

Ing. Ettore Lanzarone, PhD

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Education

Ettore Lanzarone was born in Milan, Italy, in 1979.

He obtained his Ph.D. in bioengineering in June 2008 at Politecnico di Milano, his master degree in biomedical engineering cum laude in April 2004 at Politecnico di Milano, and his scientific high school degree in July 1998 (mark 60/60).

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Affiliations

Since November 2011 he is permanent researcher at the Institute of Applied Mathematics and Information Technology (IMATI) of the National Research Council of Italy (CNR), Milan, Italy.

He is adjunct professor at the Department of Mathematics of Politecnico di Milano, Milan, Italy.

He is collaborating member of the CIRRELT (Centre Interuniversitaire de Recherche sur les Reseaux d'Entreprise, la Logistique et le Transport), Montréal and Quebec City, Canada.

He is member of the β -Lab (Laboratory of Biomechanics for Endovascular Treatments of the Aorta), Università degli Studi di Pavia, CNR-IMATI and Policlinico San Donato.

He is shareholder and collaborator of Compass Care LLC, Stamford, CT, US (www.CareWhenYouNeedIt.com).

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Memberships

He is member of the European Working Group on Operational Research Applied to Health Services (ORAHs), of the European Network for Business and Industrial Statistics (ENBIS), of the European Society of Biomechanics (ESB), of the Italian National Bioengineering Group (GNB), and of the Italian Association of Mathematical Engineers (AIM).

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Research activity

He has a multidisciplinary background in Applied Mathematics and Information Technology, which focuses on three main research areas:

- **Optimization and operations research**

From a theoretical point of view, the research is focused on robust optimization approaches to include data uncertainty in the optimization process. Applications are in health care (e.g., home care, blood donation system, ambulance location) and manufacturing industry (scheduling).

- **Stochastic models**

Both Bayesian and frequentist approaches are used from the methodological point of view. The research is focused on stochastic differential equations and health. The first point refers to Bayesian parameter estimation in complex systems described by ordinary or partial differential equations. The second point

mainly deals with modeling the evolution of patient conditions and demand for care in several health care facilities (e.g., home care, blood donation system, ambulances).

- **Bioengineering**

The research deals with mathematical models applied to bioengineering problems and with in-vitro studies of the cardiovascular fluid-dynamics. Technological solutions as 3D printing support these activities.

Previous affiliations and activities

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Previously, he was a research fellow at the Department of Mechanics of Politecnico di Milano, Milan, Italy: from January 2011 to November 2011 he worked for the project “ADI-plan: methods and tools for resource planning and control in networks of integrated home care” cofounded by Regione Lombardia within the program Dote Ricerca Applicata and from April 2008 to September 2010 for the project “Analysis and design of logistic and organizational systems for delivering social and health services in the territory”.

Moreover, he was collaborator at the MUSP Consortium (Consorzio Macchine Utensili e Sistemi di Produzione, Piacenza, Italy) from October 2010 to January 2011 and collaborator at the Department of Mechanics of Politecnico di Milano in March 2008.

During the Ph.D. period (March 2005 - February 2008) he worked at at the Bioengineering Department and the Laboratory of Biological Structures Mechanics of the Structural Engineering Department, Politecnico di Milano, Milan, Italy.

From July 2004 to May 2005 he performed the Compulsory Civil Service in replacement of Military Service at Casa di Nazareth.

Publications

International journals indexed in ISI or SCOPUS

1. G. Lugaresi, E. Lanzarone, N. Frigerio, A. Matta **A robust cardinality-constrained model to address the machine loading problem**. Paper under review.
2. N. Lahrichi, E. Lanzarone, S. Yalçındağ. **A two-stage approach for home health care based on the first route and second assign paradigm**. Paper under review.
3. F. Regis Hernández, G. Carello, E. Lanzarone. **An optimization tool to dimension innovative home health care services with devices and disposable materials**. Paper under review.
4. V. Nicoletta, A. Guglielmi, V. Bélanger, A. Ruiz, E. Lanzarone. **A Bayesian generalized linear model for spatio-temporal emergency call data**. Paper under review.
5. V. Bélanger, E. Lanzarone, A. Ruiz, P. Soriano. **The ambulance location and dispatching problem**. Paper under second review.
6. S. Marconi, E. Lanzarone, G. Van Bogerijen, M. Conti, F. Secchi, S. Trimarchi, F. Auricchio. **A compliant aortic model for in vitro simulations: design and manufacturing process**. Paper under second review.
7. G. Alaimo, F. Auricchio, I. Bianchini, E. Lanzarone. **Applying functional principal components to structural topology optimization**. Int J Numer Meth Eng 2018; DOI 10.1002/nme.5801; ISSN 1097-0207.

8. C. Bianchi, E. Lanzarone, G. Casagrande, M.L. Costantino. **A Bayesian approach for the identification of patient-specific parameters in a dialysis kinetic model.** *Stat Methods Med Res* 2018; DOI 10.1177/0962280217745572; ISSN 0962-2802.
9. L. Ironi, E. Lanzarone. **A model-based tool for the analysis and design of gene regulatory networks.** *IEEE-ACM T Comput Bi* 2017; DOI 10.1109/TCBB.2017.2716942; ISSN 1545-5963.
10. G. Carello, E. Lanzarone, S. Mattia. **Trade-off between stakeholders' goals in the home care nurse-to-patient assignment problem.** *Operations Research for Health Care* 2018; 16: 29-40; ISSN 2211-6923.
11. S. Bař, G. Carello, E. Lanzarone, S. Yalçındađ. **An appointment scheduling framework to balance the production of blood bags from donation.** *Eur J Oper Res* 2018; 265(3): 1124-43; ISSN 0377-2217.
12. S. Bař Güre, G. Carello, E. Lanzarone, S. Yalçındađ. **Unaddressed problems and research perspectives in scheduling blood collection from donors.** *Prod Plan Control* 2018; 29(1), 84-90; ISSN 0953-7287.
13. F. Auricchio, A. Ferrara, E. Lanzarone, S. Morganti, P. Totaro. **A regression method based on noninvasive clinical data to predict the mechanical behavior of ascending aorta aneurysmal tissue.** *IEEE T Bio-Med Eng* 2017; 64(11): 2607-17; ISSN 0018-9294.
14. S. Marconi, E. Lanzarone, H.W.L. De Beaufort, M. Conti, S. Trimarchi, F. Auricchio. **A novel insight on the role of entry tears in type B aortic dissection: pressure measurements in an in vitro 3D printed model.** *Int J Artif Organs* 2017; 40(10): 563-74; ISSN 0391-3988.
15. H.W.L. De Beaufort, M. Coda, M. Conti, T.M.J. van Bakel, F.J.H. Nauta, E. Lanzarone, F.L. Moll, J.A. van Herwaarden, F. Auricchio, S. Trimarchi. **Changes in aortic pulse wave velocity of four thoracic aortic stent grafts in an ex vivo porcine model.** *PLoS ONE* 2017; 12(10): e0186080; ISSN 1932-6203.
16. R. Argiento, A. Guglielmi, E. Lanzarone, I. Nawajah. **Bayesian joint modeling of the health profile and demand of home care patients.** *IMA J Management Math* 2017; 28(4): 531-52; ISSN 1471-678X.
17. H.W.L. De Beaufort, M. Conti, A.V. Kamman, F.J.H. Nauta, E. Lanzarone, F.L. Moll, J.A. Van Herwaarden, F. Auricchio, S. Trimarchi. **Stent-graft deployment increases aortic stiffness in an ex vivo porcine model.** *Ann Vasc Surg* 2017; 43: 302-8; ISSN 0890-5096.
18. E. Lanzarone, S. Pasquali, G. Gilioli, E. Marchesini. **A Bayesian estimation approach for the mortality in a stage-structured demographic model.** *J Math Biol* 2017; 75(3): 759-79; ISSN 0303-6812.
19. D. Carrera, F. Manganini, G. Boracchi, E. Lanzarone. **Defect detection in SEM images of nanofibrous materials.** *IEEE T Ind Inform* 2017; 13(2): 555-61; ISSN 1551-3203.
20. M. Borrotti, E. Lanzarone, F. Manganini, S. Ortelli, A. Pievatolo, C. Tonetti. **Defect minimization and feature control in electrospinning through design of experiments.** *J Appl Polym Sci* 2017; 134(17): 44740; ISSN 1097-4628.
21. E. Lanzarone, C. Masclat, F. Noël. **A multi-user tool for enhancing the daily replanning and control of visits in home care services.** *Prod Plan Control* 2017; 28(3): 202-19; ISSN 0953-7287.
22. R. Argiento, A. Guglielmi, E. Lanzarone, I. Nawajah. **A Bayesian framework for describing and predicting the stochastic demand of home care patients.** *Flex Serv Manuf J* 2016; 28(1-2): 254-79; ISSN 1936-6582.
23. I. Bianchini, R. Argiento, F. Auricchio, E. Lanzarone. **Efficient uncertainty quantification in stochastic finite element analysis based on functional principal components.** *Comput Mech* 2015; 56(3): 533-49; ISSN 0178-7675.

24. B. Addis, G. Carello, A. Grosso, E. Lanzarone, S. Mattia, E. Tànfani. **Handling uncertainty in health care management using the cardinality-constrained approach: advantages and remarks**. *Operations Research for Health Care* 2015; 4(1): 1-4; ISSN 2211-6923.
25. L. Martín-Fernández, E. Lanzarone. **A particle-filtering approach for real-time estimation of thermal conductivity and temperature tracking in homogeneous masses**. *Numer Heat Tr B - Fund* 2015; 67(6): 507-30; ISSN 1040-7790.
26. F. Auricchio, M. Conti, A. Ferrara, E. Lanzarone. **A clinically-applicable stochastic approach for non-invasive estimation of aortic stiffness using computed tomography data**. *IEEE T Bio-Med Eng* 2015; 62(1): 176-87; ISSN 0018-9294.
27. E. Lanzarone, S. Pasquali, V. Mussi, F. Ruggeri. **Bayesian estimation of thermal conductivity and temperature profile in a homogeneous mass**. *Numer Heat Tr B - Fund* 2014; 66(5): 397-421; ISSN 1040-7790.
28. L. Ironi, E. Lanzarone. **Assigning probabilities to qualitative dynamics of gene regulatory networks**. *J Math Biol* 2014; 69(6-7): 1661-92; ISSN 0303-6812.
29. G. Carello, E. Lanzarone. **A cardinality-constrained robust model for the assignment problem in home care services**. *Eur J Oper Res* 2014; 236(2): 748-62; ISSN 0377-2217.
30. E. Lanzarone, A. Matta. **Robust nurse-to-patient assignment in home care services to minimize overtimes under continuity of care**. *Operations Research for Health Care* 2014; 3(2): 48-58; ISSN 2211-6923.
31. L. Martín-Fernández, G. Gilioli, E. Lanzarone, J. Míguez Arena, S. Pasquali, F. Ruggeri, D.P. Ruiz Padillo. **A Rao-Blackwellized particle filter for joint parameter estimation and biomass tracking in a stochastic predator-prey system**. *Math Biosci Eng* 2014; 11(3): 573-97; ISSN 1547-1063.
32. E. Lanzarone, F. Ruggeri. **Inertance estimation in a lumped-parameter hydraulic simulator of human circulation**. *J Biomech Eng - T ASME* 2013; 135(6): 061012; ISSN 0148-0731.
33. E. Lanzarone, A. Matta, E. Sahin. **Operations management applied to home care services: the problem of assigning human resources to patients**. *IEEE T Syst Man Cy A* 2012; 42(6): 1346-63; ISSN 1083-4427.
34. E. Lanzarone, A. Matta. **A cost assignment policy for home care patients**. *Flex Serv Manuf J* 2012; 24(4): 465-95; ISSN 1936-6582.
35. E. Lanzarone, R. Vismara, G.B. Fiore. **Response to the letter to the editor: a new pulsatile volumetric device with biomorphic valves for the in vitro study of the cardiovascular system by MB Munir et al**. *Artif Organs* 2011; 35(1): 97-8; ISSN 0160-564X.
36. E. Lanzarone, A. Matta, G. Scaccabarozzi. **A patient stochastic model to support human resource planning in home care**. *Prod Plan Control* 2010; 21(1):3-25; ISSN 0953-7287.
37. E. Lanzarone, F. Gelmini, A. Fumero, M. Carini, M.L. Costantino, R. Fumero, O. Alfieri. **Preservation of endothelium nitric oxide release during beating heart surgery with respect to continuous flow cardiopulmonary bypass**. *Perfusion-UK* 2010; 25(2):57-64; ISSN 0267-6591.
38. E. Lanzarone, F. Gelmini, M. Tessari, T. Menon, H. Suzuki, M. Carini, M.L. Costantino, R. Fumero, G.B. Luciani, G. Faggian. **Preservation of endothelium nitric oxide release by pulsatile flow cardiopulmonary bypass when compared with continuous flow**. *Artif Organs* 2009; 33(11):926-34; ISSN 0160-564X.
39. E. Lanzarone, R. Vismara, G.B. Fiore. **A new pulsatile volumetric device with biomorphic valves for the in vitro study of the cardiovascular system**. *Artif Organs* 2009; 33(12):1048-62; ISSN 0160-564X.
40. G. Casagrande, E. Lanzarone, F. Miglietta, A. Remuzzi, R. Fumero, M.L. Costantino. **Determination of cardiovascular mechanics evolution in the presence of the arteriovenous fistula**. *ASAIO J* 2009; 55(5): 484-93; ISSN 1058-2916.

41. F. Aletti, E. Lanzarone, M.L. Costantino, G. Baselli. **Simulation study of autoregulation responses of peripheral circulation to systemic pulsatility**. *Nonlinear Biomed Phys* 2009; 3:7; ISSN 1753-4631.
42. E. Lanzarone, G. Casagrande, R. Fumero, M.L. Costantino. **Integrated model of endothelial NO regulation and systemic circulation for the comparison between pulsatile and continuous perfusion**. *IEEE T Bio-Med Eng* 2009; 56(5):1331-40; ISSN 0018-9294.
43. E. Lanzarone, P. Liani, G. Baselli, M.L. Costantino. **Model of arterial tree and peripheral control for the study of physiological and assisted circulation**. *Med Eng Phys* 2007; 29(5):542-55; ISSN 1350-4533.

Published proceedings of international conference

1. N. Lahrichi, E. Lanzarone, S. Yalçındağ. A new decomposition approach for the home health care problem. *Health Care Systems Engineering - Proceedings of HCSE 2017 (Springer Proceedings in Mathematics & Statistics, vol. 210)*; 27-36; ISBN 978-3-319-66146-9.
2. G. Carello, E. Lanzarone, D. Laricini, M. Servilio. Handling time-related demands in the home care nurse-to-patient assignment problem with the implementor-adversarial approach. *Health Care Systems Engineering - Proceedings of HCSE 2017 (Springer Proceedings in Mathematics & Statistics, vol. 210)*; 87-97; ISBN 978-3-319-66146-9.
3. V. Nicoletta, E. Lanzarone, V. Bélanger, A. Ruiz. A cardinality-constrained robust approach for the ambulance location and dispatching problem. *Health Care Systems Engineering - Proceedings of HCSE 2017 (Springer Proceedings in Mathematics & Statistics, vol. 210)*; 99-109; ISBN 978-3-319-66146-9.
4. G. Lugaresi, E. Lanzarone, N. Frigerio, A. Matta. **A cardinality-constrained approach for robust machine loading problems**. *Procedia Manufacturing 2017 [27th International Conference on Flexible Automation and Intelligent Manufacturing FAIM 2017]*; 11: 1718-25; ISSN 2351-9789.
5. C. Bianchi, E. Lanzarone, G. Casagrande, M.L. Costantino. **Identification of patient-specific parameters in a kinetic model of fluid and mass transfer during dialysis**. *Bayesian statistics in action - Proceedings of BAYSM 2016 (Springer Proceedings in Mathematics & Statistics, vol. 194)*; 139-149; ISBN 978-3-319-54084-9.
6. V. Nicoletta, E. Lanzarone, A. Guglielmi, V. Bélanger, A. Ruiz. **A Bayesian model for describing and predicting the stochastic demand of emergency calls**. *Bayesian statistics in action - Proceedings of BAYSM 2016 (Springer Proceedings in Mathematics & Statistics, vol. 194)*; 203-212; ISBN 978-3-319-54083-54084-9.
7. S. Baş, G. Carello, E. Lanzarone, Z. Ocağ, S. Yalçındağ. **Management of blood donation system: literature review and research perspectives**. *Health Care Systems Engineering for Scientists and Practitioners - Proceedings of HCSE 2015 (Springer Proceedings in Mathematics & Statistics, vol. 169)*; 121-32; ISBN 978-3-319-35130-8.
8. A. Maroufkhani, E. Lanzarone, C. Castelnovo, M. Di Mascolo. **A discrete event simulation model for the admission of patients to a home care rehabilitation service**. *Health Care Systems Engineering for Scientists and Practitioners - Proceedings of HCSE 2015 (Springer Proceedings in Mathematics & Statistics, vol. 169)*; 91-100; ISBN 978-3-319-35130-8.
9. E. Lanzarone, C. Masclet, F. Noël. **Qualitative assessment of a collaborative multi-user tool for enhancing the daily replanning and control of visits in home care services**. *Proceedings of the IEEE 5th International Conference on Cognitive Infocommunications (CogInfoCom) 2014*; 267-72; ISBN 978-1-4799-7280-7.
10. E. Lanzarone, F. Auricchio, M. Conti, A. Ferrara. **Bayesian estimation of the aortic stiffness based on non-invasive computed tomography images**. *Bayesian statistics from methods to models and applications - Proceedings of BAYSM 2014 (Springer Proceedings in Mathematics & Statistics, vol. 126)*; 133-142; ISBN 978-3-319-16237-9.

11. L. Martín-Fernández, E. Lanzarone. **Bayesian filtering for thermal conductivity estimation given temperature observations**. Bayesian statistics from methods to models and applications - Proceedings of BAYSM 2014 (Springer Proceedings in Mathematics & Statistics, vol. 126); 143-151; ISBN 978-3-319-16237-9.
12. E. Lanzarone, C. Masclet, F. Noël. **Collaboration enhancement through tangible metaphors: application to home care rescheduling**. Proceedings of the IEEE 4th International Conference on Cognitive Infocommunications (CogInfoCom) 2013; 387-92; ISBN 978-1-4799-1543-9.
13. G. Carello, E. Lanzarone, S. Mattia. **Comparing two different objective functions in a cardinality-constrained model for the assignments in home care**. Proceedings of the 39th Conference on Operational Research Applied to Health Services (ORAHS 2013) 87-90; ISBN 978-605-64131-0-0. Abstract book; 33.
14. E. Lanzarone, G. Carello, S. Mattia. **A multilevel cardinality-constrained model for the nurse-to-patient assignment problem in home care**. Proceedings of the 39th Conference on Operational Research Applied to Health Services (ORAHS 2013); 91-94; ISBN 978-605-64131-0-0. Abstract book; 33.
15. I. Nawajah, R. Argiento, A. Guglielmi, E. Lanzarone. **Estimating patient demand progression in home care: a Bayesian modeling approach**. Proceedings of the 39th Conference on Operational Research Applied to Health Services (ORAHS 2013); ISBN 978-605-64131-0-0. Abstract book; 64.
16. L. Martín-Fernández, G. Gilioli, E. Lanzarone, J. Míguez Arena, S. Pasquali, F. Ruggeri, D.P. Ruiz Padillo. **Joint parameter estimation and biomass tracking in a stochastic predator-prey system**. The contribution of young researchers to Bayesian statistics - Proceedings of BAYSM 2013 (Springer Proceedings in Mathematics & Statistics, vol. 63); 23-27; ISBN 978-3-319-02083-9.
17. R. Argiento, A. Guglielmi, E. Lanzarone, I. Nawajah. **Bayesian analysis and prediction of patients' demands for visits in home care**. The contribution of young researchers to Bayesian statistics - Proceedings of BAYSM2013 (Springer Proceedings in Mathematics & Statistics, vol. 63); 129-133; ISBN 978-3-319-02083-9.
18. E. Lanzarone, G. Carello. **Applying the cardinality-constrained approach in health care systems: the home care example**. Proceedings of the International Conference on Health Care Systems Engineering (Springer Proceedings in Mathematics & Statistics, vol. 61); 61-72; ISBN 978-3-319-01847-8.
19. E. Lanzarone, G. Carello, A. Matta. **A robust programming model for the assignment problem in home care services**. Proceedings of the 38th Conference on Operational Research Applied to Health Services (ORAHS 2012); 3c; ISBN 978-90-365-3396-6. Abstract book; 50.
20. E. Lanzarone, A. Matta. **Stochastic structural policies for solving the nurse assignment problem under continuity of care in home care**. Proceedings of the 37th Conference on Operational Research Applied to Health Services (ORAHS 2011); 161-75; ISBN 978-0-9569158-0-1. Abstract book; 53.
21. K. Seyed, A. Matta, E. Lanzarone, M.A. Jafari. **Application of Semi-Markov processes in modelling patient duration of stay in a home care service**. Proceedings of the 36th Conference on Operational Research Applied to Health Services (ORAHS 2010); 242-51; ISBN 978-88-568-2595-4. Abstract book; 74; ISBN 978-88-904-7205-3.
22. E. Lanzarone, A. Matta, M.A. Jafari. **A simple policy for the nurse-patient assignment in home care services**. Proceedings of the IEEE Workshop on Health Care Management (WHCM 2010); ISBN 978-1-4244-4997-2.
23. E. Lanzarone, A. Matta. **Value of perfect information in home care human resource planning with continuity of care**. Proceedings of the 35th Conference on Operational Research Applied to Health Services (ORAHS 2009); no. 17; ISBN 978-90-81409-90-2. Abstract book; 40.
24. E. Lanzarone, A. Matta, G. Scaccabarozzi. **Workload estimation and balancing in home care organizations**. Proceedings of the 20th International Conference on Production Research 2009 (ICPR 20); 2.58; ISRC CN-E16-09-0006-0.

25. F. Aletti, E. Lanzarone, M.L. Costantino, G. Baselli. **Non-linear modulation of total peripheral resistance due to pulsatility: a model study.** *Computers in Cardiology* 2006; 33:653-6; ISBN 978-1-4244-2532-7.
26. E. Lanzarone, P. Liani, G. Baselli, M.L. Costantino. **Model of arterial tree and peripheral control for the study of physiological and assisted circulation.** *Computers in Cardiology* 2004; 31:85-8; ISBN 0-7803-8927-1.

Chapters of international book

1. E. Lanzarone, A. Matta. **The nurse-to-patient assignment problem in home care services.** In: A. Testi and E. Tànfani (eds.), *Advanced decision making methods applied to health care*. Vol. 173 of the International Series in Operations Research & Management Science (Springer) 2012; 121-139; ISBN 978-88-470-2320-8.

Technical reports

1. G. Alaimo, F. Auricchio, I. Bianchini, E. Lanzarone. **Applying functional principal components to structural topology optimization.** Technical report IMATI-CNR 2017; 17-09. *Followed by a submitted paper.*
2. S. Baş, G. Carello, E. Lanzarone, S. Yalçındağ. **An appointment scheduling framework to balance the production of blood bags from donation.** Technical report IMATI-CNR 2016; 16-06. *Followed by S. Baş et al., Eur J Oper Res 2017, DOI 10.1016/j.ejor.2017.08.054.*
3. D. Carrera, F. Manganini, G. Boracchi, E. Lanzarone. **Defect detection in nanostructures.** Technical report IMATI-CNR 2016; 16-03. *Followed by Carrera et al., IEEE T Ind Inform 2017, 13(2): 555-61.*
4. V. Bélanger, E. Lanzarone, A. Ruiz, P. Soriano. **The ambulance relocation and dispatching problem.** Technical report CIRRELT 2015; no. 59. *Followed by a submitted paper.*
5. R. Argiento, A. Guglielmi, E. Lanzarone, I. Nawajah. **Joint prediction of health status and demand for patient in home care services: a Bayesian approach.** Technical report IMATI-CNR (Milan) 2014; 02-MI; ISSN 1722-8964. *Followed by Argiento et al., IMA J Management Math 2017, 28(4): 531-52.*
6. G. Carello, E. Lanzarone, S. Mattia. **Advances in applying the cardinality-constrained model for the nurse-to-patient assignment problem in home care.** Technical report IASI-CNR 2013; R. 13-09; ISSN 1128-3378.
7. L. Ironi, E. Lanzarone. **Assigning probabilities to qualitative dynamics of gene regulatory networks.** Technical report IMATI-CNR 2013; 2PV13/2/0; ISSN 1722-8964. *Followed by Ironi and Lanzarone, J Math Biol 2014, 69(6-7): 1661-92.*

Abstracts and other proceedings of international conference

1. C. Bianchi, E. Lanzarone, G. Casagrande, M.L. Costantino. **Bayesian Identification of Patient-Specific Parameters in a Dialysis Kinetic Model.** *Int J Artif Organs* 2017 [special issue on the 44th ESAO congress]; 40(8):400; ISSN 0391-3988.
2. S. Yalçındağ, N. Lahrichi, E. Lanzarone. **Comparison between alternative decomposition methods to solve the assignment and routing problems in home health care.** 43rd Conference on Operational Research Applied to Health Services (ORAHS 2017). Conference book; 52-3.
3. V. Nicoletta, V. Bélanger, E. Lanzarone, A. Ruiz. **Optimization methods to handle uncertainty in healthcare location-allocation problems: a literature review.** 43rd Conference on Operational Research Applied to Health Services (ORAHS 2017). Conference book; 25.

4. G. Carello, [E. Lanzarone](#), D. Laricini, M. Servilio. **An implementor-adversary approach for the nurse-to-patient assignment problem in home care with uncertain and time-related demands**. 42nd Conference on Operational Research Applied to Health Services (ORAHS 2016). Conference book; 52-3.
5. N. Lahrichi, [E. Lanzarone](#), S. Yalçındağ. **A new decomposition approach for solving the assignment and routing problems in home health care**. 42nd Conference on Operational Research Applied to Health Services (ORAHS 2016). Conference book; 134.
6. S. Pasquali, [E. Lanzarone](#), G. Gilioli, E. Marchesini. **How Bayesian inference can help winegrowers?** 48èmes Journées de Statistique de la SFdS, ENBIS session.
7. V. Bélanger, [E. Lanzarone](#), A. Ruiz, P. Soriano. **Ambulance location and routing**. 27th Conference of the Production and Operations Management Society (POMS 27th). Abstract code 065-0736.
8. C. Bianchi, [E. Lanzarone](#), G. Pontoriero, C. Schoenholzer, G. Casagrande, M.L. Costantino. **A new method to personalize dialysis therapy**. Int J Artif Organs 2015 [special issue on the 42nd ESAO congress]; 38(7):387 and 38(9):522; ISSN 0391-3988.
9. V. Bélanger, [E. Lanzarone](#), A. Ruiz, P. Soriano. **A matheuristic decomposition approach to solve the dynamic ambulance relocation and preassignment problem**. 41st Conference on Operational Research Applied to Health Services (ORAHS 2015). Conference book; 40.
10. S. Baş, G. Carello, [E. Lanzarone](#), Z. Ocak, S. Yalçındağ. **Balancing the production of blood bags from donation through appointment scheduling**. 41st Conference on Operational Research Applied to Health Services (ORAHS 2015). Conference book; 21.
11. I. Bianchini, R. Argiento, [E. Lanzarone](#). **Two Bayesian approaches to estimate aortic stiffness from patient-specific CTA images**. 7th International Conference of the ERCIM WG on Computational and Methodological Statistics (ERCIM 2014). Abstract book; 134.
12. [E. Lanzarone](#), G. Carello, S. Mattia. **Different perspectives and goals in home care planning**. 40th Conference on Operational Research Applied to Health Services (ORAHS 2014). Conference book; 65.
13. G. Casagrande, C. Bianchi, [E. Lanzarone](#), M.L. Costantino. **Prediction of single patient response during dialysis: Bayesian estimation of patient-specific parameters and latent state variables**. 60th Annual Meeting of the American Society of Artificial Internal Organs (ASAIO 2014). Abstract book; no. 147; pag. 112.
14. [E. Lanzarone](#), C. Masclet, F. Noël. **Agility in home-care replanning through co-operation with graphical metaphors**. 5th Joint Virtual Reality Conference (JVRC 2013). Industrial session 2.
15. [E. Lanzarone](#), L. Martín-Fernández, A. Pievatolo, F. Ruggeri. **Stochastic modelling of a shredding process for PCB recycling**. Joint Meeting of Young Business and Industrial Statisticians (y-BIS 2013). Invited session. Abstract book; 55.
16. A. Pievatolo, [E. Lanzarone](#), L. Martín-Fernández, F. Ruggeri. **Design and analysis of electrospinning experiments**. Thirteenth annual conference of the European Network for Business and Industrial Statistics (ENBIS-13). Abstract book; 43.
17. R. Argiento, A. Guglielmi, [E. Lanzarone](#), I. Nawajah. **Bayesian analysis and prediction of patients' demands for visits in home health care**. Thirteenth annual conference of the European Network for Business and Industrial Statistics (ENBIS-13). Abstract book; 77.
18. I. Nawajah, R. Argiento, A. Guglielmi, [E. Lanzarone](#). **A Bayesian approach for modeling patient's demand and hidden health status: an application to home care**. Conference on Complex Data Modeling and Computationally Intensive Statistical Methods for Estimation and Prediction (S.Co.2013). Contributed poster; ISBN 97888-6493-019-0.

19. L. Martín-Fernández, G. Gilioli, E. Lanzarone, J. Míguez, S. Pasquali, F. Ruggeri, D.P. Ruiz. **Functional response estimation and population tracking in a Lotka-Volterra system using a Bayesian filtering technique**. Eighth Workshop on Bayesian Inference in Stochastic Processes (BISP8). Contributed poster BISP8.33.
20. I. Nawajah, A. Guglielmi, E. Lanzarone, R. Argiento. **Bayesian analysis of home health care longitudinal count data**. Eighth Workshop on Bayesian Inference in Stochastic Processes (BISP8). Contributed poster BISP8.36.
21. E. Lanzarone, A. Matta. **Stochastic assignment of patients in home care services**. INFORMS Healthcare 2011. Abstract book; 28.
22. E. Lanzarone, A. Matta. **Analysis of a patient-nurse assignment policy in home care services**. Actes de 5th Conférence Francophone Gestion et Ingénierie des Systèmes Hospitaliers (GISEH 2010); no. 030.
23. G. Faggian, E. Lanzarone, F. Gelmini, A. Carcereri de Prati, M. Tessari, T. Menon, H. Suzuki, M. Carini, R. Fumero, G.B. Luciani, M.L. Costantino. **Endothelium NO release during cardiac surgery: comparison between continuous and pulsatile flow cardiopulmonary bypass**. Artif Organs 2009 [abstracts of the Conference]; 33(5):A75-6; ISSN 0160-564X. Proceedings of the 5th International Conference on Pediatric Mechanical Circulatory Support Systems & Pediatric Cardiopulmonary Perfusion 2009; 5:108.
24. E. Lanzarone, F. Gelmini, A. Fumero, O. Alfieri, M. Tessari, T. Menon, M. Carini, H. Suzuki, G. Faggian, M.L. Costantino, R. Fumero. **Endothelial NO release and vasodilatation under continuous or pulsatile CPB: modellistic study and clinical investigation**. Int J Artif Organs 2008 [special issue on the 35th ESAO congress]; 31(7):607; ISSN 0391-3988.
25. E. Lanzarone, A. Fumero, F. Gelmini, M. Orioli, M. D'Arienzo, R. Scotti, G. Aldini, F. Morazzoni, M. Carini, M.L. Costantino, R. Fumero. **Endothelium-derived nitric oxide production during cardiovascular surgery: comparison between continuous cardiopulmonary bypass and beating heart surgery**. Int J Artif Organs 2007 [special issue on the 34th ESAO congress]; 30(8):734; ISSN 0391-3988.
26. F. Aletti, E. Lanzarone, M.L. Costantino, G. Baselli. **Effects of pulsatility on apparent peripheral resistance with edema**. Biomed Tech 2006 [special issue of ESGCO conference and meeting]; 51(4):A8; ISSN 0013-5585. Proceedings of ESGCO 2006; 1:264-5.
27. E. Lanzarone, G. Baselli, R. Fumero, M.L. Costantino. **Model of arterial and peripheral circulation with local regulation and filtration through capillary membrane for the study of vasomotion and assisted circulation**. Int J Artif Organs 2005 [special issue on the 32nd ESAO congress]; 28(9):921; ISSN 0391-3988.

National contributions

1. V. Nicoletta, V. Bélanger, E. Lanzarone, A. Ruiz. **A cardinality-constrained robust approach for the biomedical samples laboratories network problem**. Optimization Days 2018 at HEC Montréal.
2. F. Regis-Hernández, E. Lanzarone, V. Bélanger, A. Ruiz. **Demand-driven districting to minimize response time in emergency medical services**. Optimization Days 2018 at HEC Montréal.
3. M. Toschi, A.M. Anaya Arenas, V. Bélanger, E. Lanzarone, A. Ruiz. **A VNS for the biomedical sample transportation problem with interdependent pickups**. Optimization Days 2018 at HEC Montréal.
4. E. Lanzarone, M. Conti, S. Marconi, H.W.L. De Beaufort, S. Trimarchi, F. Auricchio. **Alteration of lumped parameters under stent graft in ex vivo porcine aortas**. ESB-ITA (Italian Chapter of the European Society of Biomechanics) 2017 Meeting; Abstracts book, 43-4; ISBN 978-88-6296-000-7.

5. E. Lanzarone, S. Baş, G. Carello, S. Yalçındağ. **An appointment scheduling framework to balance the production of blood bags from donation**. AIRO (Associazione Italiana di Ricerca Operativa) 2016 Conference, Abstracts book, 178-9.
6. S. Baş, G. Carello, E. Lanzarone, Z. Ocak, S. Yalçındağ. **Kan bağıışı sistemlerinde bağıışçı randevu çizelgeleme modeli**. 35th Turkish National Operations Research and Industrial Engineering Congress (YAEM 2015), Abstracts book, 250.
7. E. Lanzarone, S. Baş, Z. Ocak, G. Carello, S. Yalçındağ. **Balancing the production of blood bags from donation through appointment scheduling**. AIRO (Associazione Italiana di Ricerca Operativa) 2015 Conference, Abstracts book, 77-8.
8. I. Bianchini, R. Argiento, F. Auricchio, E. Lanzarone. **Evaluating uncertainty in finite element analysis via functional principal component analysis**. ESB-ITA (Italian Chapter of the European Society of Biomechanics) 2015 Meeting, Abstracts book, 13-4.
9. G. Carello, E. Lanzarone, S. Mattia. **Different perspectives and goals in home care planning**. AIRO (Associazione Italiana di Ricerca Operativa) 2014 Conference, Abstracts book, 106.
10. I. Nawajah, R. Argiento, A. Guglielmi, E. Lanzarone. **Joint prediction of demand and care duration in home care patients: a Bayesian approach**. SIS (Società Italiana di Statistica) 2014 Conference, Proceedings book, no. 2893; ISBN 978-88-8467-874-4.
11. G. Carello, E. Lanzarone. **A robust optimization approach for the nurse-to-patient assignment problem in home care**. AIRO (Associazione Italiana di Ricerca Operativa) 2012 Conference, Abstracts book, 63.
12. E. Lanzarone, A. Matta, E. Sahin, Y. Dallery. **Assigning operators to patients in home care providers**. Actes du 12e Congrès Annuel de la Société Française de Recherche Opérationnelle et d'Aide à la Décision 2011 (ROADEF 2011); Vol. II; 677-8.
13. E. Lanzarone, M.L. Costantino, R. Fumero. **Endothelial nitric oxide release under pulsatile or continuous cardiopulmonary bypass: computational model**. Atti del Congresso Nazionale di Bioingegneria 2008; 187-8; Pàtron editore; ISBN 978-88-55529-83-9.
14. E. Lanzarone, A. Fumero, H. Suzuki, F. Gelmini, M. Carini, G. Faggian, M.L. Costantino. **Endothelial nitric oxide release under pulsatile or continuous cardiopulmonary bypass or beating heart surgery: clinical investigation**. Atti del Congresso Nazionale di Bioingegneria 2008; 785-6; Pàtron editore; ISBN 978-88-55529-83-9.
15. E. Lanzarone, M.L. Costantino, R. Fumero. **Il bypass cardiopolmonare e l'alterazione sistemica: il ruolo dell'endotelio**. In-Bypass 2007 [A.N.Pe.C. - Associazione Nazionale Perfusionisti in Cardiochirurgia]; 20(2):3403-10.

Didactic books

1. G. Casagrande, E. Lanzarone, L. Marocco, F. Miglietta. **Esercizi di Fisica Tecnica**. Pitagora Editrice. Third ed. 2013 (first ed. 2008); ISBN 88-371-1215-7.

My theses

1. E. Lanzarone. **Il ruolo attivo dell'endotelio nella risposta sistemica ad una perfusione continua o pulsatile**. Tesi di Dottorato in Bioingegneria, XX ciclo, Politecnico di Milano, 2008. Tutor: Roberto Fumero - Advisor: Maria Laura Costantino.
2. E. Lanzarone, P. Liani. **Modello della circolazione arteriosa sistemica con regolazione locale dei distretti periferici**. Tesi di Laurea Quinquennale in Ingegneria Biomedica, Politecnico di Milano, 2004. Advisors: Maria Laura Costantino, Giuseppe Baselli.

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Lectures and seminars

Tutorials:

- E. Lanzarone. **Addressing uncertainty in health care with the cardinality-constrained approach: a tradeoff between accuracy, computational effort, and interaction with clinicians**. Plenary Tutorial Speaker at the 41st Conference on Operational Research Applied to Health Services (ORAHS 2015), Montréal, Canada, July 19-24, 2015.

Invited talks:

- E. Lanzarone. **Stochastic parameters estimation in dynamical systems from observations: general framework and applications**. First Joint International Meeting RSME-SCM-SEMA-SIMAI-UMI, Bilbao, Spain, July 2014. Invited talk for session Model Order Reduction and Highly Demanding Applications. Abstract book; 299.
- E. Lanzarone, S. Pasquali, V. Mussi, F. Ruggeri. **Bayesian estimation of thermal conductivity and temperature profile in homogeneous masses**. Eighth Workshop on Bayesian Inference in Stochastic Processes (BISP8). Invited young researcher (abstract BISP8.13).
- E. Lanzarone, M.L. Costantino, G. Faggian. **Continuous vs pulsatile flow in CPB: NO production and its implications**. Invited lecture at ESAO winter school 2008; Cortina d'Ampezzo (Belluno, Italy), March 2008.

Seminars:

- **Application of the cardinality-constrained approach to address problems in healthcare activities planning**. Seminar at the Université de Montréal, CIRRELT, Montréal, Canada, May 20, 2016. Seminar at the Université Laval, Faculty of Business Administration, CIRRELT, Quebec, Canada, March 24, 2016.
- **Applying Operations Research from Theory to Practice: examples from Health Care Services**. Seminar at the Yeditepe University, Industrial and Systems Engineering Department, Istanbul, Turkey, November 30 and December 1, 2015.
- **Bayesian reverse engineering approach to estimate parameters from observations in dynamical systems**. Seminar at the Shanghai Jiao Tong University, School of Mechanical Engineering, Shanghai, China, May 6, 2015.
- **Different approaches for a robust optimization of the home care services**. Seminar at the University of Nottingham, China Campus, Department of Mechanics Materials and Manufacturing Engineering, Ningbo, China, May 4, 2015.
- **Applying the cardinality-constrained approach in health care systems (standard two levels or more levels): the home care example**. Seminar at the Shanghai Jiao Tong University, School of Mechanical Engineering, Shanghai, China, April 28, 2015.
- **Robust approaches in optimization methods for health care delivery**. Seminar at the Yeditepe University, Industrial and Systems Engineering Department, Istanbul, Turkey, December 1, 2014.
- **Stochastic optimization methods for health care delivery: the home care example**. Seminar at the MOX Laboratory, Department of Mathematics, Politecnico di Milano, Milan, Italy, October 4, 2013.

Other presentations:

- E. Lanzarone, S. Marconi. **L'idea Beta-Lab**. Beta-Lab: Ruolo della Ricerca Traslazionale. I.R.C.C.S. Policlinico San Donato, March 11, 2014.

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Projects

Funded research projects

Coordination roles:

- **Future Home for Future Communities – FHfFC.** Project funded by Regione Lombardia (Act 7884 of August 5, 2016) and CNR. Coordinator of the CNR-IMATI Research Unit. Project developed from 2017 to 2018.
- **Fab@Hospital for bone plate fabrication and patient anatomy reconstruction using rapid prototyping technologies – F@H for 3D plates.** Flagship Project Factory of the Future (Prototype Project) funded by the Italian MIUR and CNR organizations. Principal investigator; other unit coordinators Ferdinando Auricchio (Università degli Studi di Pavia) and Giacomo Copani (CNR-ITIA). Project developed in 2016.
- **Automated electrospinning plant for industrial manufacturing of functional composite nanofibres – AUTOSPIN.** Flagship Project Factory of the Future (Prototype Project) funded by the Italian MIUR and CNR organizations. Coordinator of the CNR-IMATI Research Unit. Project developed in 2016.
- **Hospital factory for manufacturing customized, patient specific 3D anatomofunctional models and prostheses – Fab@Hospital.** Flagship Project Factory of the Future (Subproject S2) funded by the Italian MIUR and CNR organizations. Principal investigator; other unit coordinators Ferdinando Auricchio (Università degli Studi di Pavia) and Giacomo Copani (CNR-ITIA). Project developed from 2014 to 2016.
- **Composite nanofibres for treatment of air and water by an industrial conception of electrospinning – NanoTWICE.** Flagship Project Factory of the Future (Subproject S1) funded by the Italian MIUR and CNR organizations. Coordinator of the CNR-IMATI Research Unit. Project developed from 2013 to 2015 (refunded after the first year).
- **Sviluppo di uno strumento di supporto per l’allocazione ottimale delle risorse umane in assistenza domiciliare.** Project founded by Fondazione Floriani. Referent of the project together with Andrea Matta. Project developed from 2010 to 2011.

Main participations:

- **Sperimentazione di modelli costruttivi innovativi che consentano di ottimizzare le prestazioni energetiche ed ambientali di edifici nuovi ed esistenti – I-ZEB.** Project funded by Regione Lombardia (Act 7884 of August 5, 2016) and CNR. Member of the CNR-IMATI Research Unit; unit coordinator Antonio Pivatolo. Project developed from 2017 to 2018.
- **Self-Optimizing Shredding Station for Demanufacturing Plants – ShredIT.** Progetto Bandiera Fabbrica del Futuro (Prototype Project) funded by the Italian MIUR and CNR organizations. Member of the CNR-IMATI Research Unit; unit coordinator Antonio Pivatolo. Project developed in 2016.
- **Project Fabbrica Intelligente – FIDEAS.** Project funded by Regione Lombardia (Act 3667 of April 27, 2013) and CNR. Member of the CNR-IMATI Research Unit; unit coordinator Antonio Pivatolo. Project developed from 2013 to 2015.
- **Integrated technological solutions for zero waste recycling of printed circuit boards – ZeroWastePCBs.** Flagship Project Factory of the Future (Subproject S1) funded by the Italian MIUR and CNR organizations. Member of the CNR-IMATI Research Unit; unit coordinator Antonio Pivatolo. Project developed from 2013 to 2015 (refunded after the first year).

- **Flagship Project InterOmics – Subproject S1 – WP15.** Flagship Project PB.P05 funded by the Italian MIUR and CNR organizations. Member of the CNR-IMATI Research Unit; unit coordinator Liliana Ironi. Project developed from 2012 to 2014.
- **Sviluppo di uno strumento di supporto alla pianificazione del servizio di assistenza domiciliare.** Project founded by Fondazione Lu.V.I. Onlus. Member of the Politecnico di Milano Research Unit; unit coordinator Andrea Matta. Project developed from 2008 to 2009.

Other participations:

- **Virtual modeling and additive manufacturing (3D printing) for advanced materials – 3D@UniPV.** Progetto Strategico di Ateneo 2015, Università degli Studi di Pavia. CNR-IMATI is Project Collaborator; reference people are: Annalisa Buffa, Ettore Lanzarone.
- **La Matematica per la società e l’innovazione tecnologica – MATHTECH.** Progetto Premiale 2012, funded by the Italian MIUR. Member of WP2 “Salute e Benessere” and WP5 “Fabbrica del futuro” (Leader of Task 5.3 “Modelli stocastici nella manifattura”).

Mobility Projects:

- **Advanced visual tool for the collaborative replanning of service delivery at home: application to home health care.** Project no.138 funded by the Visionair European infrastructure. TNA referent of the project. Project developed from February 2014 to April 2014.
- **Data visualization for the complexity of human resource planning in home health care.** Project no.29 funded by the Visionair European infrastructure. TNA referent of the project. Project developed from November 2012 to July 2013.

Collaborations:

- **Sistema di Monitoraggio Ambientale con Rete di sensori e Telemonitoraggio indossabile a supporto di servizi di salute, prevenzione e sicurezza per l’active aging – SMARTA.** Project funded by Regione Lombardia within the call Smart Cities and Communities. Contract collaborator for the project. Project developed in 2014 and 2015.

Other results in proposed research projects

- **Robotics for rehabilitation: robotized motor coordination analysis and therapy – R4R.** Project presented to the call FIRB 2008 (code RBF08MBEO) of the Italian MIUR organization. Coordinator of the Politecnico di Milano Research Unit. Proposal admitted to the national auditions and declared fundable, even if not funded.

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Products

Commercial software with newly developed algorithms

- Developer of the optimization algorithm that supports planning at Compass Care LLC, Stamford, CT, US. www.CareWhenYouNeedIt.com
- Developer of the optimization algorithm in TPS 3.0. www.tpssolutions.it
- Developer of the module for forecasting and assigning workload to operators contained in Hopera Oikos. www.newsysline.it
- Developer of Bee@home (human resource planner for home care service) for Bee Value Srl. This was a consultancy and technology transfer company, with an according partnership with CNR-IMATI (protocol CNR-IMATI no. 781 of April 19, 2013) for the development and the dissemination of optimization algorithms.

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Didactic activity

He is Adjunct Professor and Lecturer the Department of Mathematics of Politecnico di Milano:

Professor:

- *Analisi Matematica 1*, Corsi di Laurea in Ingegneria Elettronica, Informatica, delle Telecomunicazioni, dell'Automazione e Elettrica (scaglione alfabetico SD-Z), A.A. 2017/18.
- *Analisi e Geometria 1*, Corsi di Laurea in Ingegneria Aerospaziale, Energetica e Meccanica (scaglione alfabetico STR-Z), A.A. 2017/18.
- *Analisi Matematica II*, Corso di Laurea in Ingegneria Gestionale (scaglione alfabetico PO-Z), A.A. 2016/17.
- *Analisi e Geometria 1*, Corsi di Laurea in Ingegneria Aerospaziale, Energetica e Meccanica (scaglione alfabetico SPE-Z), A.A. 2016/17.
- *Analisi e Geometria 1*, Corsi di Laurea in Ingegneria Aerospaziale, Energetica e Meccanica (scaglione alfabetico SPE-Z), A.A. 2015/16.
- *Analisi matematica 2*, Corsi di Laurea in Ingegneria Informatica e delle Telecomunicazioni (scaglione alfabetico P-Z), A.A. 2014/15.
- *Analisi matematica 2*, Corsi di Laurea in Ingegneria Informatica e delle Telecomunicazioni (scaglione alfabetico P-Z), A.A. 2013/14.
- *Analisi matematica 2*, Corsi di Laurea in Ingegneria Informatica e delle Telecomunicazioni (scaglione alfabetico P-Z), A.A. 2012/13.

Lecturer:

- *Analisi Matematica II*, Corso di Laurea in Ingegneria Matematica (Prof. Gianni Arioli), A.A. 2016/17.
- *Analisi Matematica II*, Corso di Laurea in Ingegneria Matematica (Prof. Gianni Arioli), A.A. 2015/16.
- *Analisi Matematica II*, Corso di Laurea in Ingegneria Matematica (Prof. Gianni Arioli), A.A. 2014/15.
- *Analisi Matematica II*, Corso di Laurea in Ingegneria Matematica (Prof. Gianni Arioli), A.A. 2013/14.
- *Analisi Matematica II*, Corso di Laurea in Ingegneria Fisica (Prof. Gianni Arioli), A.A. 2012/13.

- *Analisi e Geometria 2*, Corsi di Laurea in Ingegneria Aerospaziale, Energetica e Meccanica (Prof. Federico Giampiero Lastaria), A.A. 2012/13.
- *Analisi e Geometria 1*, Corsi di Laurea in Ingegneria Aerospaziale, Energetica e Meccanica –percorso ASPRI– (Prof. Maria Cristina Cerutti), A.A. 2012/13.
- *Analisi Matematica II*, Corso di Laurea in Ingegneria Fisica (Prof. Gianni Arioli), A.A. 2011/12.
- *Analisi Matematica II*, Corso di Laurea in Ingegneria Gestionale (Prof. Gianni Arioli), A.A. 2011/12.
- *Analisi Matematica I e Geometria*, Corso di Laurea in Ingegneria Gestionale (Prof. Roberto Notari), A.A. 2011/12.
- *Analisi e Geometria 1*, Corsi di Laurea in Ingegneria Aerospaziale, Energetica e Meccanica (Prof. Marco Ugo Claudio Boella), A.A. 2011/12.
- *Analisi Matematica II*, Corso di Laurea in Ingegneria Fisica (Prof. Gianni Arioli), A.A. 2010/11.
- *Probabilità e Statistica Matematica*, Corso di Laurea in Ingegneria Gestionale (Prof. Marco Ugo Claudio Boella), A.A. 2010/11.
- *Analisi Matematica I e Geometria*, Corso di Laurea in Ingegneria Gestionale (Prof. Marco Ugo Claudio Boella), A.A. 2010/11.
- *Probabilità e Statistica Matematica*, Corso di Laurea in Ingegneria Gestionale (Prof. Marco Ugo Claudio Boella), A.A. 2009/10.
- *Complementi di Analisi Matematica*, Corso di Laurea Magistrale in Ingegneria Chimica (Prof. Gianni Arioli), A.A. 2009/10.
- *Probabilità e Statistica Matematica*, Corso di Laurea in Ingegneria Gestionale (Prof. Marco Ugo Claudio Boella), A.A. 2008/09.
- *Complementi di Analisi Matematica*, Corso di Laurea Magistrale in Ingegneria Chimica (Prof. Gianni Arioli), A.A. 2008/09.

Previously, he was also Adjunct Professor and Lecturer of Thermodynamics and Heat Transfer at Politecnico di Milano:

Professor:

- *Fisica Tecnica*, Corso di Laurea in Ingegneria Civile e Ambientale, Polo Regionale di Lecco, A.A. 2009/10.

Lecturer:

- *Fisica Tecnica e Sistemi Energetici (modulo di Fisica Tecnica)*, Corso di Laurea in Ingegneria Gestionale (Prof. Antonio Salerno), A.A. 2011/12.
- *Fisica Tecnica e Sistemi Energetici (modulo di Fisica Tecnica)*, Corso di Laurea in Ingegneria Gestionale (Prof. Alberto Salioni), A.A. 2011/12.
- *Fisica Tecnica*, Corso di Laurea in Ingegneria Aerospaziale (Prof. Ferruccio Miglietta), A.A. 2010/11.
- *Fisica Tecnica*, Corso di Laurea in Ingegneria Civile e Ambientale (Prof. Fabio Inzoli), Polo Regionale di Lecco, A.A. 2010/11.
- *Fisica Tecnica*, Corso di Laurea in Ingegneria Civile e Ambientale (Prof. Fabio Inzoli), Polo Regionale di Como, A.A. 2010/11.
- *Fisica Tecnica e Sistemi Energetici (modulo di Fisica Tecnica)*, Corso di Laurea in Ingegneria Gestionale (Prof. Alberto Salioni), A.A. 2010/11.

- *Fisica Tecnica*, Corso di Laurea in Ingegneria Aerospaziale (Prof. Ferruccio Miglietta), A.A. 2009/10.
- *Fisica Tecnica*, Corso di Laurea in Ingegneria Aerospaziale (Prof. Ferruccio Miglietta), A.A. 2008/09.
- *Fisica Tecnica*, Corso di Laurea in Ingegneria Meccanica (Prof. Ferruccio Miglietta), A.A. 2006/07.
- *Fisica Tecnica*, Corso di Laurea in Ingegneria Meccanica (Prof. Ferruccio Miglietta), A.A. 2005/06.
- *Fisica Tecnica*, Corso di Laurea in Ingegneria Meccanica (Prof. Ferruccio Miglietta), A.A. 2004/05.

Moreover, he also performed other didactic activities at Politecnico di Milano:

- Project reviewer for the course *Research management* (Ph.D. school, Prof. Tullio Tolio e Marcello Urgo), A.A. 2010/11, 2012/13, and 2013/14.
- Lecturer of *Sistemi integrati di produzione*, Corso di Laurea Magistrale in Ingegneria Meccanica (Prof. Andrea Matta), A.A. 2010/11.
- Seminars for various courses within the Industrial Bioengineering.
- Various tutoring activities.

He is *cultore della materia* of Applied Physics at the Degree Course in Nursing, School of Medicine and Surgery, Università degli Studi di Milano.

He has been co-relator of Master Degree Theses and Bachelor Degree Theses.

List of Master Degree Theses:

- S. Carlucci. **Blood donation appointment scheduling problem: an implementor-adversarial robust approach.** Tesi di Laurea Magistrale in Ingegneria Matematica, Politecnico di Milano, 2016/17. Advisor: G. Carello. Co-advisor: [E. Lanzarone](#).
- L. Malagodi. **Home Care Vehicule Routing Problem: the case of chargeable overtime and preferences.** Tesi di Laurea Magistrale in Ingegneria Matematica, Politecnico di Milano, 2016/17. Advisor: A. Matta. Co-advisor: [E. Lanzarone](#).
- M. Toschi. **Two local search heuristic approaches for solving the biomedical sample transportation problem.** Tesi di Laurea Magistrale in Ingegneria Matematica, Politecnico di Milano, 2016/17. Advisor: G. Carello. Co-advisors: A.M. Anaya-Arenas, V. Bélanger, [E. Lanzarone](#), V. Nicoletta, A. Ruiz.
- E. Galluccio. **A recursive optimization-simulation approach for the ambulance location and dispatching problem.** Tesi di Laurea Magistrale in Ingegneria Matematica, Politecnico di Milano, 2016/17. Advisor: G. Carello. Co-advisors: V. Bélanger, [E. Lanzarone](#), V. Nicoletta, A. Ruiz.
- I. Gianoli. **Analysis of gap times of recurrent blood donations via Bayesian nonparametric models.** Tesi di Laurea Magistrale in Ingegneria Matematica, Politecnico di Milano, 2015/16. Advisor: A. Guglielmi. Co-advisor: [E. Lanzarone](#).
- G. Lugaresi. **The cardinality-constrained approach applied to manufacturing problems.** Tesi di Laurea Magistrale in Ingegneria Meccanica, Politecnico di Milano, 2015/16. Advisor: A. Matta. Co-advisor: [E. Lanzarone](#).
- V. Nicoletta. **Robust optimization approach for location-allocation problems under demand uncertainty.** Tesi di Laurea Magistrale in Ingegneria Matematica, Politecnico di Milano, 2015/16. Advisor: E. Amaldi. Co-advisors: V. Bélanger, [E. Lanzarone](#), A. Ruiz.

- D. Laricini. **Un approccio Implementor-Adversary per l'assegnamento dei pazienti agli operatori nei servizi di assistenza domiciliare con domande incerte e temporalmente correlate.** Tesi di Laurea Magistrale in Ingegneria Matematica, Politecnico di Milano, 2014/15. Advisor: G. Carello. Co-advisor: [E. Lanzarone](#).
- M. Ciniselli. **Un approccio robusto per il problema dell'assegnamento ottimale dei pazienti agli operatori nei servizi di assistenza domiciliare.** Tesi di Laurea Magistrale in Ingegneria Matematica, Politecnico di Milano, 2013/14. Advisor: G. Carello. Co-advisor: [E. Lanzarone](#).
- L. Pagani. **Progettazione, implementazione e validazione sperimentale di un software di controllo retroazionato per una pompa pulsatile da banco.** Tesi di Laurea Magistrale in Ingegneria Biomedica, Politecnico di Milano, 2006/07. Advisor: M.L. Costantino. Co-advisors: [E. Lanzarone](#), E. Cutri.
- F. Barbone, G. Intini. **Modello del controllo endoteliale della circolazione arteriosa in perfusione continua o pulsatile.** Tesi di Laurea Magistrale in Ingegneria Biomedica, Politecnico di Milano, 2006/07. Advisor: M.L. Costantino. Co-advisor: [E. Lanzarone](#).
- F. Aletti. **Risposta dei distretti periferici alle condizioni di circolazione in un modello di albero arterioso.** Tesi di Laurea Quinquennale in Ingegneria Biomedica, Politecnico di Milano, 2004/05. Advisors: G. Baselli, M.L. Costantino. Co-advisor: [E. Lanzarone](#).

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Editorial committees

Journals

- **Journal of Data Analysis & Operations Research** (ISSN 2384-4671). Member of the editorial board.

Books

1. R. Argiento, [E. Lanzarone](#), I. Antoniano Villalobos, A. Mattei (eds.) **Bayesian statistics in action - Proceedings of BAYSM 2016.** Springer Proceedings in Mathematics & Statistics; vol. 194 (2017); ISBN 978-3-319-54083-2.
2. [E. Lanzarone](#), F. Ieva (eds.) **The contribution of young researchers to Bayesian statistics - Proceedings of BAYSM 2013.** Springer Proceedings in Mathematics & Statistics; vol. 63 (2014); ISBN 978-3-319-02083-9.
3. A. Matta, E. Sahin, J. Li, [E. Lanzarone](#), J. Fowler (eds.) **Proceedings of the International Conference on Health Care Systems Engineering.** Springer Proceedings in Mathematics & Statistics; vol. 61 (2014); ISBN 978-3-319-01847-8.

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Conference roles

Conference committees

- *Fourth International Conference on Health Care Systems Engineering (HCSE 2019).* Montréal, Canada, May **-**, 2019. Conference chair with V. Bélanger, N. Lahrichi, S. Yalçındağ.
www.hcse2019.com
- *Third Bayesian young statisticians meeting (BAYSM 2016).* Florence, Italy, June 19-21, 2016. Conference chair with R. Argiento.
www.mi.imati.cnr.it/conferences/BAYSM2016

- *Fifth Meeting of the Italian Chapter of the European Society of Biomechanics (ESB-ITA 2015)*. Milan, Italy, June 5, 2015. Member of the organising committee.
www.esb-ita.it/meeting/5-meeting-capitolo.html
- *Eighth Workshop on Bayesian Inference in stochastic processes (BISP8)*. Milan, Italy, June 6-8, 2013. Member of the organising committee.
www.mi.imati.cnr.it/conferences/BISP8
- *First Bayesian young statisticians meeting (BAYSM 2013)*. Milan, Italy, June 5-6, 2013. Conference chair with F. Ieva.
www.mi.imati.cnr.it/conferences/BAYSM2013
- *First International Conference on Health Care Systems Engineering (HCSE 2013)*. Milan, Italy, May 22-24, 2013. Member of the scientific and of the organising committees.
hcse2013.mecc.polimi.it

Jury memberships

- *42nd Conference on Operational Research Applied to Health Services (ORAHS 2016)*. Pamplona, Spain, July 24-29, 2016. Member of the jury for the contest poster.

Conference boards

- *Bayesian young statisticians meeting (BAYSM)*. Member of the BAYSM board.
www.baysm.org

Session chair

- *42nd Conference on Operational Research Applied to Health Services (ORAHS 2016)*. Pamplona, Spain, July 24-29, 2016. Chair of the session “Home Care / LTC(I)”.
- *41st Conference on Operational Research Applied to Health Services (ORAHS 2015)*. Montréal, Canada, July 19-24, 2015. Chair of the session “Patient scheduling 1”.
- *39th Conference on Operational Research Applied to Health Services (ORAHS 2013)*. Istanbul, Turkey, July 7-12, 2013. Chair of the session “OR methodologies for home care”.
- *35th Conference on Operational Research Applied to Health Services (ORAHS 2009)*. Leuven, Belgium, July 12-17, 2009. Chair of the session “Home care services”.

Other

- *Winter Simulation Conference 2018*. Gothenburg, Sweden, December 9-12, 2018. PC Member - Healthcare Applications.
meetings2.informs.org/wordpress/wsc2018
- *2nd Italian National Congress IDBN and 3rd Thematic Conference ESB-ITA on 3D Printing and Biomechanics*. Pavia, Italy, September 5-7, 2018. Member of the Scientific Committee.
www-2.unipv.it/compmech/idbn
- *2nd Workshop on Models and Methods for Hospital Management and Planning*. Within ETFA 2016, Berlin, Germany, September 6, 2016. Member of the Workshop Program Committee.
webdiis.unizar.es/m2h
- *EuroVR 2014 Conference*. Bremen, Germany, December 8-10, 2014. Member of the International Program Committee.
eurovr14.uni-bremen.de

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Fellowships

Scientific responsible of the following “Assegni di Ricerca”

- Dr. Fabiola Regis Hernández (March 2017 – March 2018)
Research activity within the project Future Home for Future Communities (FHfFC).
- Dr. Fabio Manganini (March 2014 – March 2015)
Modelli stocastici per l’ottimizzazione del processo di elettrofilatura e sull’analisi delle immagini SEM di manufatti ottenuti tramite elettrofilatura.
- Dr. Laura Martín-Fernández (April 2013 – September 2013)
Modellazione stocastica dei processi industriali: frantumazione di schede elettroniche e separazione dei materiali che le compongono; deposizione di nanofibre a base polimerica su matrice tramite elettrofilatura (jointly with A. Pievatolo).

Scientific responsible of the following “Borse di Studio”

- Dr. Annalisa Romantini (June 2014)
Modelli matematici differenziali e stocastici a supporto dello studio dell’emodinamica vascolare in vitro.
- Dr. Ilaria Bianchini (May 2014 - October 2014)
Metodologie parametriche e non parametriche di statistica bayesiana applicate allo studio della biomeccanica.

Scientific responsible of the following “Contratti di Collaborazione”

- Dr. Anna Ferrara (October 2014 - January 2015)
Modelli matematici e strutturali a supporto dello studio dell’emodinamica vascolare in vitro.

Co-advisor of the following Ph.D. Theses

- Dr. Vittorio Nicoletta, *working PhD project.*
Ph.D. Thesis in Business Administration, Université Laval, Quebec, Canada. Advisor: A. Ruiz; Co-advisors: V. Bélanger, E. Lanzarone.
 - Dr. Seda Baş, *working PhD project.*
Ph.D. Thesis in Industrial and System Engineering, Yeditepe University, Istanbul, Turkey. Advisor: S. Yalçındağ; Co-advisor: E. Lanzarone.
 - Dr. Inad Nawajah, *Bayesian analysis of home care longitudinal counts data.*
Ph.D. Thesis in Mathematical Models and Methods in Engineering, Politecnico di Milano, Milan, Italy, 2014. Advisor: A. Guglielmi; Co-advisors: R. Argiento, E. Lanzarone.
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Academic committees and competitions

Academic committees:

- *Ph.D. dissertation, Departamento de Física Aplicada, Universidad de Granada, Spain.* Invited member of the committee, November 21, 2012. fisicaaplicada.ugr.es

Commissioner for the following competitions (besides those for which he was scientific responsible of the contract):

- *Competition for “Assegno di Ricerca” n. IMATI-004-2016-MI.* Member of the commission, September 2016. www.urp.cnr.it

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Visiting periods and hosted researchers

He has been visiting researcher at:

- **Universitat Politècnica de València, Departamento de Organización de Empresas,** Valencia, Spain. Invited visiting researcher, April 2018. www.doe.upv.es
- **Université Laval, Faculty of Business Administration,** Quebec, Canada. Invited visiting researcher, July 2015, March 2016 and January-February 2017. www.ulaval.ca
- **Université de Montréal, CIRRELT,** Montréal, Canada. Invited visiting researcher, May 2016. www.umontreal.ca
- **Yeditepe University, Industrial and Systems Engineering Department,** Istanbul, Turkey. Visiting researcher for a PhD Research Project, November 2014 and November 2015. sy.yeditepe.edu.tr
- **Shanghai Jiao Tong University, School of Mechanical Engineering,** Shanghai, Cina. Invited visiting researcher, April-May 2015. me.sjtu.edu.cn/english
- **Labotatoire des sciences pour la conception, l’optimisation et la production (G-SCOP),** CNRS-INPG-UJF, Grenoble, France. Invited visiting researcher, March 2015. Visiting researcher for the Visionair Project no.138, April 2014. Visiting researcher for the Visionair Project no.29, November 2012 and July 2013. www.g-scop.grenoble-inp.fr
- **HEC, Département des sciences de la décision,** Montréal, Canada. Invited visiting researcher, May 2014. www.hec.ca
- **King Abdullah University of Science and Technology (KAUST), Center for Uncertainty Quantification in Computational Science & Engineering,** Thuwal, Saudi Arabia. Invited visiting researcher, April 2013. sri-uq.kaust.edu.sa

He hosted at CNR-IMATI the following researchers:

- **Andrea Lodi,** École Polytechnique de Montréal, Montréal, Canada; seminar at CNR-IMATI on February 5, 2018.
- **Nadia Lahrichi,** École Polytechnique de Montréal, Montréal, Canada; April 2016 and February-April 2017.
- **Semih Yalçındağ,** Yeditepe University, Istanbul, Turkey; April 2016 and March 2017.
- **Valérie Bélanger,** HEC, Montréal, Canada; March 2015 and May 2016.

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Reviewer activity

Reviewer for:

- Referee for international journals (American Journal of Physiology - Heart and Circulatory Physiology; Applied Stochastic Models in Business and Industry; Artificial Organs; Cardiovascular Diabetology; Decision Sciences; European Journal of Operational Research; Flexible Services and Manufacturing Journal; Health Care Management Science; IEEE/ACM Transactions on Computational Biology and Bioinformatics; IEEE Journal of Biomedical and Health Informatics; IEEE Transactions on Automation Science and Engineering; IEEE Transactions on Biomedical Engineering; IEEE Transactions on Systems, Man, and Cybernetics; International Journal for Numerical Methods in Engineering; International Journal of Planning and Scheduling; International Journal of Production Research; Journal of Biomechanics; Journal of the Operational Research Society; Operations Research for Health Care; Scientia Iranica Journal; Simulation Modelling Practice and Theory; Transportation Research Part B: Methodological; Transportation Research Part E: Logistics and Transportation Review).
- Referee for the evaluation of research projects for the Discovery Grants Program on behalf of the Natural Sciences and Engineering Research Council of Canada (NSERC).
- Referee for the evaluation of research quality VQR 2011-2014 on behalf of the Italian Ministry of Education, University and Research.
- Referee for the evaluation of research projects Futuro in Ricerca FIRB 2013 on behalf of the Italian Ministry of Education, University and Research.
- Referee for the evaluation of research projects for the Visionair European infrastructure.
- Referee for several international conferences.

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Engineering profession

He is member of the Ordine degli Ingegneri della Provincia di Milano (Section A – Registration number 27094 a,b,c).

www.ordineingegneri.milano.it

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Awards

He received:

- Finalist for the Italian Operations Research Association (AIRO) award on Operations Research for Social with the paper *An appointment scheduling framework to balance the production of blood bags from donation*.
AIRO 2016 Conference, Trieste, September 2016.
www.airo.org
- Italian National Bioengineering Group (GNB) award for Master Degree Thesis. XXIII Annual School of Bioengineering, Brixen, September 2004.
www.bioing.it

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