
Current Position

- Feb 2023 – Today **Assistant Professor (RTDA)**, *Politecnico di Bari*, Bari (Italy).
Systems and Control Engineering (research field 09/G1), Department of Electrical and Information Engineering.
- Nov 2022 – Today **Collaborator at the Decision and Control Laboratory**, *Politecnico di Bari*, Bari (Italy).
Work in the research group of Prof. Mariagrazia Dotoli at the *Decision & Control Lab* on issues related to the control and management of energy storage systems in the distribution network and on the analysis and control of complex multi-agent systems for energy optimization in energy communities

Education

- Nov 2019 – Oct 2022 **Ph.D., Electrical and Information Engineering (Cycle XXXV)**, *Politecnico di Bari*, Bari (Italy).
Innovative Ph.D. scholarship with industrial characterization in co-tutorship with *University of Manchester*, Manchester (United Kingdom) and *E-distribuzione S.p.A.*, Roma (Italy).
 - Recieved on December 22, 2022.
 - Title of the thesis: "Game-theoretic Control of Autonomous Power Grids".
 - Tutor: Profs. Mariagrazia Dotoli and Raffaele Carli.
- Oct 2017 – Oct 2019 **M.Sc., Management Engineering**, *Politecnico di Bari*, Bari (Italy).
 - Recieved on October 9, 2019.
 - Title of the thesis: "Distributed Control and Optimization Techniques for Demand-side Management under Uncertainty in Renewable Power Generation".
 - Supervisors: Profs. Mariagrazia Dotoli, Raffaele Carli and Sergio Grammatico.
- Oct 2013 – Oct 2017 **B.Sc., Mechanical Engineering**, *Politecnico di Bari*, Bari (Italy).
 - Recieved on October 9, 2017.
 - Title of the thesis: "I materiali compositi: applicazioni nautiche (Composite materials: nautical applications)".
 - Supervisors: Profs. Sabina Luisa Campanelli e Michele Dassisti.
- Sep 2008 – Jul 2013 **Chemistry industrial degree**, *Istituto Tecnico Galileo Galilei*, Altamura (Italy).

International Education

- Oct 2020 – Apr 2021 **Research collaboration for doctoral thesis**, *University of Manchester*, Manchester (United Kingdom).
 - Work in the research group of Prof. Alessandra Parisio at the "*EEE - Academic & Research*" on topics related to predictive control for the energy optimisation of distribution networks.
- Feb 2020 – Feb 2020 **Participation to the EECI Graduate School on Control**, *Eindhoven University of Technology*, Eindhoven (The Netherlands).
 - Participation and final exam of the module "Networked Control of Multi-Agent Systems" held by Prof. Jan Lunze.
- Mar 2019 – Sep 2019 **Winner of a scholarship for a research period abroad for the preparation of the master's thesis**, *Delft University of Technology*, Delft (The Netherlands).
 - Work in the research group of Prof. Sergio Grammatico at the "*Delft Center for Systems and Control*" on theoretical and computational topics related to the game theoretic control of complex multi-agent systems.
- Feb 2018 – Jul 2018 **Winner of a scholarship for a study period abroad of the program Erasmus Student Mobility for Studies**, *Graz University of Technology*, Graz (Austria).
 - Modelling and simulation of complex systems within the topic of sustainable transportation, Financial management, Business management.

Languages

Italian	Native
English	Advanced – International English Language Testing System (8/9) – C1/C2
German	Advanced – Österreichisches Sprachdiplom – B1
Chinese	Base – Hanyu Shuiping Kaoshi 1 – A1

Didactic Activity

- Official Teaching Appointments He holds the courses:
- “Fondamenti di Automatica” (first module, 6 ECTS) of the Bachelor’s Degree Course in Management Engineering, Politecnico di Bari – A.Y. 2022/23.
 - “Applications of MATLAB” (2 ECTS) of the Doctorate School, Politecnico di Bari – A.Y. 2022/23.
- Teaching support activities He supervised numerical and experimental exercises of the following disciplines:
- “Analisi e Simulazione dei Sistemi” (6 ECTS) of the Master’s Degree Course in Management Engineering, Politecnico di Bari – A.Y. 2019/20, 2020/21, 2021/22, 2022/23.
 - “Dynamical Systems Theory” (6 ECTS) of the Master’s Degree Course in Automation Engineering, Politecnico di Bari – A.Y. 2021/22, 2022/23.
 - “Fondamenti di Automatica” (first and second module, 12 ECTS) of the Bachelor’s Degree Course in Management Engineering, Politecnico di Bari – A.Y. 2021/22.
 - “Fondamenti di Automatica” (first and second module, 12 ECTS) of the Bachelor’s Degree Course in Electronic and Telecommunications Engineering, Politecnico di Bari – A.Y. 2021/22, 2022/23.
- He has served on the examination boards of the following courses with the title of “subject expert”:
- “Analisi e Simulazione dei Sistemi” (6 ECTS) of the Master’s Degree Course in Management Engineering, Politecnico di Bari – A.Y. 2020/21, 2021/22, 2022/23.
 - “Dynamical Systems Theory” (6 ECTS) of the Master’s Degree Course in Automation Engineering, Politecnico di Bari – A.Y. 2021/22, 2022/23.
 - “Fondamenti di Automatica” (first and second module, 12 ECTS) of the Bachelor’s Degree Course in Management Engineering, Politecnico di Bari – A.Y. 2021/22.
 - “Fondamenti di Automatica” (first and second module, 12 ECTS) of the Bachelor’s Degree Course in Electronic and Telecommunications Engineering, Politecnico di Bari – A.Y. 2021/22.
- Tutoring activities He tutored project work and traineeships for students on the following courses:
- “Analisi e Simulazione dei Sistemi” (6 ECTS) of the Master’s Degree Course in Management Engineering, Politecnico di Bari – A.Y. 2019/20, 2020/21, 2022/23.
 - “Dynamical Systems Theory” (6 ECTS) of the Master’s Degree Course in Automation Engineering, Politecnico di Bari – A.Y. 2020/21, 2022/23.
 - “Fondamenti di Automatica” (first and second module, 12 ECTS) of the Bachelor’s Degree Course in Management Engineering, Politecnico di Bari – A.Y. 2021/22.
 - “Fondamenti di Automatica” (first and second module, 12 ECTS) of the Bachelor’s Degree Course in Electronic and Telecommunications Engineering, Politecnico di Bari – A.Y. 2020/21, 2021/22.
- He is or has been the official co-supervisor of the following Bachelor’s and Master’s theses:
- *Nicola Mignoni*, Master’s Degree Course in Management Engineering, Politecnico di Bari – A.Y. 2020/21, title of the thesis: “Control techniques for multiple energy storage systems in smart grids”;
 - *Andrea Roberto*, Master’s Degree Course in Management Engineering, Politecnico di Bari – A.Y. 2020/21, title of the thesis: “A GRASP approach for the Multi-Drop Multiple Container Loading Problem resolution in Logistics 4.0. The Elettric80 case study”.

Scientific activity

- Research topics Scientific activity has mainly addressed the following research topics in the field of automation:
- Management and control of complex systems;
 - Modelling, control, and optimization for industrial applications;
 - Management and control of energy systems.

Achievements and Awards

- Achievements and Awards He has won the following scientific prizes and awards:
- **IEEE CSS Italy Chapter Best Young Author Journal Paper Award** for the journal paper “Scarabaggio, P., Grammatico, S., Carli, R., & Dotoli, M. (2021). Distributed demand side management with stochastic wind power forecasting. *IEEE Transactions on Control Systems Technology*, 30(1), 97-112.” – September 2022
 - **Excellence in Energy Research** of the Distretto Produttivo Pugliese delle Energie Rinnovabili e dell’Efficienza Energetica with the project “Controllo distribuito per la gestione ottimale delle reti di distribuzione con sistemi di accumulo” – July 2020

Editorial activity

Editorial activity

He is a reviewer for the following international journals:

- IEEE Transactions on Automation Science and Engineering
- IEEE Transactions on Systems, Man and Cybernetics
- IEEE Transactions on Control System Technology
- IEEE Transactions on Automatic Control
- IEEE Transactions on Intelligent Transportation Systems
- IEEE/CAA Journal of Automatica Sinica
- IEEE Control Systems Letters
- Journal of Engineering and Technological Sciences
- AIMS Press Mathematical Biosciences and Engineering

He is a reviewer for the following international conferences:

- International Conference on Control, Decision and Information Technologies (CoDIT);
- IEEE International Conference on Automation Science and Engineering (CASE);
- IEEE International Conference on Systems, Man, and Cybernetics (SMC);
- IEEE International European Control Conference (ECC);
- Mediterranean Conference on Control and Automation (MED);
- IFAC World Congress.

Participation in and organisation of scientific events

Invited Presentations

He was invited to give the following presentations:

- "Generalized Nash equilibrium problems under nonconvex coupling constraints" as part of the *DEWS Colloquia* organised by the DEWS Center of Excellence, University of L'Aquila (Italy).

Organisation of Scientific Events

He holds the following roles in the organisation of international scientific events:

- He is *Local Arrangement Chair* of the international conference "*2024 IEEE International Conference on Automation Science and Engineering, August 28 - September 1, 2024, Bari (Italy)*.";
- He is *Website Committee Chair* of the international conference "*2024 IEEE International Conference on Automation Science and Engineering, August 28 - September 1, 2024, Bari (Italy)*."

Editorial activity for Scientific Events

He was Associate Editor for the following international conferences:

- *30th Mediterranean Conference on Control and Automation, June 28 - July 1 2022, Athens (Greece)*;
- *29th Mediterranean Conference on Control and Automation, June 22 - 25, 2021, Bari (Italy)*.

He was Session Chair/Co-chair at the following international conferences:

- "Foundations of Automation III" – *IEEE 16th International Conference on Automation Science and Engineering, August 20-21, 2020, Hong Kong*.
- "Robotics II" – *29th Mediterranean Conference on Control and Automation, June 22-25, 2021, Bari (Italy)*.
- "Systems and Control Insight into Modeling, Predicting, and Controlling COVID-19" – *29th Mediterranean Conference on Control and Automation, June 22-25, 2021, Bari (Italy)*.
- "Nonlinear Systems and Nonlinear Control II" – *29th Mediterranean Conference on Control and Automation, June 22-25, 2021, Bari (Italy)*.

Participation in Conventions and Conferences

He participated in the following international conferences:

- 2022 8th International Conference on Control, Decision and Information Technologies (CoDIT) with presentation of the contribution [C1];
- 2022 IEEE 18th International Conference on Automation Science and Engineering (CASE) with presentation of the contribution [C2];
- 2021 IEEE International Conference on Environment and Electrical Engineering and 2021 IEEE Industrial and Commercial Power Systems Europe (EEEIC / I CPS Europe) with presentation of the contribution [C3];
- 2021 IEEE International Conference on Systems, Man, and Cybernetics (SMC) with presentation of the contribution [C4];
- 2021 29th Mediterranean Conference on Control and Automation (MED) with presentation of the contribution [C7];
- International Conference on Ad-Hoc Networks and Wireless with presentation of the contribution [C8];
- 2020 7th International Conference on Control, Decision and Information Technologies (CoDIT) with presentation of the contribution [C9];
- 2020 IEEE 16th International Conference on Automation Science and Engineering (CASE) with presentation of the contribution [C10];
- IFAC 2020, 21st IFAC World Congress 2020 with presentation of the contribution [C11]
- 2020 AEIT International Annual Conference (AEIT) with presentation of the contribution [C12].

He has participated in the following national congresses:

- “Automatica.it 2022” organized by SIDRA (Società Italiana dei Docenti e dei Ricercatori in Automatica) with presentation of the contribution “Clarke’s Local Generalized Nash Equilibria with Nonconvex Coupling Constraints” – September, 1-3, 2022, Cagliari (Italy).
- “Automatica.it 2021” organized by SIDRA (Società Italiana dei Docenti e dei Ricercatori in Automatica) with presentation of the contribution “Non-Pharmaceutical Stochastic Optimal Control Strategies to Mitigate the COVID-19 Spread” — September 8-10, 2021, online.
- “Automatica.it 2020” organized by SIDRA (Società Italiana dei Docenti e dei Ricercatori in Automatica) with presentation of the contribution “A game-theoretic control approach for the optimal energy storage under power flow constraints in distribution networks” – September 9-11, 2020, online.

Participation in Research Projects

Participation in
Research Projects

He participates in the following international research project:

- Project “Smart Design and Control of Energy Storage Systems” (Annex 37) financed by the technical programme ECES (Energy Conservation through Energy Storage) of the IEA (International Energy Agency). This Working Group is investigating the state of the art regarding the design and development of control strategies for both demand-side and production-side energy storage systems. Coordinator: Prof. *Ryozo Ooka*, University of Tokyo (Japan). Local coordinator: Prof. *Mariagrazia Dotoli*, Politecnico di Bari (Italy).

He participated in the following national research projects:

- 2018-2021, project “System for Risk Analysis and Forecast for Critical Infrastructures in the AppenninEs dorsaL Regions” co-funded by the Ministry of University and Research from PON “Ricerca e Innovazione” 2014-2020 and FSC. Collaboration of the Decision and Control Laboratory research group with the companies e-distribuzione, ANAS, TIM and research institutes ENEA, INGV. Local coordinator: Prof. *Mariagrazia Dotoli*, Politecnico di Bari (Italy).

He participated in the following regional research projects:

- 2020-2023, project “Decision and control algorithm for flexible and efficient Energy Communities”, FSE/2019 “Research for Innovation (REFIN)”, POR PUGLIA FESR-FSE 2014/2020. Coordinator: Prof. *Raffaele Carli*, Politecnico di Bari (Italy).

He participated in the following university research projects:

- 2021, project “Tecniche di controllo ottimo per il contenimento di pandemie” financed by the University Research Fund of the Politecnico di Bari. Coordinator: Prof. *Mariagrazia Dotoli*, Politecnico di Bari (Italy).
- 2020, project “Prototipo di piezo-valvola a bassissimo consumo energetico per applicazioni aeree ed industriali” financed by the University Research Fund of the Politecnico di Bari. Coordinator: Prof. *Riccardo Amirante*, Politecnico di Bari (Italy).

Collaborations

Collaborations with
International and
National Research
Groups

He has worked or is working with the following national and foreign research groups:

- research group led by Prof. *Nicola Epicoco*, Libera Università Mediterranea “Giuseppe Degennaro” (Italy), on the definition of epidemic models for monitoring and controlling the spread of the Covid-19 pandemic, which led to the production of four scientific publications [[J3](#), [J6](#), [C5](#), [C6](#)].
- research group led by Prof. *Sergio Grammatico*, Delft University of Technology (The Netherlands), on control techniques for smart grids based on game theory, which led to the production of three scientific publications [[J5](#), [P5](#), [C11](#)].
- research group led by Prof. *Alessandra Parisio*, Manchester University (United Kingdom), on control techniques in demand side management, which led to the production of a paper published in international conference proceedings [[C2](#)].
- research group led by Prof. *Ryozo Ooka*, University of Tokyo (Japan), for studies on the control of energy storage systems, which led to participation in the IEA (International Energy Agency) Working Group ECES (Energy Conservation through Energy Storage) and the publication of a survey on the control of energy storage systems [[J2](#)].

Collaborations with
Public or Private
Organisations

He collaborates or has collaborated in different roles with the following organisations and companies:

- e-distribuzione SpA (formerly Enel Distribuzione), Italy’s largest electricity operator and Europe’s second-largest listed utility by installed capacity, on issues related to the control and management of energy storage systems in distribution networks, which led to the production of two scientific publications [[P1](#), [C3](#)].
- ENEA - Laboratorio Smart Grid e Reti Energetiche (TERIN-STSN-SGRE), on the study, analysis, research and development, of technologies, methodologies and devices for applications in the energy sector, which led to the production of two scientific publications [[P1](#), [C3](#)].
- Innolab Srl, spin-off of the Politecnico di Bari.

He collaborated with the following foreign company:

- Samsø Energy Academy, Samsø, Denmark, a small company specialized in energy efficiency technology solutions, on the stochastic control of independent energy communities, which led to the production of a paper published in international conference proceedings [[C7](#)].

Publications

Author or co-author of 20+ printed publications (see below for a list of his publications), listed on databases:

- o <https://scholar.google.com/citations?user=mjeIq3YAAAAAJ>
- o <https://www.scopus.com/authid/detail.uri?authorId=57212464556>

Indicatori
Bibliometrici

Values recorded on January 17, 2023:

- o Number of papers in the Google Scholar database: 22
- o Number of papers in the Scopus database: 20
- o Number of citations in the Google Scholar database: 261
- o Number of citations in the Scopus database: 200
- o h-index in the Google Scholar database: 7
- o h-index in the Scopus database: 7

Articles published in international scientific journals

- [J1] N. Mignoni, **P. Scarabaggio**, R. Carli, and M. Dotoli, "Control frameworks for transactive energy storage services in energy communities", *Control Engineering Practice*, vol. 130, Art. n. 105364, pp. 1–11, 2023, ISSN: 0967-0661. DOI: [10.1016/j.conengprac.2022.105364](https://doi.org/10.1016/j.conengprac.2022.105364).
- [J2] F. Nasiri, R. Ooka, F. Haghghat, N. Shirzadi, M. Dotoli, R. Carli, **P. Scarabaggio**, A. Behzadi, S. Rahnama, A. Afshari, F. Kuznik, E. Fabrizio, R. Choudhary, and S. Sadrizadeh, "Data Analytics and Information Technologies for Smart Energy Storage Systems: A State-of-the-Art Review", *Sustainable Cities and Society*, vol. 84, Art. n. 104004, pp. 1–14, 2022, ISSN: 2210-6707. DOI: [10.1016/j.scs.2022.104004](https://doi.org/10.1016/j.scs.2022.104004).
- [J3] **P. Scarabaggio**, R. Carli, G. Cavone, N. Epicoco, and M. Dotoli, "Nonpharmaceutical Stochastic Optimal Control Strategies to Mitigate the COVID-19 Spread", *IEEE Transaction on Automation Science and Engineering*, vol. 19, no. 2, pp. 560–575, 2022, ISSN: 1545-5955. DOI: [10.1109/TASE.2021.3111338](https://doi.org/10.1109/TASE.2021.3111338).
- [J4] **P. Scarabaggio**, R. Carli, and M. Dotoli, "Noncooperative Equilibrium Seeking in Distributed Energy Systems Under AC Power Flow Nonlinear Constraints", *IEEE Transactions on Control of Network Systems*, vol. 9, no. 4, pp. 1731–1742, 2022, ISSN: 2325-5870. DOI: [10.1109/TCNS.2022.3181527](https://doi.org/10.1109/TCNS.2022.3181527).
- [J5] **P. Scarabaggio**, S. Grammatico, R. Carli, and M. Dotoli, "Distributed Demand Side Management With Stochastic Wind Power Forecasting", *IEEE Transactions on Control Systems Technology*, vol. 30, no. 1, pp. 97–112, 2022, ISSN: 1063-6536. DOI: [10.1109/TCST.2021.3056751](https://doi.org/10.1109/TCST.2021.3056751).
- [J6] R. Carli, G. Cavone, N. Epicoco, **P. Scarabaggio**, and M. Dotoli, "Model Predictive Control to Mitigate the COVID-19 Outbreak in a Multi-region Scenario", *Annual Reviews in Control*, vol. 50, pp. 373–393, 2020, ISSN: 1367-5788. DOI: [10.1016/j.arcontrol.2020.09.005](https://doi.org/10.1016/j.arcontrol.2020.09.005).
- [J7] **P. Scarabaggio**, R. Carli, G. Cavone, and M. Dotoli, "Smart Control Strategies for Primary Frequency Regulation through Electric Vehicles: A Battery Degradation Perspective", *Energies*, vol. 13, no. 17, Art. n. 4586, pp. 1–12, 2020, ISSN: 1996-1073. DOI: [10.3390/en13174586](https://doi.org/10.3390/en13174586).

Articles under review in international scientific journals

- [P1] M. Atrigna, A. Buonanno, R. Carli, G. Cavone, **P. Scarabaggio**, M. Valenti, G. Graditi, and M. Dotoli, "Power Distribution Grids Condition Monitoring under Heatwaves: a Machine Learning Approach to Fault Prediction", *IEEE Transactions on Industry Applications*,
- [P2] S. Proia, G. Cavone, **P. Scarabaggio**, R. Carli, and M. Dotoli, "A safe and ergonomic control framework for human-drone interaction in automated warehouses", *Control Engineering Practice*,
- [P3] S. Proia, G. Cavone, **P. Scarabaggio**, R. Carli, and M. Dotoli, "Safety compliant, time and ergonomic optimal trajectory planning for collaborative robotics", *IEEE Transaction on Automation Science and Engineering*,
- [P4] **P. Scarabaggio**, R. Carli, and M. Dotoli, "On Fast and Effective Influence Spread Maximization in Social Networks", *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, DOI: [10.36227/techrxiv.13153139](https://doi.org/10.36227/techrxiv.13153139).
- [P5] **P. Scarabaggio**, S. Grammatico, R. Carli, and M. Dotoli, "Clarke's Local Equilibria in Nash Games with Nonconvex Coupling Constraints", *IEEE Transactions on Automatic Control*, DOI: [10.36227/techrxiv.20079959](https://doi.org/10.36227/techrxiv.20079959).

Articles published in Italian scientific journals

- [G1] R. Carli, G. Cavone, M. Dotoli, J. Jantzen, M. Kristensen, and **P. Scarabaggio**, "Controllo predittivo per lo sviluppo di energy Community flessibili ed efficienti", *Tekneco.it - Lecce (Italy) (in Italian)*, pp. 1–13, 2020, Online: <https://bit.ly/3bBmUfM> [2023-01-01], ISSN: 2038-9302.
- [G2] **P. Scarabaggio**, M. La Scala, R. Carli, and M. Dotoli, "Analisi degli effetti della pandemia da COVID-19 sulla domanda di energia elettrica: il caso del Nord Italia", *L'Energia Elettrica (in Italian)*, vol. 97, no. 5, pp. 41–51, 2020, Online: <https://bit.ly/3Nu1Kxg> [2023-01-01], ISSN: 0013-7308.

Articles published in proceedings of international conferences

- [C1] N. Mignoni, **P. Scarabaggio**, R. Carli, and M. Dotoli, "Game Theoretical Control Frameworks for Multiple Energy Storage Services in Energy Communities", in *2022 8th International Conference on Control, Decision and Information Technologies (CoDIT)*, IEEE, vol. 1, 2022, pp. 1580–1585. DOI: [10.1109/CoDIT55151.2022.9804087](https://doi.org/10.1109/CoDIT55151.2022.9804087).
- [C2] **P. Scarabaggio**, R. Carli, A. Parisio, and M. Dotoli, "On Controlling Battery Degradation in Vehicle-to-Grid Energy Markets", in *2022 IEEE 18th International Conference on Automation Science and Engineering (CASE)*, IEEE, 2022, pp. 1206–1211. DOI: [10.1109/CASE49997.2022.9926729](https://doi.org/10.1109/CASE49997.2022.9926729).
- [C3] M. Atrigna, A. Buonanno, R. Carli, G. Cavone, **P. Scarabaggio**, M. Valenti, G. Graditi, and M. Dotoli, "Effects of Heatwaves on the Failure of Power Distribution Grids: a Fault Prediction System Based on Machine Learning", in *2021 IEEE International Conference on Environment and Electrical Engineering and 2021 IEEE Industrial and Commercial Power Systems Europe (EEEIC / I CPS Europe)*, 2021, pp. 1–5. DOI: [10.1109/EEEIC/ICPSEurope51590.2021.9584751](https://doi.org/10.1109/EEEIC/ICPSEurope51590.2021.9584751).
- [C4] M. Calefati, S. Proia, **P. Scarabaggio**, R. Carli, and M. Dotoli, "A Decentralized Noncooperative Control Approach for Sharing Energy Storage Systems in Energy Communities", in *2021 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, IEEE, 2021, pp. 1430–1435. DOI: [10.1109/SMC52423.2021.9658851](https://doi.org/10.1109/SMC52423.2021.9658851).
- [C5] **P. Scarabaggio**, R. Carli, G. Cavone, N. Epicoco, and M. Dotoli, "Modeling, Estimation, and Analysis of COVID-19 Secondary Waves: the Case of the Italian Country", in *2021 29th Mediterranean Conference on Control and Automation (MED)*, IEEE, 2021, pp. 794–800. DOI: [10.1109/CASE49439.2021.9551418](https://doi.org/10.1109/CASE49439.2021.9551418).
- [C6] **P. Scarabaggio**, R. Carli, G. Cavone, N. Epicoco, and M. Dotoli, "Modeling, estimation, and optimal control of anti-covid-19 multi-dose vaccine administration", in *2021 IEEE 17th International Conference on Automation Science and Engineering (CASE)*, IEEE, 2021, pp. 990–995.
- [C7] **P. Scarabaggio**, R. Carli, J. Jantzen, and M. Dotoli, "Stochastic Model Predictive Control of Community Energy Storage under High Renewable Penetration", in *2021 29th Mediterranean Conference on Control and Automation (MED)*, IEEE, 2021, pp. 973–978. DOI: [10.1109/MED51440.2021.9480353](https://doi.org/10.1109/MED51440.2021.9480353).
- [C8] R. Carli, G. Cavone, N. Epicoco, M. Di Ferdinando, **P. Scarabaggio**, and M. Dotoli, "Consensus-Based Algorithms for Controlling Swarms of Unmanned Aerial Vehicles", in *International Conference on Ad-Hoc Networks and Wireless*, Springer International Publishing, 2020, pp. 84–99. DOI: [10.1007/978-3-030-61746-2_7](https://doi.org/10.1007/978-3-030-61746-2_7).
- [C9] **P. Scarabaggio**, R. Carli, and M. Dotoli, "A fast and effective algorithm for influence maximization in large-scale independent cascade networks", in *2020 7th International Conference on Control, Decision and Information Technologies (CoDIT)*, vol. 1, 2020, pp. 639–644. DOI: [10.1109/CoDIT49905.2020.9263914](https://doi.org/10.1109/CoDIT49905.2020.9263914).
- [C10] **P. Scarabaggio**, R. Carli, and M. Dotoli, "A game-theoretic control approach for the optimal energy storage under power flow constraints in distribution networks", in *2020 IEEE 16th International Conference on Automation Science and Engineering (CASE)*, 2020, pp. 1281–1286. DOI: [10.1109/CASE48305.2020.9216800](https://doi.org/10.1109/CASE48305.2020.9216800).
- [C11] **P. Scarabaggio**, S. Grammatico, R. Carli, and M. Dotoli, "A distributed, rolling-horizon demand side management algorithm under wind power uncertainty", in *IFAC 2020, 21st IFAC World Congress 2020*, vol. 53, Elsevier, 2020, pp. 12620–12625. DOI: [10.1016/j.ifacol.2020.12.1830](https://doi.org/10.1016/j.ifacol.2020.12.1830).
- [C12] **P. Scarabaggio**, M. La Scala, R. Carli, and M. Dotoli, "Analyzing the Effects of COVID-19 Pandemic on the Energy Demand: the Case of Northern Italy", in *2020 AEIT International Annual Conference (AEIT)*, 2020, pp. 1–6. DOI: [10.23919/AEIT50178.2020.9241136](https://doi.org/10.23919/AEIT50178.2020.9241136).
- [C13] R. Carli, G. Cavone, M. Dotoli, N. Epicoco, and **P. Scarabaggio**, "Model predictive control for thermal comfort optimization in building energy management systems", in *2019 IEEE International Conference on Systems, Man and Cybernetics (SMC)*, 2019, pp. 2608–2613. DOI: [10.1109/SMC.2019.8914489](https://doi.org/10.1109/SMC.2019.8914489).

Articles under review submitted to international conferences

- [W1] G. Cavone, S. Stella, **P. Scarabaggio**, R. Carli, S. Lisi, A. C. Garavelli, and M. Dotoli, "A Petri Net Simulation Approach for the Design of Robotic Palletizing Cells", in *2023 9th International Conference on Control, Decision and Information Technologies (CoDIT)*, IEEE.

Doctoral Thesis

- [D1] **P. Scarabaggio**, "Game-theoretic control of autonomous power grids", Ph.D. dissertation, Politecnico di Bari, Bari, (Italy), Nov. 2022, p. 156.

Master Thesis

- [M1] **P. Scarabaggio**, "Distributed control and optimization techniques for demand-side management under uncertainty in renewable power generation", M.S. thesis, Politecnico di Bari, Bari, (Italy), Oct. 2019, p. 121.

Qualifications and Memberships

2020 – Today Italian State Examination and Professional Qualification to practice as an Engineer

2020 – Today Graduate student member of the Institute of Electrical and Electronics Engineers (IEEE) and in particular the Italian IEEE section, as well as the IEEE Control Systems, Systems Man and Cybernetics, Robotics and Automation societies

Extra Curriculars Experiences

Representative experiences

Oct 2020 – Nov 2022 **Politecnico di Bari**, *Representative of Ph.D. candidates in the Board of the Doctoral School (ScuDo) for the three-year period 2020–2022*

Oct 2020 – Nov 2022 **Politecnico di Bari**, *Representative of Ph.D. candidates in the Student Board (CdS) for the three-year period 2020–2022*

Volunteering activities

Oct 2019 – Today **Beyond Borders**, *Organizer of European Erasmus+ KA1 projects KA1/KA2 for youth mobility funded by the European Commission. Participation in numerous Erasmus+ training courses in Austria, Belgium, Bulgaria, Cyprus, Denmark, Estonia, France, Germany, Greece, Turkey and Romania.*

Apr 2019 – Today **ADI (Associazione Dottorandi e Dottori di Ricerca in Italia)**, *Communication manager.*

Sport volunteering activities

Jan 2014 – Today **CNSAS (Corpo Nazionale Soccorso Alpino e Speleologico)**, *Operator.*

Jan 2016 – Dec 2017 **CARS (Centro Altamurano Ricerche Speleologiche)**, *Responsible for safety control and review of climbing and caving materials.*

Aug 2015 – Today **SSI (Società Speleologica Italiana)**, *National instructor of caving and rope techniques.*

Workshops and challenges

Dec 2021 **Polibathon**, Politecnico di Bari, December 9-11, 2021.

MAr 2019 **EBEC European BEST Engineering Competition**, Delft University of Technology, March 16, 2019

Apr 2018 **EBEC European BEST Engineering Competition**, Graz University of Technology, April 23, 2018

Interests

- Climbing
- Hiking
- Caving
- Photography

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 Paolo Scarabaggio, 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