CV of Demetrio Laganà

CONTACT ADDRESS

Demetrio Laganà
Assistant Professor of Operations Research
DIMEG. (Department of Mechanical, Energy and Management Engineering)
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PERSONAL DATA

Date of Birth	May 13th, 1968
Place of Birth	Reggio Calabria, Italy
Citizenship	Italian
Languages	English and French

EDUCATION

1992	Master degree in Engineering from the University "Mediterranea" of Reggio Calabria, Reggio Calabria, Italy.
1996	Graduate school in Infrastrutture Terminali di Trasporto Aereo, Marittimo e Terrestre from the University "Federico II" of Naples, Italy.
2006	Ph.D in Operations Research from the University of Calabria, Rende (Cosenza), Italy. Dissertation title: *Problemi di Arc Routing Capacitivi*. February 2006, approved by Prof. Gianpaolo Ghiani and Prof. Roberto Musmanno.

RESEARCH FIELDS

Arc Routing Problems: combinatorial optimization problems in which a fleet of vehicles must be routed over a logistics networks, where required edges and arcs must be serviced. The aim is minimizing an objective function that measures the total cost for done the service. Several constraints must be satisfied in order to obtain a feasible solution that does not violate the vehicle capacity, the time windows associated with the required links, the time duration of the routes, the rules imposing that some required links must be serviced before others.

General Routing Problems: combinatorial optimization problems in which a fleet of vehicles must be routed over a logistics networks, where required arcs, edges and vertices must be serviced. The aim is minimizing an objective function that measures the total cost for done the service. Several constraints must be satisfied in order to obtain a feasible solution that does not violate the vehicle capacity, the time windows associated with the required links (arcs and edges) and the required vertices, the time duration of routes, the rules imposing that some required links must be serviced before others.

Inventory Routing Problems: combinatorial problems arising in the context of the Vendor Managed Inventory (VMI) system, in which inventory control and routing decisions have to be made simultaneously. In particular, the vendor decides the best replenishment policy for a set of customers by avoiding stock-out, while satisfying the maximum inventory capacity at the

customers and minimizing the total transportation and inventory costs. As regard to the classical vehicle routing problems, the IRPs show a growing complexity due to the integration of the inventory component into the decisional process devoted to define the best sequence in which customers must be serviced. Inventory arises whenever customers consume products with a fixed or variable rate over a time horizon, and they have a limited storage capacity. This feature naturally leads to the introduction of the time dimension into the classical vehicle routing problem, in which decisions are taken by assuming to know the demands of the customers. In the case of stochastic demand, i.e. in the case in which a probability distribution of the demand is given for each customer, finding an optimal policy consists in solving a very complex dynamic programming model, dealing with the three well known curses of dimensionality (huge cardinality of the state space, huge cardinality of the control space, prohibitive computation of the expected cost). More precisely, the total expected cost is given by the sum of four different cost components: 1) the inventory cost at the supplier, 2) the inventory cost at the retailers, 3) the penalty cost arising whenever a stock-out occurs at the retailers, and 4) the transportation cost to serve the retailers.
In this case, referred to as the Stochastic Inventory Routing Problem, the word *policy* is used instead of solution, to mean the rule followed by the supplier to supply each retailer in each state of the system (inventory level at the supplier and inventory level of each customer). The aim is to find a policy that minimizes the total expected cost over the planning horizon (Min-Expected Value policy).

TEACHING

Short course in *Mathematics*, University of Calabria, 2003-2004 and 2005-2006: teacher.
Course in *Operations Research* (Academic bachelor degree), University of Calabria, 2003-2004, 2004-2005 and 2006-2007: teaching assistant.
Course in *Operations Research* (Academic bachelor degree), University of Calabria, 2003-2004: teaching assistant.
Course in *Operations Research* (Academic bachelor degree), University "Mediterranea" of Reggio Calabria, 2003-2004: teaching assistant.
Course in *Operations Research* (Academic bachelor degree), University of Calabria, 2006-2007: teacher
Course in *Optimization* (Academic bachelor degree), University of Calabria, 2007-2008: teacher.
Course in *Operations Research* (Academic bachelor degree), University of Calabria, 2009-2010: teacher.
Course in *Optimization* (Academic bachelor degree), University of Calabria, 2010-2011: teacher
Course in *Transport Systems Optimization* (Academic master degree), University of Calabria, 2011-2015: teacher.
Course in *Freight Transport Management* (Academic master degree), University of Calabria, from 2015: teacher.

SUPERVISOR

He supervised the following Master Thesis and PhD Thesis:

2004 Co-supervisor of Alessandro Aloe, Master Degree in Management Engineerig. Dissertation title: *Algoritmi innovativi per il problema di instradamento su archi con vincoli di capacità, lunghezza temporale e con la*

presenza di nodi logistici intermedi, University of Calabria, Italy.

2005 Co-supervisor of Mauro Valentini, Master Degree in Management Engineerig. Dissertation title: *Un'euristica 'Ant Colony' per il problema del postino rurale*, University of Calabria, Italy.

2007 Co-supervisor of Vera Tomaino, Master Degree in Management Engineerig. Dissertation title: *La pianificazione integrata della distribuzione basata sul paradigma Vendor-Management*, University of Calabria, Italy.

2009 Co-supervisor of Salvatore Capolupo (2009), PhD in Operations Research. Dissertation title: *Mixed Capacitated General Routing Problem Investigation*, University of Calabria, Italy.

Co-supervisor of Francesco Rende, PhD in Operations Research. Dissertation title: *Il problema del VMI: un approccio risolutivo basato sul metodo di decomposizione*, University of Calabria, Italy

2010 Supervisor of Adamo Bosco, PhD in Operations Research. Dissertation title: *A Branch and Cut Approach for the Mixed Capacitated General Routing Problem*, University of Calabria, Italy.

2012 Co-supervisor of Federica Garofalo, Master Degree in Management Engineerig. Dissertation title: *Problemi di instradamento con gestione controllata delle scorte dei clienti e consegne tramite corrieri*, University of Calabria, Italy.

Co-supervisor of Stefano Loise. Master Degree in Management Engineerig. Dissertation title*: Metodi e modelli per il general routing problem con profitto*, University of Calabria, Italy.

Co-supervisor of Claudia Greco, Master Degree in Management Engineerig. Dissertation title*: Metodi e modelli per il general routing problem con profitto*, University of Calabria, Italy.

Supervisor of Daniele Nonna, Master Degree in Management Engineerig. Dissertation title*: Problemi di instradamento con gestione integrata delle scorte: un approccio di decomposizione al caso multi-prodotto*, University of Calabria, Italy.

2013 Co-supervisor of Luca Grasso, Master Degree in Management Engineerig. Dissertation title*: Modelli di ottimizzazione per l'organizzazione di servizi di car pooling*, University of Calabria, Italy.

Co-supervisor of Domenico Ventura, Master Degree in Informatics. Dissertation title*: Un Algoritmo cutting plane per un upper bound del problema di instradamento con servizio e profitto su vertici e spigoli di un grafo non orientato*, University of Calabria, Italy.

2015 Supervisor of Antonella Ardito, Master Degree in Management Engineerig. Dissertation title*: Evaluating VMI in the P&G supplying system of High Frequency Stores*, University of Calabria, Italy

Supervisor of Rosario Paradiso, Master Degree in Management Engineerig Dissertation title*: Un modello di programmazione matematica per la distribuzione merci secondo il paradigma Physical Internet*, University of Calabria, Italy

Supervisor of Maria Calabrò, Master Degree in Management Engineerig. Dissertation title*: Physical Internet e il trasporto sincromodale*, University of Calabria, Italy

Supervisor of Marco Monteleone, Master Degree in Management Engineerig. Dissertation title*: Analisi degli scenari di mercato e relativa valutazione costi/benefici nell'impiego di una piattaforma di dematerializzazione sicura*, University of Calabria, Italy

2016 Supervisor of Armando Loiero, Master Degree in Management Engineerig. Dissertation title*:Problemi di gestione controllata delle scorte e instradamento dei veicoli con vincoli di caricamento*, University of Calabria, Italy

Co-supervisor of Luca Grasso, Master Degree in Management Engineerig. Dissertation title*: Modelli di ottimizzazione per l'organizzazione di servizi di car pooling*, University of Calabria, Italy.

He is supervisor of the following PhD students:

Francesco Santoro, Ph.D. candidate in Mathematics and Computer Science, Cycle XXIX - Year III (final exam), University of Calabria
(URL: https://www.mat.unical.it/phd/Students)

Annarita De Maio, Ph.D. candidate in Mathematics and Computer Science, Cycle XXX - Year III, University of Calabria University of Calabria.
(URL: https://www.mat.unical.it/phd/Students)

Rosario Paradiso, Ph.D. candidate in Mathematics and Computer Science, Cycle XXXII - Year I, University of Calabria University of Calabria.
(URL: https://www.mat.unical.it/phd/Students)

Christos Orlis, Ph.D. Candidate, Department of Information, Logistics & Innovation (ILI), Faculty of Economics and Business Administration (FEWEB), Vrije Universiteit Amsterdam.
(URL: http://www.abri.vu.nl/en/doctoral-education/phd-programme/current-phd-projects/orlis/index.aspx)

ACADEMIC RESPONSABILITIES

Member of the Scientific Committee of the Ph.D. in Operations Research at University of Calabria from 2006 to 2011

Member of the Scientific Committee of the Ph.D. in Life Sciences at University of Calabria in 2013

Member of the Management Engineering Degree Board

Member of the Joint Committee of the Department from 2015.

VISITING RESEARCHER SCHOLAR

Visiting researcher at the H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta (USA), August 22th 2007 – April 25th 2008.

Visiting researcher at the Department of Logistics and Operations Management, HEC Montréal (CANADA), July 6th 2010 – July 18th 2010.

Departament d'Estadística i Investigació Operativa, University of Valencia, January 15th 2016 – February 22th 2016.

INVITED SEMINARS

The Capacitated Arc Routing Problem Investigation, The Supply Chain and Logistics Seminar Series, H. Milton Stewart School of Industrial and Systems Engineering. Georgia Institute of Technology, Atlanta (USA), September 28th 2007.

Modeling and Solving the Mixed Capacitated General Routing Problem, Gutenberg School of Management & Economics, Johannes Gutenberg - Universität Mainz (GERMANY), September 9th 2011

(URL: http://logistik.bwl.uni-mainz.de/248.php.)

*Stochastic and deterministic Inventory Routing Problems***,** Department of Information, Logistics and Innovation, Faculty of Economics and Business Administration, Vrije Universiteit Amsterdam, (NETHERLANDS), September 21th 2015.

A branch-price-and-cut algorithm for the mixed capacitated general routing problem with time windows. Departament d'Estadística i Investigació Operativa, University of Valencia (SPAIN), February 18th 2016,
(URL:http://www.uv.es/fatwirepub/Satellite?pagename=UV/Page/TPGNovedadesSindicadas&c=Page&cs.contenttype=application/xml;charset=UTF8&pageId=1285857926292&site=130&locale=ca_ES&tipo=D)

SCIENTIFIC COMMITTEES AND EDITORIAL BOARDS

Member of the Program and Organizing Committee of the *8th International Workshop on Hybrid Metaheuristics, HM 2013*, Ischia, Italy, May 23th -25th, 2013.
(URL: http://www.hm2013.unina.it/)

Member of the Program and Organizing Committee of the *Short Course on Vehicle Routing Problems***,** Hotel San Michele, Cetraro (CS), Italy, July, 13th -14th, 2009.

Member of the Organizing Committee of the *ODS2017, Optimization and Decision Science*, XLVII, Annual Meeting of AIRO – Italian Operations Research Society, Sorrento, September 4th-7th, 2017.
(URL: http://www.airoconference.it/ods2017/committees)

Member of the Editorial Board of the journal **Advances in Operations Research**, Indexed in Web of Science.
(URL: https://www.hindawi.com/journals/aor/editors/)

RESPONSIBILITY FOR STUDIES AND RESEARCH ACTIVITIES ENTRUSTED BY QUALIFIED PUBLIC OR PRIVATE INSTITUTIONS

He is the Operational Chief of the Agreement between Region of Calabria and the University of Calabria. This Agreement is focused on "*scientific and technical advice and operational support provided by the University of Calabria toward the Region of Calabria with the aim to enhance the Mobility Observatory that was established by the Regional Law n. 23/1999*". This position has been attributed by means of the Managerial Decree Law n° 8188, July 11th, 2016

SCIENTIFIC COOPERATIONS

He is a member of the research group "Operations Research" at the Department of Mechanical, Energy and Management Engineering of the University of Calabria that is coordinated by Prof. Roberto Musmanno. This group, as reported in the last document SUA-RD, consists of researchers and professors working in the Operations Research field (7 members). The group cooperates with other researchers working in the same University or other Academic Institutions in Italy and abroad. These collaborations are proven by the scientific production of the group, including that of the undersigned. For instance, he has cooperated with the following Italian and foreign researchers: Prof. Gianpaolo Ghiani, Dipartimento di Ingegneria dell'Innovazione, Università del Salento, Prof.

Daniele Vigo, Dipartimento di Ingegneria dell'Energia Elettrica e dell'Informazione "Gugliemo Marconi", Alma Mater Università di Bologna, Italy, Prof. Luca Bertazzi, Dipartimento di Economia e Management, Università di Brescia, Italy, Prof. Gilbert Laporte, Canada Research Chair in Distribution Management, Department of Management Sciences, HEC Montréal, Canada, Prof. Jean-François Cordeau, Department of Logistics and Operations Management, HEC Montréal, Canada, Prof. Stefan Irnich, Gutenberg School of Management & Economics, Johannes Gutenberg-Universität Mainz, Germany.
He works closely with Francesca Vocaturo (researcher in Operations Research at the Department of Economics, Statistics and Finance of the University of Calabria) on Vehicle Routing Problems and Integrated Logistics Problems. With the aim of increasing the knowledge on these issues and raising the scientific production's level, they intensified cooperating with internationally recognized researchers such as Prof. Ángel Corberán and Prof. Enrique Benavent, University of Valencia (Spain).
He is co-supervisor of Christos Orlis, Ph.D. Candidate, Department of Information, Logistics & Innovation (ILI), Faculty of Economics and Business Administration (FEWEB), Vrije Universiteit Amsterdam, and cooperates on logistics problems with the research group of Wout Dullaert, Prof at the Faculty of Economics and Business Administration, Vrije Universiteit Amsterdam, Netherlands.

CONFERENCE TALKS

A Branch and Cut algorithm for the Capacitated Arc Routing Problem. AIRO2006: 37th Annual Conference of the Italian Operations Research Society (2006), University of Bologna, Cesena, Italy.

An Ant Colony Optimization for the Arc Routing Problem with Intermediate Facilities under Capacity and Length Restrictions. AIRO WINTER 2007: 4th edition of the Italian Association of Operations Research Winter Conference (2007). February 5th - 9th, 2007, Cortina d'Ampezzo (Italy). Co-authors: Ghiani G., Laporte G., Mari F.

Rollout Algorithms for a Stochastic Inventory Routing Roblem. AIRO2009: XL Annual Conference Italian Operational Research Society, Siena (Italy), 2009, Siena, 2009. Co-authors: Bertazzi L., Guerriero F., Musmanno R.

Modeling and Solving the Mixed Capacitated General Routing Problem. AIRO2011: XLII Annual Conference Italian Operational Research Society, Brescia (Italy), 2011. Co-authors: Bosco A., Musmanno R., Vocaturo F.

An Optimization Algorithm for the Mixed Capacitated General Routing Problem. VEROLOG 2012, Vehicle Routing and Logistics Optimization 2012- First meeting of the EURO Working Group VeRoLog, University of Bologna (Italy), Jun 18th - 20th, 2012. Co-authors: Bosco A., Musmanno R., Vocaturo F.

Stochastic Dynamic Programming Algorithms for an Integrated Logistic System with Outsourced Transportation. EURO 2012, the 25th European Conference on Operational Research, Vilnius, July 8th - 11th, 2012. Co-authors: Bertazzi L., Bosco A.

Stochastic Dynamic Programming Algorithms for an Integrated Logistic System with Outsourced Transportation AIRO2012: XLII Annual Conference Italian Operational Research Society, Vietri sul Mare (Italy), 2012. Co-authors: Bertazzi L., Bosco A.

An Exact Algorithm for the Mixed Capacitated General Routing Problem. The 1st International Workshop on Arc Routing Problems - WARP 1, Copenhagen (Denmark), May 22th - 24th, 2013. Co-authors: Bode C., Irnich S., Vocaturo F.

Exact Solution of the Mixed Capacitated General Routing Problem. EURO 2013, the 26th European Conference on Operational Research, Rome, July 1th -4th, 2013. Co-authors: Bode C., Irnich S., Vocaturo F.

An Exact Algorithm for the Robust Stochastic Inventory Routing Problem with Outsourced Transportation. VEROLOG 2013, The second meeting EURO Working Group on Vehicle Routing and Logistics Optimization, University of Southampton (UK), July 7th - 10th, 2013. Co-authors: Bertazzi L., Bosco A.

A branch and cut algorithm for the Undirected Capacitated General Routing Problem with profits. VEROLOG 2014, The third meeting EURO Working Group on Vehicle Routing and Logistics Optimization, University of Oslo, Norway, Jun 22th – 25th, 2014. Co-authors: Archetti C., Bertazzi L., Vocaturo F.

Optimal and Heuristic Robust Policies for the Inventory Routing Problem with Outsourced Transportation, 20th Conference of the International Federation of Operational Research Societies, Barcelona, Spain, July 13th - 18th, 2014. Co-authors: Bertazzi L., Bosco A.

An Exact Approach for a Periodic Inventory Routing Problem with Inventory Clearing Policies. Odysseus 2015, the sixth international workshop on Freight Transportation and Logistics. Co-authors: Bertazzi L., Bosco A.

Min–Max Policies in the Robust Inventory Routing Problem with Transportation Procurement. VEROLOG 2015, The fourth meeting of the EURO Working Group on Vehicle Routing and Logistics Optimization, University of Vienna, Faculty of Business, Economics and Statistics, Vienna Jun 8th - 10th, 2015. Co-authors: Bertazzi L., Bosco A.

Solving the mixed capacitated general routing problem with time windows. WARP 2. 2nd Workshop on Arc Routing Problems. May 22th-24th, 2016 Lisbon, Portugal. Co-authors: Ciancio C., Vocaturo F.

An Exact Method for the Periodic Inventory Routing Problem in a Lean Production System. VeRoLog 2016: annual workshop of the EURO working group on Vehicle Routing and Logistics optimization (VeRoLog), Jun 6th-8th, 2016 Nantes (France). Co-authors: Bertazzi L., Ohlmann J., Paradiso R.

A Branch-and-Cut algorithm for a Periodic Inventory Routing Problem. EURO 2016, 28th European Conference on Operational Research, July 3th - 6th, 2016, Poznań (Poland). Co-authors: Bertazzi L., Ohlmann J., Paradiso R.

The Periodic Rural Postman Problem with Irregular Services. AIRO 2016, 46th Annual Conference of the Italian Operations Research Society (AIRO), Trieste, September 6th -9th, 2016. Emerging Advances in Logistics Systems.

Co-authors: Benavent E., Corberán A., Vocaturo F.

SCHOOL ATTENDANCE

Numerical Methods for Nonlinear Optimization, Center of Excellence for High Performance Computing, University of Calabria, June 7^{th} – 9^{th}, 2004.

Standard Quardatic Optimization Problems: *theory, procedures, applications*. Dipartimento di Elettronica, Informatica e Sistemistica, University of Calabria, September 2004.

*Short Course on Vehicle Routing Problems***,** Hotel San Michele, Cetraro (CS), Italy, Jul 13^{th} – 14^{th}, 2009.

International Symposium on Combinatorial Optimization, Spring School, Hammamet, March 2010.

PUBLICATIONS IN JOURNALS

Laganà D., Legato P., Pisacane O., Vocaturo F. (2006). Solving Simulation Optimization Problems on Grid Computing Systems. PARALLEL COMPUTING, vol. 32, p. 688-700, ISSN: 0167-8191, doi: 10.1016/j.parco.2005.03.019

Ghiani G., Laganà D., Musmanno R. (2006). A Constructive Heuristic for the Undirected Rural Postman Problem. COMPUTERS & OPERATIONS RESEARCH, vol. 33, p. 3450-3457, ISSN: 0305-0548, doi: 10.1016/j.cor.2005.02.014

Ghiani G., Laganà D., Laporte G., Mari F. (2010). Ant Colony Metaheuristic for the Arc Routing Problem with Intermediate Facilities under Capacity and Length Restrictions. JOURNAL OF HEURISTICS, vol. 16, p. 211-233, ISSN: 1381-1231, doi: 10.1007/s10732-008-9097-8

Grandinetti L., Guerriero F., Laganà D., Pisacane O. (2010). An Approximate ε-Constraint Method for the Multi-objective Undirected Capacitated Arc Routing Problem. In: (a cura di): Festa P, Experimental Algorithms. LECTURE NOTES IN COMPUTER SCIENCE, vol. 6049, p. 214-225, Berlin:© Springer-Verlag Berlin Heidelberg, ISBN: 9783642131929, ISSN: 1611-3349, doi: 10.1007/978-3-642-13193-6_19

Ghiani G., Laganà D., Manni E., Triki C. (2012). Capacitated location of collection sites in an urban waste management system. WASTE MANAGEMENT, vol. 32, p. 1291-1296, ISSN: 0956-053X, doi: 10.1016/j.wasman.2012.02.009

Grandinetti L., Guerriero F., Laganà D., Pisacane O. (2012). An optimization-based heuristic for the Multi-objective Undirected Capacitated Arc Routing Problem. COMPUTERS & OPERATIONS RESEARCH, vol. 39, p. 2300-2309, ISSN: 0305-0548, doi: 10.1016/j.cor.2011.12.009

Bertazzi L., Bosco A., Guerriero F., Laganà D. (2013). A stochastic inventory routing problem with stock-out. TRANSPORTATION RESEARCH. PART C, EMERGING TECHNOLOGIES, vol. 27, p. 89-107,

ISSN: 0968-090X, doi: 10.1016/j.trc.2011.06.003

Bruni M.E., Beraldi P., Laganà D. (2013). The express heuristic for probabilistically constrained integer problems. JOURNAL OF HEURISTICS, vol. 19, p. 423-441, ISSN: 1381-1231, doi: 10.1007/s10732-013-9218-x

Bosco A., Laganà D., Musmanno R., Vocaturo F. (2013). Modeling and Solving the Mixed Capacitated General Routing Problem. OPTIMIZATION LETTERS, vol. 7, p. 1451-1469, ISSN: 1862-4480, doi: 10.1007/s11590-012-0552-y

Festa P., Guerriero F., Laganà D., Musmanno R. (2013). Solving the shortest path tour problem. EUROPEAN JOURNAL OF OPERATIONAL RESEARCH, vol. 230, p. 464-474, ISSN: 0377-2217, doi: 10.1016/j.ejor.2013.04.029

Bosco A., Laganà D., Musmanno R., Vocaturo F. (2014). A Matheuristic Algorithm for the Mixed Capacitated General Routing Problem.. NETWORKS, vol. 64, p. 262-281, ISSN: 1097-0037, doi: 10.1002/net.21574

Cordeau J.-F., Laganà D., Musmanno R., Vocaturo F. (2015). A Decomposition-Based Heuristic for the Multiple-Product Inventory-Routing Problem. COMPUTERS & OPERATIONS RESEARCH, vol. 55, p. 153-166, ISSN: 0305-0548, doi: 10.1016/j.cor.2014.06.007

Beraldi P., Bruni M.E., Laganà D., Musmanno R. (2015). The Mixed Capacitated General Routing Problem under Uncertainty. EUROPEAN JOURNAL OF OPERATIONAL RESEARCH, vol. 240, p. 382-392, ISSN: 0377-2217, doi: 10.1016/j.ejor.2014.07.023

Irnich S., Laganà D., Schlebusch C., Vocaturo F. (2015). Two-phase branch-and-cut for the mixed capacitated general routing problem. EUROPEAN JOURNAL OF OPERATIONAL RESEARCH, vol. 243, p. 17-29, ISSN: 0377-2217, doi: 10.1016/j.ejor.2014.11.005

Bertazzi L., Bosco A., Laganà D. (2015). Managing stochastic demand in an Inventory Routing Problem with transportation procurement . OMEGA, vol. 56, p. 112-121, ISSN: 0305-0483, doi: 10.1016/j.omega.2014.09.010

Ferone D., Festa P., Guerriero F., Laganà D. (2016). The constrained Shortest Path Tour Problem. COMPUTERS & OPERATIONS RESEARCH, vol. 74, p. 64-77, ISSN: 0305-0548, doi: http://dx.doi.org/10.1016/j.cor.2016.04.002

Laganà D., Longo F., Santoro F. (2016). Multi-Product Inventory-Routing Problem in the Supermarket Distribution Industry. INTERNATIONAL JOURNAL OF FOOD SCIENCE AND NUTRITION ENGINEERING, vol. 11, p. 747-766, ISSN: 2166-5168, doi: 10.1515/ijfe-2015-0052

Bertazzi L., Bosco A., Laganà D. (2016). Min–Max exact and heuristic policies for a two-echelon supply chain with inventory and transportation

procurement decisions. TRANSPORTATION RESEARCH PART E-LOGISTICS AND TRANSPORTATION REVIEW, vol. 93, p. 57-70, ISSN: 1366-5545, doi: 10.1016/j.tre.2016.05.008

Laganà D., Longo F., Vocaturo F. (2016). Vendor-Managed Inventory Practice in the Supermarket Supply Chain. INTERNATIONAL JOURNAL OF FOOD SCIENCE AND NUTRITION ENGINEERING, ISSN: 2166-5168, doi: 10.1515/ijfe-2016-0067

Archetti C., Bertazzi L., Laganà D., Vocaturo F. (2016). The Undirected Capacitated General Routing Problem with Profits. EUROPEAN JOURNAL OF OPERATIONAL RESEARCH, vol. 257, p. 822-833, ISSN: 0377-2217, doi: http://dx.doi.org/10.1016/j.ejor.2016.08.001.

PUBLICATIONS IN PROCEEDINGS

Sheikhalishahi M., Laganà D., Grandinetti L (2012). Operations research as a service. In: Proceedings of the 2nd International Conference on Cloud Computing and Services Science. p. 480-483, ISBN: 9789898565051

.

Mirabelli G., Pizzuti T., Laganà D. (2013). Adaptation of the multi-layer allocation problem for warehouse layout optimization: A case study. In: Intelligent Data Acquisition and Advanced Computing Systems (IDAACS), 2013 IEEE 7th International Conference on. vol. 1, p. 167 -172, ISBN: 9781479914265, Berlin (Germany), September 12^{th}–14^{th}, 2013, doi: 10.1109/IDAACS.2013.6662663

Mirabelli G., Pizzuti T., Macchione C., Laganà D. (2015). Warehouse layout optimization: A case study based on the adaptation of the multi-layer Allocation problem. In Proceedings of the Summer School Francesco Turco, Industrial Systems Engineering, p. 49 – 58, ISSN: 22838996, Naples, Italy, September 16^{th} –18^{th}, 2015.

RESEARCH PROJECTS

2007

Member of the Operational Unit of the University of Calabria in the Research Project PRIN 2007 (PROGETTI DI RICERCA DI RILEVANTE INTERESSE NAZIONALE) “Ottimizzazione della logistica distributiva”, coordinated by Prof. Maria Grazia Speranza. The main goal of the research team of the University of Calabria (UNICAL) was to define, design, implement and validate some innovative algorithms for solving Arc Routing Problems with operative capacitive constraints. In particular, meta-heuristics schemes were designed for solving the Multi-objective Capacitated Arc Routing Problem (MCARP) defined on undirected graphs. The results of these research activities produced the following publications:

Grandinetti L., Guerriero F., Laganà D., Pisacane O. (2010). An Approximate ε-Constraint Method for the Multi-objective Undirected Capacitated Arc Routing Problem. In: (a cura di): Festa P, Experimental Algorithms. LECTURE NOTES IN COMPUTER SCIENCE, vol. 6049, p. 214-225, Berlin:© Springer-Verlag Berlin Heidelberg, ISBN: 9783642131929, ISSN: 1611-3349, doi: 10.1007/978-3-642-13193-6_19.

Grandinetti L., Guerriero F., Laganà D., Pisacane O. (2012). An

optimization-based heuristic for the Multi-objective Undirected Capacitated Arc Routing Problem. COMPUTERS & OPERATIONS RESEARCH, vol. 39, p. 2300-2309, ISSN: 0305-0548, doi: 10.1016/j.cor.2011.12.009

2015 Member of the Operational Unit of the University of Calabria in the Research Project PRIN 2015 (PROGETTI DI RICERCA DI RILEVANTE INTERESSE NAZIONALE), "Transportation and Logistics Optimization in the Era of Big and Open Data", approved by Director's Decision n. 1827, September 20th 2016, and coordinated by Prof. Maria Grazia Speranza. The main goal of the research team of the University of Calabria is to study the "Vehicle routing problems with occasional drivers and logistic facilities". The research will be focused on companies that use an owned fleet of vehicles, but that also make recruitment of occasional drivers through a mobile app. An innovative mathematical model and a heuristic approach for efficiently tackling the integrated problem (i.e., location-routing problem) will be studied. An iterative improvement strategy, based on large neighborhood search, will be also developed. The computational experiments will be carried out in the LIME (Laboratory of Innovation and Management Engineering) hosted by the University of Calabria.

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TECHNICAL SKILLS

Particularly acquainted with computer programming in several languages, mostly C but also object oriented languages like C++, and Java.
Scientific software

- **ILOG CPLEX**: a software package to solve most difficult problems of combinatorial optimization: http://ilog.com/products/cplex/
- SCIP: solving constraint integer programs. Libreria software per la risoluzione di problemi di ottimizzazione vincolata: http://scip.zib.de/#about

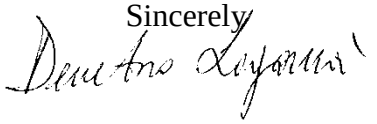
PERFORMANCE INDICES

Scopus
Citations: 153
H -index: 7

Web of Science
Citations: 123
H -index: 6

Arcavacata di Rende (CS), November 2016

Sincerely



I authorise the use of my personal data in compliance with Legislative Decree 196/03.