

# Engr. Paolo Scarabaggio

Politecnico di Bari, Bari, Italy  
via Orabona 4, Bari, Italy

Phone: +39 0805963843 (laboratory)  
E-mail: [paolo.scarabaggio@poliba.it](mailto:paolo.scarabaggio@poliba.it)

ORCID: <https://orcid.org/0000-0002-4009-3534>  
Scopus: <https://www.scopus.com/authid/detail.uri?authorId=57212464556>  
Google Scholar: <https://scholar.google.com/citations?user=mjeIq3YAAAAJ&hl=it&oi=ao>  
LinkedIn: <https://www.linkedin.com/in/paoloscara>  
ResearchGate: [https://www.researchgate.net/profile/Paolo\\_Scarabaggio2](https://www.researchgate.net/profile/Paolo_Scarabaggio2)

## EDUCATION

---

### Ph.D., Electrical and Information Engineering, Polytechnic of Bari, Bari (Italy)

01/11/2019 – Present

Work in the research group of Prof. Dotoli at the "Decision and 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 Smart Grids.

**Research title:** *Development and implementation of innovative decision and control algorithm for energy efficiency of smart city: Control and management of energy storage system as integrated elements of the distribution network.*

**Supervisor:** Prof. Engr. Mariagrazia Dotoli, Ph.D., Raffaele Carli, Ph.D.

### M.Sc., Management Engineering, Polytechnic of Bari, Bari (Italy)

10/10/2017 – 09/10/2019

Systems analysis and simulation, Simulation of complex business system, Big data analytics, Database and Information systems, Production systems modelling, Manufacturing in the digital factory, Assembly and disassembly processes, Business economics, Entrepreneurship and Marketing, Manufacturing and supply chain network, Environmental management of production systems.

**Thesis title:** *Distributed control and optimization techniques for demand-side management under uncertainty in renewable power generation*

**Thesis Advisors:** Prof. Engr. Mariagrazia Dotoli, Ph.D., Prof. Engr. Sergio Grammatico, Ph.D., Raffaele Carli, Ph.D.

### B.Sc., Mechanical Engineering, Polytechnic of Bari, Bari (Italy)

01/10/2013 – 09/10/2017

Engineering thermodynamics, Fluid dynamics, Applied mechanics, Theoretical mechanics, Principles of electrical engineering, Structural mechanics, Materials technology, Manufacturing, Mechanical plants, Mechanics of materials and mechanical design, Optimization methods, Mechanical and thermal measurements, Energy systems and fluid machinery.

### Industrial Diploma of Chemistry, Istituto Tecnico Galileo Galilei, Altamura (Italy)

01/10/2008 – 09/07/2013

## INTERNATIONAL EDUCATION

---

### EECI International Graduate School on Control course, Technical University of Eindhoven, Eindhoven (Netherlands)

10/02/2020–12/08/2020

Module on "Networked Control of Multi-Agent Systems", Prof. Engr. Jan Lunze.

### Master's thesis, Technical University of Delft, Delft (Netherlands)

01/03/2019–31/08/2019

Work in the research group of prof. S. Grammatico at the "Delft Center for Systems and Control" on theoretical and computational topics related to the game theoretic control and complex multi-agent system on the demand side management optimization for the Smart Grid.

### Erasmus Student Mobility for Studies, Technical University of Graz, Graz (Austria)

01/02/2018–31/07/2018

Modelling and simulation of complex systems within the topic of sustainable transportation planning, Financial management, Business management.

## DIDACTIC ACTIVITY

---

### Teaching Assistant, Polytechnic of Bari, Bari (Italy)

Academic Year 2019/20 – 2020/21

Courses: "Systems Analysis and Simulation", M.Sc. in Management

## SCIENTIFIC ACTIVITY

---

### Research topics:

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

### International Journal Articles:

- j1. Scarabaggio, P., Carli, R., & Dotoli, M. (2020). A novel approach for fast and effective influence spread maximization in social networks. *IEEE Transactions on Control of Network Systems*. **(under review)**
- j2. Scarabaggio, P., Grammatico, S., Carli, R., & Dotoli, M. (2020) Distributed Demand Side Management with Stochastic Wind Power Forecasting. *IEEE Transaction on Control System technology*. **(under review)**
- j3. Carli, R., Cavone, G., Epicoco, N., Scarabaggio, P., & Dotoli, M. (2020) Model predictive control to mitigate the COVID-19 outbreak in a multi-region scenario. *Annual Reviews in Control*.
- j4. Scarabaggio, P., Carli, R., Cavone, G., & Dotoli, M. (2020). Smart Control Strategies for Primary Frequency Regulation through Electric Vehicles: A Battery Degradation Perspective. *Energies*, 13(17), 4586.

### Italian Journal Articles:

- g1. Scarabaggio, S., Carli, R., La Scala, M. & Dotoli, M. (2020) Analisi degli effetti della pandemia da COVID-19 sulla domanda di energia elettrica: il caso del Nord Italia. *L'Energia Elettrica*. **(under review)**

### International Conference Proceedings with acceptance based on submission of full paper and peer-review:

- c1. Carli, R., Cavone, G., Epicoco, N., Di Ferdinando, M., Scarabaggio, P., & Dotoli, M. (2020). Consensus-based Algorithms for Controlling Swarms of Unmanned Aerial Vehicles. In *AdHoc-Now 2020*.
- c2. Scarabaggio, P., Carli, R., La Scala, M., & Dotoli, M. (2020, September). Analyzing the Effects of COVID-19 Pandemic on the Energy Demand: The Case of Northern Italy. In *2020 112<sup>th</sup> AEIT International Annual Conference, 23-25 September 2020*.
- c3. Scarabaggio, P., Carli, R., & Dotoli, M. (2020, August). A Game-Theoretic Control Approach for the Optimal Energy Storage under Power Flow Constraints in Distribution Networks. In *IEEE 16th International Conference on Automation Science and Engineering, August 20-24, 2020, Hong Kong*.
- c4. Scarabaggio, P., Carli, R., & Dotoli, M. (2020, July). A novel algorithm for influence maximization in independent cascade networks. In *CoDIT'20 June 29 - July 2, 2020 Prague, Czech Republic*.
- c5. Scarabaggio, P., Grammatico, S., Carli, R., & Dotoli, M. (2020, June). Distributed demand-side management with uncertainty in wind power forecasting. In *IFAC 2020, 21st IFAC World Congress 2020, 12-17 Jul. 2020, Berlin, Germany*.
- c6. Carli, R., Cavone, G., Dotoli, M., Epicoco, N., & Scarabaggio, P. (2019, October). Model predictive control for thermal comfort optimization in building energy management systems. In *2019 IEEE International Conference on Systems, Man and Cybernetics (SMC)* (pp. 2608-2613). IEEE.

### Conference presentation:

- Consensus-based Algorithms for Controlling Swarms of Unmanned Aerial Vehicles. In *AdHoc-Now 2020*.
- Analyzing the Effects of COVID-19 Pandemic on the Energy Demand: The Case of Northern Italy. *AEIT 2020 112<sup>th</sup> International Annual Conference, 23-25 September 2020*.
- A Game-Theoretic Control Approach for the Optimal Energy Storage under Power Flow Constraints in Distribution Networks. At *Automatica.it 2020 Virtual Edition, 9-11 September 2020*.
- A Game-Theoretic Control Approach for the Optimal Energy Storage under Power Flow Constraints in Distribution Networks. At *IEEE 16th International Conference on Automation Science and Engineering, August 20-24, 2020, Hong Kong*.
- A novel algorithm for influence maximization in independent cascade networks. *CoDIT'20 June 29 - July 2, 2020 Prague, Czech Republic*.
- Distributed demand-side management with uncertainty in wind power forecasting. *IFAC 2020, 21st IFAC World Congress 2020, 12-17 Jul. 2020, Berlin, Germany*.

### Chair activities in sessions of international Conferences and Symposia

- "Foundations of Automation III" (session chair), IEEE 16<sup>th</sup> International Conference on Automation Science and Engineering, 21 August 2020, Hong Kong.

### Reviewer activity for international journals and conferences:

- IEEE Transactions on Automation Science and Engineering
  - IEEE Transactions on Systems, Man and Cybernetics
  - IEEE Transactions on Control System Technology
  - IEEE/CAA Journal of Automatica Sinica
  - IEEE International Conference on Automation Science and Engineering
  - IEEE International Conference on Systems, Man, and Cybernetics
-

## FOREIGN LANGUAGES

---

**Italian:** Native

**English:** Fully proficient

**German:** Intermediate – Österreichisches Sprachdiplom– B1

**Chinese:** Basic – Hanyu Shuiping Kaoshi (HSK) – A1

## PROFESSIONAL QUALIFICATIONS AND MEMBERSHIPS

---

- Italian State Examination and Professional Qualification to practice as an Engineer, Polytechnic of Bari, Bari (Italy) 2020.
- Student member of the Institute of Electrical and Electronics Engineers (IEEE) since 2020.

## WORK EXPERIENCE

---

### **Bartender, Flann O'Brien, Graz (Austria)**

01/03/2018–31/08/2018

### **Traineeship, Neo Yatch, Bitonto (Italy)**

01/03/2017–30/09/2017

Management of the assembly process of a new mould for a 35 ft hull.

### **Maintenance technician, Mecservice, Altamura (Italy)**

01/02/2014–30/06/2016

Installation and maintenance of industrial plant and equipment.

## RELEVANT SKILLS

---

- Excellent knowledge of Linux and Windows systems, excellent knowledge of the Office and LibreOffice package.
- Excellent knowledge of CAD software (AutoCAD, Solidworks...), excellent knowledge of the MATLAB and Simulink environment. Good knowledge of programming languages such as C++, R, Python and Java scripts.
- Excellent knowledge of LaTeX.

## OTHER SKILLS AND ACTIVITIES

---

### **Sport activity:**

Expert climber and caver, member of CAI and SSI, participant in numerous expeditions in Italy and abroad (Albania, Georgia, Iran).

- CNSAS (National Alpine and Caving Rescue Corps) - Caving rescue operator.
- CARS - Responsible for safety control and review of climbing and caving materials.
- SSI - National instructor of caving and rope techniques.

### **European volunteering activities:**

- Beyond Borders - Organiser of European projects financed by the European Commission in the framework of Erasmus+ and by the Council of Europe. In particular, of four Erasmus+ KA1 projects for youth mobility.
- Participant in numerous training courses in Austria, Belgium, Bulgaria, Cyprus, Denmark, Estonia, France, Germany, Greece, Turkey and Romania.

### **Student volunteering activities:**

- Link Politecnico - student representative.

In compliance with the GDPR and the Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.