli, M. “Virtual Golden Zone for Enhancing the Ergonomics of Complex Production Lines,” *International Joint Conference on Mechanics, Design Engineering and Advanced Manufacturing (JCM 2022)*, June 1-3, 2022, Ischia, Italy.
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- c13 Atrigna, M.; Buonanno, A.; **Carli, R.**; Cavone, G. ; Scarabaggio, P.; Valenti, M.; Graditi, G.; Dotoli, M., “Effects of Heat Waves on the Failure of Power Distribution Grid: a Fault Prediction System Based on Machine Learning”, *21st International Conference on Environment and Electrical Engineering (EEEIC 2021)*, September 7-10, 2021 – Bari, Italy, pp. 1-5. doi: 10.1109/EEEIC/ICPSEurope51590.2021.9584751.
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- c16 Bozza, A.; Cavone, G.; **Carli, R.**; Mazzoccoli, L.; Dotoli, M., “An MPC-based Approach for the Feedback Control of the Cold Sheet Metal Forming Process”, *Automation Science and Engineering, 2021 IEEE International Conference on (CASE 2021)*, August 23-27, Lion, France, pp. 286-291, doi: 10.1109/CASE49439.2021.9551602.
- c17 Helmi, A. M.; **Carli, R.**; Dotoli, M.; Ramadan, H. S., “Harris Hawks Optimization for the Efficient Reconfiguration of Distribution Networks”, *29th Mediterranean Conference on Control and Automation (MED 2021)*, June, 2021 – Bari, Italy, pp. 214-219, doi: 10.1109/MED51440.2021.9480179. - participation in the conference and presentation of the work.
- c18 Scarabaggio, P.; **Carli, R.**; Jantzen, J.; Dotoli, M., “Stochastic Model Predictive Control of Community Energy Storage under High Renewable Penetration”, *29th Mediterranean Conference on Control and Automation (MED 2021)*, June, 2021 – Bari, Italy, pp. 973-978, doi: 10.1109/MED51440.2021.9480353.
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- c22 **Carli, R.**; Cavone, G.; Epicoco, G.; Di Ferdinando, M.; Scarabaggio, P.; Dotoli, M., “Consensus-based Algorithms for Controlling Swarms of Unmanned Aerial Vehicles”, *19th International Conference on Ad Hoc Networks and Wireless (AdHoc-Now 2020)*, Bari, Italy, 19-21 October 2020. Lecture Notes in Computer Science, vol 12338. Springer, Cham. doi: 10.1007/978-3-030-61746-2\_7.

- c23 Hosseini, S. M.; **Carli, R.**; Parisio, A.; Dotoli, M., “Robust Decentralized Charge Control of Electric Vehicles under Uncertainty on Inelastic Demand and Energy Pricing”, *Systems, Man, and Cybernetics, 2020 IEEE International Conference on (SMC 2020)*, October 11-14, Toronto, Canada, pp. 1834-1839, doi: 10.1109/SMC42975.2020.9283440. - Participation in the conference and presentation of the work.
- c24 Scarabaggio, P.; **Carli, R.**; La Scala, M.; Dotoli, M., “Analyzing the Effects of COVID-19 Pandemic on the Energy Demand: the Case of Northern Italy”, *2020 AEIT International Annual Conference*, September 23-25, Italy, pp. 1-6, doi: 10.23919/AEIT50178.2020.9241136.
- c25 Scarabaggio, P.; **Carli, R.**; Dotoli, M., “A game-theoretic control approach for the optimal energy storage under power flow constraints in distribution networks”, *Automation Science and Engineering, 2020 IEEE International Conference on (CASE 2020)*, August 20-24, Hong Kong, pp. 1281-1286, doi: 10.1109/CASE48305.2020.9216800.
- c26 **Carli, R.**; Cavone, G.; Pippia, T.; De Schutter, B.; Dotoli, M., “Robust MPC Energy Scheduling Strategy for Multi-Carrier Residential Microgrids”, *Automation Science and Engineering, 2017 IEEE International Conference on (CASE 2020)*, August 20-24, Hong Kong, pp. 152-158, doi: 10.1109/CASE48305.2020.9216875.
- c27 Scarabaggio P.; **Carli, R.**; Dotoli, M., “A fast and effective algorithm for influence maximization in large-scale independent cascade networks”, *International Conference on Control, Decision and Information Technologies (CoDIT 2020)*, Prague, Czech Republic, June 29 - July 2, 2020, pp. 639-644, doi: 10.1109/CoDIT49905.2020.9263914.
- c28 **Carli, R.** and Dotoli, M., “A Dynamic Programming Approach for the Decentralized Integer Optimization of Agents with Quadratic Utilities and Shared Constraints”, *28th Mediterranean Conference on Control and Automation (MED'2020)*, 16-19 June, 2020 – Saint-Raphaël, France, pp. 611-616, doi: 10.1109/MED48518.2020.9183012. Participation in the conference and presentation of the work.
- c29 Scarabaggio P.; Grammatico S.; **Carli, R.**; Dotoli, M., “A Distributed, Rolling-Horizon Demand Side Management Algorithm under Wind Power Uncertainty”, *IFAC World Congress, 2020*, July 11-17, Berlin, Germany, IFAC-PapersOnLine, Volume 53, Issue 2, 2020, pp. 12620-12625, doi: 10.1016/j.ifacol.2020.12.1830.
- c30 **Carli, R.**; Digiesi, S.; Dotoli, M.; Facchini, F., “A Control Strategy for smart energy charging of warehouse material handling equipment”, *2019 International Conference on Industry 4.0 and Smart Manufacturing (ISM)*, Cosenza, Italy, November 20-22, 2019, Procedia Manufacturing, Volume 42, 2020, pp. 503-510. doi: 10.1016/j.promfg.2020.02.041.
- c31 Hosseini, S. M.; **Carli, R.**; Dotoli, M., “A Residential Demand-Side Management Strategy under Nonlinear Pricing Based on Robust Model Predictive Control,” in *Systems, Man, and Cybernetics (SMC), 2019 IEEE International Conference on*, 6-9 Oct. 2019, Bari, Italy, pp. 3243-3248. doi: 10.1109/SMC.2019.8913892. - participation in the conference and presentation of the work.
- c32 **Carli, R.**; Cavone, G.; Dotoli, M.; Epicoco, N.; Scarabaggio, P. , “Model predictive control for thermal comfort optimization in building energy management systems,” in *Systems, Man, and Cybernetics (SMC), 2019 IEEE International Conference on*, 6-9 Oct. 2019, Bari, Italy, pp. 2608-2613. doi: 10.1109/SMC.2019.8914489. - participation in the conference and presentation of the work.
- c33 **Carli, R.**; Cavone, G.; Dotoli, M.; Epicoco, N.; Manganiello, C.; Tricarico, L., “ICT-based Methodologies for Sheet Metal Forming Design: A Survey on Simulation Approaches,” in *Systems, Man, and Cybernetics (SMC), 2019 IEEE International Conference on*, 6-9 Oct. 2019, Bari, Italy, pp. 128-133. doi: 10.1109/SMC.2019.8914082.
- c34 Hosseini, S. M.; **Carli, R.**; Dotoli, M., “Robust Energy Scheduling of a Residential User under Uncertainty”, *Automation Science and Engineering (CASE), 2019 IEEE International Conference on*, August 22-26, 2019, Vancouver, Canada, pp. 966-971. doi: 10.1109/COASE.2019.8843230.
- c35 **Carli, R.**; Dotoli, M.; Palmisano, V. “A Two-level Game Theoretic Control for the Optimal Scheduling of Residential Energy Consumption and Storage”, *Automation Science and Engineering (CASE), 2019 IEEE International Conference on*, August 22-26, 2019, Vancouver, Canada, pp. 960-965. doi: 10.1109/COASE.2019.8843141.
- c36 Hosseini, S. M.; **Carli, R.**; Dotoli, M., “Robust Day-ahead Energy Scheduling of a Residential User under Uncertainty”, *European Control Conference (ECC)*, Naples, 25-28 June, 2019. pp. 935-940, doi: 10.23919/ECC.2019.8796182.
- c37 **Carli, R.**; Dotoli, M.; “Distributed Control for Waterfilling of Networked Control Systems with Coupling Constraints”, *Decision and Control (CDC), 2018 57th IEEE Conference on*, Miami, 2018, pp. 3710-3715. doi: 10.1109/CDC.2018.8619425.
- c38 **Carli, R.**; Dotoli, M.; Epicoco, N.; Pellegrino, R., “Defining sustainable action plans in metropolitan cities using the fuzzy Analytic Hierarchy Process group decision analysis,” *13th Conference on Sustainable Development of*

*Energy, Water and Environment Systems (SDEWES 2018)*, Sept. 30-Oct. 4, 2018, Palermo (Italy) - participation in the conference and presentation of the work.

- c39 Hosseini, S. M.; **Carli, R.**; Dotoli, M., “Model Predictive Control for Real-Time Residential Energy Scheduling under Uncertainties,” in *Systems, Man, and Cybernetics (SMC), 2018 IEEE International Conference on*, 7-10 Oct. 2018, Miyazaki, Japan, pp. 1386-1391. doi: 10.1109/SMC.2018.00242.
- c40 **Carli, R.**; Dotoli, M.; Epicoco, N., “Cost-Optimal Energy Scheduling of a Smart Home Under Uncertainty” *Control Technology and Applications (CCTA), 2018 IEEE International Conference on*, August 21-24, 2018, Copenhagen, Denmark, pp. 1668-1673. doi: 10.1109/CCTA.2018.8511345.
- c41 **Carli, R.** and Dotoli, M., “A Decentralized Control Strategy for the Energy Management of Cooperative Smart Homes with Renewable Energy Exchange” *Control Technology and Applications (CCTA), 2018 IEEE International Conference on*, August 21-24, 2018, Copenhagen, Denmark, pp. 1662-1667. doi: 10.1109/CCTA.2018.8511617.
- c42 **Carli, R.** and Dotoli, M., “A Distributed Control Algorithm for Optimal Charging of Electric Vehicle Fleets with Congestion Management,” *15th IFAC Symposium on Control in Transportation Systems (CTS 2018)*, June 6-8, 2018, Savona, Italy, IFAC-PapersOnLine, Volume 51, 9, 2018, pp. 373-378. doi: 10.1016/j.ifacol.2018.07.061. - participation in the conference and presentation of the work.
- c43 Ardito, G.; Costantino, N.; Dotoli, M.; **Carli, R.**, “An innovative decision support tool for a sustainable building design”, *3rd Italian Conference on ICT for Smart Cities & Communities (i-Cities 2017)*, Bari, Italy - September 27-29, 2017 - participation in the conference and presentation of the work.
- c44 **Carli, R.**; Dotoli, M.; Pellegrino, R., “Evaluating the Sustainable Development of Metropolitan Cities by the Analytic Hierarchy Process,” *12th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES Conference), Dubrovnik, 2017*.
- c45 **Carli, R.** and Dotoli, M., “Decentralized Optimal Charging Control of Electric Vehicle Fleets with Congestion Management,” *2017 IEEE International Conference on Service Operations and Logistics, and Informatics*, September 18-20, 2017, Bari, Italy, p. 63-67. doi: 10.1109/SOLI.2017.8120971. - participation in the conference and presentation of the work
- c46 **Carli, R.** and Dotoli, M., “A decentralized control strategy for energy retrofit planning of large-scale street lighting systems using dynamic programming”, *Automation Science and Engineering (CASE), 2017 IEEE International Conference on*, August 20-23, 2017, Xi'an China, pp. 1196-1200. doi: 10.1109/COASE.2017.8256266.
- c47 **Carli, R.** and Dotoli, M., “Using the distributed proximal alternating direction method of multipliers for smart grid monitoring”, in *Automation Science and Engineering (CASE), 2017 IEEE International Conference on*, August 20-23, 2017, Xi'an China, pp. 418-423. doi: 10.1109/COASE.2017.8256140.
- c48 **Carli, R.** and Dotoli, M., “Bi-Level Programming for the Energy Retrofit Planning of Street Lighting Systems,” *IEEE International Conference on Networking, Sensing and Control (ICNSC)*, May 16-18, 2017, Calabria, Southern Italy, pp. 418-423. doi: 10.1109/COASE.2017.8256140. - participation in the conference and presentation of the work.
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- c50 **Carli, R.**; Dotoli, M.; Cianci, E., “An optimization tool for energy efficiency of street lighting systems in smart cities,” *IFAC World Congress 2017*, July 9-14, 2017, Toulouse, France, IFAC-PapersOnLine, Volume 50, 1, 2017, pp. 14460-14464. doi: 10.1016/j.ifacol.2017.08.2292.
- c51 **Carli, R.**; Dotoli, M.; Andria G.; Lanzolla A. M. L.; Garramone R., “Average consensus approach for optimal renewable resource allocation,” in *Systems, Man, and Cybernetics (SMC), 2016 IEEE International Conference on*, October 9-12, 2016, Budapest, Hungary, pp. 270-275. doi: 10.1109/SMC.2016.7844253.
- c52 **Carli, R.**; Dotoli, M.; Andria, G.; Lanzolla, A. M. L., “Bi-level programming for the strategic energy management of a smart city,” *2016 IEEE Workshop on Environmental, Energy, and Structural Monitoring Systems (EESMS)*, June 13-14, 2016, Bari, Italy, pp. 1-6. doi: 10.1109/EESMS.2016.7504820 - participation in the conference and presentation of the work.
- c53 **Carli, R.** and Dotoli, M., “A decentralized resource allocation approach for sharing renewable energy among interconnected smart homes,” in *Decision and Control (CDC), 2015 54th IEEE Conference on*, Osaka, 2015, pp. 5903-5908. doi: 10.1109/CDC.2015.7403147.
- c54 **Carli, R.**; Dotoli, M.; Pellegrino, R., “Using ICT and optimization tools for the energy management of smart cities: The street lighting decision panel,” in *Emerging Technologies and Factory Automation (ETFA), 2015 IEEE 20th Annual Conference on*, September 8-11, 2015, Luxembourg. doi: 10.1109/ETFA.2015.7301435.
- c55 **Carli, R.**; Dotoli, M.; Pellegrino, R.; Ranieri, L., “Using multi-objective optimization for the integrated energy efficiency improvement of a smart city public buildings' portfolio,” in *Automation Science and Engineering*

- (CASE), 2015 IEEE International Conference on, pp.21-26, 24-28 Aug. 2015. doi: 10.1109/CoASE.2015.7294035.
- c56 **Carli, R.**; Dotoli, M.; Epicoco, N.; Angelico, B.; Vinciullo, A., “Automated evaluation of urban traffic congestion using bus as a probe,” in *Automation Science and Engineering (CASE), 2015 IEEE International Conference on*, pp.967-972, 24-28 Aug. 2015. doi: 10.1109/CoASE.2015.7294224.
- c57 **Carli, R.**; Albino, V.; Dotoli, M.; Mummolo, G.; Savino, M., “A dashboard and decision support tool for the energy governance of smart cities,” in *Environmental, Energy and Structural Monitoring Systems (EESMS), 2015 IEEE Workshop on*, pp.23-28, 9-10 July 2015, Trento, Italy. doi: 10.1109/EESMS.2015.7175846 - participation in the conference and presentation of the work.
- c58 Albino, V.; **Carli, R.**; Caponio, G.; Cavone, G.; Costantino, N.; Dangelico, R.M.; Dotoli, M.; Falagario, M.; Mossa, G.; Mummolo, G.; Pellegrino, R.; Ranieri, L.; Savino, M.; Savino, T.; “Findings from the RES NOVAE project: a dashboard and decision support tool for the energy governance of smart cities”; *Ist WORKSHOP on the State of the art and Challenges Of Research Efforts at POLIBA*; December 3 - 5, 2014 - Politecnico di Bari, Italy; pagg. 491-501; ISBN 978-88-492-2964-6 - participation in the conference and presentation of the work.
- c59 Angelico, B.; **Carli, R.**; Dotoli, M.; Epicoco, N.; Garavelli, C.A.; Lisi, S.; Vinciullo, A.; “Findings from the SEMINA project: algorithms for monitoring, evaluating and predicting the performance of urban traffic in a smart mobility setting”; *Ist WORKSHOP on the State of the art and Challenges Of Research Efforts at POLIBA*; December 3 - 5, 2014 - Politecnico di Bari, Italy; pagg. 433-441; ISBN 978-88-492-2964-6 - participation in the conference and presentation of the work.
- c60 **Carli, R.** and Dotoli, M., “Energy scheduling of a smart home under nonlinear pricing,” in *Decision and Control (CDC), 2014 IEEE 53rd Conference on*, Los Angeles, CA, 15-17 Dec. 2014, pp. 5648-5653. doi: 10.1109/CDC.2014.7040273.
- c61 **Carli, R.**; Deidda, P.; Dotoli, M.; Pellegrino, R., “An urban control center for the energy governance of a smart city,” in *Emerging Technology and Factory Automation (ETFA), 2014 IEEE*, vol., no., pp.1-7, 16-19 Sept. 2014. doi: 10.1109/ETFA.2014.7005155.
- c62 **Carli, R.**; Dotoli, M.; Pellegrino, R.; Ranieri, L., “Measuring and Managing the Smartness of Cities: A Framework for Classifying Performance Indicators,” in *Systems, Man, and Cybernetics (SMC), 2013 IEEE International Conference on*, vol., no., pp.1288-1293, 13-16 Oct. 2013. doi: 10.1109/SMC.2013.223.

#### Preprints submitted to International Conference:

- c63 Mignoni, N.; **Carli, R.**; and Dotoli, M. “A Noncooperative Stochastic Rolling Horizon Control Framework for V1G and V2B Scheduling in Energy Communities,” *Decision and Control (CDC), 2022 IEEE 6st Conference on*, December 6-9, 2022, Cancun, Mexico. (submitted).

## Professional Activities

### Other activities

From September 2004 to September 2012, he was Command and Control Project Lead at the Weapon System Architecture and Equipments Unit - System and Missile Design Directorate - MBDA Italy S.p.A. (Leonardo Group).

- In charge of providing professional and technical contribution in the conception, development and co-ordination related to all aspects of BMC4I (Battle Management, Command, Control Communications, Computers, and Intelligence) within the following multinational programs:
  - Intercontinental program for Ground Based Air Defence: MEADS (Medium Extended Air Defense System)
  - Pan-european program for Naval Maritime Superiority: SAAM ESD (Surface Air Anti Missile – Extended Self Defence)
  - Pan-european program for Ground Based Air Defence: SAMP/T (Système Surface Air Moyenne Portée Terrestre)
  - PNR 315 - Simulator of Ballistic Missile Defense System



From June 2003 to May 2004 he was a Reserve Officer (Ensign) at the Technical Section of Coast Guard Bari Office, Bari – Italy.

- Activities:
  - Bari Port shipping operations coordination and control
  - Contribution to Coast Guard criminal investigation and patrol activities in Bari district
  - Analysis and studies about Italian maritime traffic control system (VTS – Vessel Traffic System)
  - Member of Regional military trade union (COBAR).

### **Membership to professional organizations**

He is included at n. 6890 in the Register of the Bari Province Order of Engineers since October 2003. He is member of the Energy Efficiency Committee and Information Engineering Committee at the Bari Province Order of Engineers since September 2018.

He is included at n. 6546 in the Register of National Acoustic Expert since November 2012.

He is member since 2016 (*senior member* since 2022) of the prominent international association IEEE (the Institute of Electrical and Electronics Engineers).

He is member since 2021 of the national association SIDRA (the Italian Society of Professors and Researchers in Automation).

He is member since 2020 of CNIT (Italian National Interuniversity Consortium for Telecommunications).

### **Declaration**

*Aware of penal sanctions, in the case of false declarations, training or use of false deeds, referred to art. 76 of the D.P.R. 445/2000, the undersigned Raffaele Carli, declares in accordance with articles 46 and 47 of the D.P.R. 445/2000 that the above is true and reserves the right to prove specific qualifications upon request by means of appropriate documentation. It also provides explicit formal consent to the processing of personal data, pursuant to Legislative Decree 196/2003 and EU General Data Protection Regulation 2016/679.*

Bari, 2022 August the 16th

Dr. Engr. Raffaele Carli