

Curriculum Vitae

Maria Grazia Scutellà

Personal information

- Born in Sesto ed Uniti, Cremona, on December 23, 1961
- Married, one child

Contact information

- Dipartimento di Informatica, Università di Pisa, Largo B. Pontecorvo 3, I-56127 Pisa, Italy
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Education

- Received her Scientific High School Diploma at Liceo Scientifico Aselli, Cremona, Italy, grade 60/60
- Received her M.S. degree in Computer Science at the University of Pisa in 1985 (magna cum laude)
- Received her Ph.D. in Computer Science at the University of Pisa in 1990
 - Thesis title: *A unified algorithmic framework for Max-Flow computations (Toward the design of a combinatorial optimization programming environment)*
 - Advisor: Prof. G. Gallo
 - External Referees: Prof. U. Derigs, Prof. M. Grigoriadis

Academic positions

- Research contracts at the Dipartimento di Informatica of the University of Pisa, 1990 - 1991
- Joined the Dipartimento di Informatica of the University of Pisa as Assistant Professor in Operations Research in 1992
- Has been appointed Associate Professor in Operations Research at the University of Pisa, Dipartimento di Informatica, in 1998 (*Confermato* since 2001)
- Received the Full Professor accreditation in Operations Research in 2013 (abilitazione nazionale ai sensi dell'art. 16 della Legge 240/2010, Settore concorsuale 01/A6 Ricerca Operativa, 20/12/2013)
- Has been appointed Full Professor in Operations Research at the University of Pisa, Dipartimento di Informatica, in 2016
- Has been the President of the Ph.D. Program in *Mathematics for Economic Decisions* of the University of Pisa, from November 2011 to January 2016

Other academic positions

- Has been a member of the Scientific Committee (Commissione Scientifica d'Area N.01) of the University of Pisa, periods 2012 - 2014, 2014 -2016
- Has been President of the *International Relationship Committee* of the Dipartimento di Informatica, University of Pisa (Socrates project, STICC project, MUNDUS project) (until 2005)

Scientific activities

Editorial activities

- Is Associate Editor of the scientific journal *Networks*
- Is a member of the Editorial Advisory Board of the scientific journal *Computers & Operations Research*
- Guest-edited (with G. Gallo) a special issue of *Networks* in memory of Prof. S. Pallottino
- Guest-edited (with L. Gouveia) a special issue of *Networks* devoted to INOC 2009
- Guest-edited (with G. Bigi and A. Frangioni) the Proceedings of INOC 2009, available online at <http://www.di.unipi.it/di/groups/optimize/ORGroup.html>

Visits at international scientific institutions

- Short visit at the University of Vienna, October 2018, on invitation of Prof. I. Bomze; in that occasion she delivered the talk *Robust network optimization against uncertain demands* at the ISOR Colloquium, as invited speaker, and the talk *Optimizing Green Wireless LANs: nominal and uncertain scenarios* for the PhD on Advanced Optimization
- Short visit at the ZIB institute, Berlin, Germany, December 2015, on invitation by Dr. F. D'Andreagiovanni; in that occasion she delivered the talk *Optimizing Green Wireless LANs* at the BMBF VINO Project Meeting, as invited speaker
- Short visit at the Centro de Investigacao Operacional of the University of Lisbon, Portugal, March 2011, on invitation by Prof. L. Gouveia; in that occasion she was invited to present the talk *Modelling issues to the Balanced Path problem*
- Short visit at the Center for Research on Transportation (CRT) of Montreal, October 1996, for the twenty-fifth anniversary of the CRT, on invitation by Prof. T. Crainic; in that occasion she delivered the talk *Shortest Path Algorithms in Transportation models: classical and innovative aspects* at the EQUILIBRIUM AND ADVANCED TRANSPORTATION MODELLING COLLOQUIUM, as invited speaker

Coordination of research projects

- Scientific leader of the research contract between SOFTEC s.r.l., Livorno, and the Dipartimento di Informatica of the University of Pisa, on optimization problems in some engineering application contexts (since November 2019)
- IREAD 4.0 (Regione Toscana, Programma Operativo Regionale FESR 2014 - 2020, Bando n.1: Progetti Strategici di Ricerca e Sviluppo): Co-supervisor of a post-doctoral position on *Modelli e metodi di ottimizzazione per la gestione efficiente di magazzini estesi e ad alto indice di rotazione* (since November 2018)
- Italian project PRIN 2009: Co-supervisor of a postdoctoral position on *Integer Non-linear Optimization Methods for Routing Problems in Telecommunications*
- Italian project PRIN 2006: Coordinator of the Research Unit of the University of Pisa
- Italian project PRIN 2003: Coordinator of the Research Unit of the University of Pisa
- Project *Cofinanziato d'Ateneo 2001*, University of Pisa: Scientific coordinator of a project on *Multi-exchange local search techniques*
- Italian MIUR project (1999) *Società dell'Informazione: Strumenti, ambienti e applicazioni innovative per la società dell'informazione*: Scientific coordinator of the research line *Flow problems for transportation applications* within project *SORSA, Simulazione e Ottimizzazione su Reti: Software e Applicazioni*, 2001/2002

Conference organizations

- Conference Chair of the scientific conference *AIRO 2015*, Pisa, September 7- 10, 2015 (<http://www.airo.org/conferences/airo2015/>)
AIRO 2015 is the annual conference of the Italian Association of Operations Research (AIRO).
- Conference Chair of the scientific conference *INOC 2009* (International Network Optimization Conference 2009), Pisa, April 26 - 29, 2009
INOC is the conference of the European Network Optimization Group (ENOG). The scientific program of this fourth edition comprised four plenary talks by invited speakers of international standard on relevant network optimization themes, and 106 talks across 24 contributed sessions and 5 invited sessions.
- Conference Chair of the scientific workshop HCM 97 (Human Capital and Mobility, "Models, Algorithms and Systems for Decision Making"), Pisa, 1997

Conference attendance and delivered seminars

- Has delivered seminars, by invitation, at national and international conferences; this activity includes:
 - NETFLOW93, San Miniato, Italy, 1993, presenting *Flows on Hypergraphs* (by invitation)
 - GIORNATA DI LAVORO "Modelli e Algoritmi di Ottimizzazione per l'Università e l'Industria", Pisa, Italy, January 1995, presenting *Modelli di Ipergrafi e Tecniche di Decomposizione per problemi di Cutting Stock* (by invitation)
 - INFORMS 95, New Orleans, 1995, presenting *The Cutting Stock Problem: a new model based on hypergraph flows* (by invitation)
 - HCM Workshop 97, Pisa, Italy, January 1997, presenting *Dual Algorithms for the Shortest Path Tree Problem* (by invitation)
 - ISMP 97, Lausanne, 1997, presenting *Hypergraph Models in Production Scheduling* (by invitation)
 - INFORMS 98, Montreal, April 1998, presenting *Min-Cost Flow Lower Bounds for the Constrained Minimum Spanning Tree Problem* (by invitation)
 - OPTIMIZATION 2001, Aveiro, Portugal, July 2001, presenting *Reoptimizing Shortest Paths* (by invitation)
 - COFIN-MATHEON Workshop 2006, Villa Vigoni, Italy, May 2006, presenting *Balanced paths in telecommunications networks* (by invitation)
 - SEMINARIO PERMANENTE DI OTTIMIZZAZIONE, Firenze, Italy, December 2007, presenting *Network Design and Routing under Uncertain Demands* (by invitation)

- ALGORITMI A COLAZIONE, Roma, Italy, May 2008, presenting *Network Design and Routing under Uncertain Demands: a review and recent developments* (by invitation)
 - First AIRO Young Workshop, La Sapienza, Roma, Italy, February 2017, presenting *Optimizing Green Wireless LANs: nominal and uncertain scenarios* (invited speaker)
 - NOW 2017, Viterbo, Italy, June 2017, presenting *Demand uncertainty in Robust Home Care Optimization* (by invitation)
 - ISOR Colloquium, Vienna, October 2018, presenting *Optimizing Green Wireless LANs: nominal and uncertain scenarios* (invited speaker)
 - PhD on Advanced Optimization, Vienna, October 2018, presenting *Optimizing Green Wireless LANs: nominal and uncertain scenarios* (by invitation)
- Has organized sessions and clusters at national and international conferences; this activity includes:
 - Organization of the sessions *Dynamic shortest paths* for IFORS99, Beijing, 1999
 - Organization of the cluster *Network Flows* (with Dorit Hochbaum) for IFORS 2005, Hawaii, July 2005
 - Organization of sessions in memory of Prof. S. Pallottino, INOC 2005, Lisbon, March 2005
 - Organization and coordination of the session *Network routing* for the workshop COFIN-MATHEON (project PRIN 2003), Villa Vigoni, Italy, May 2006
 - Organization of the session on *Vehicle Routing*, ALIO/INFORMS 2010, Buenos Aires, June 2010
 - Organization of the session *Impact of Combinatorial Optimization on solving challenging applications* (Stream "Combinatorial Optimization") for the conference IFORS 2014, Barcelona, July 2014
 - Organization of the session *Advances in Home Care and related application contexts* for the Joint EURO/ALIO International Conference 2018, Bologna, June 2018
 - Organization of the session *Dynamic flows and relevant application contexts* for the EURO 2019 conference, Dublino, June 2019

Scientific Committees

- Has been a member of the Steering Committee of AIRO, the Italian Association of Operations Research, Optimisation and Decision Sciences (September 2011- December 2018)
- Has been a member of the Scientific Committee of CIRO (Centro Interuniversitario per la Ricerca Operativa), from July 2013 to September 2015

- Has been a member of the Scientific Committee of conference ODS 2019, Genova, September 2019
- Has been a member of the Scientific Committee of conference INOC 2019, Avignone, June 2019
- Has been a member of the Scientific Committee of conference ODS 2018, Taormina, Italy, September 2018
- Has been a member of the Scientific Committee of conference INOC 2017, Lisbon, Portugal, February 2017
- Has been a member of the Scientific Committee of conference INOC 2015, Warsaw, Poland, May 2015
- Has been a member of the Scientific Committee of meeting ISOLDE (International Symposium on Locational Decision), Capri, June 2014
- Has been a member of the Scientific Committee of conference ISCO 2014, Lisbon, Portugal, March 2014
- Has been a member of the Scientific Committee of conference INOC 2013, Tenerife, Spain, May 2013
- Has been a member of the Scientific Committee of conference AIRO 2012, Vietri sul Mare, Italy, September 2012
- Has been a member of the Scientific Committee of conference AIRO 2011, Brescia, Italy, September 2011
- Has been a member of the Scientific Committee of conference INOC 2011, Hamburg, Germany, June 2011
- Has been Chair of the Scientific and Organizing Committees of conference INOC 2009, Pisa, Italy, April 2009
- Has been a member of the Scientific Committee of conference INOC 2007, Spa, Belgium, April 2007
- Has been a member of the Scientific Committee of conference AIRO 2006, Cesena, Italy, September 2006
- Has been a member of the Scientific Committee of conference INOC 2005, Lisbon, Portugal, March 2005
- Has been a member of the Scientific Committee of the conference AIRO 96, Perugia, Italy, September 1996

Participation to research projects

- IREAD4.0 (Regione Toscana, Programma Operativo Regionale FESR 2014 - 2020, Bando n.1: Progetti Strategici di Ricerca e Sviluppo)
- PRA 2017 (project funded by the University of Pisa)
- PRIN 2015
- PRA 2015 (project funded by the University of Pisa)
- PRIN 2012
- PRIN 2009
- FIRB 2004
- CNR project - Agenzia 2000 *Modelli ed algoritmi per l'ottimizzazione della produzione e trasmissione dell'energia elettrica in un regime di libero mercato*
- Italy-Quebec International Cooperation Project on *Tecnologie dell'Informazione e della Comunicazione*, 1994/2000
- MURST project cofinanziato *COSO - Algoritmi per l'ottimizzazione dei sistemi complessi*, 1999/2000
- MURST project 40% *AAA-Autocordinamento di agenti autonomi*, 1997/1998
- *Progetto Finalizzato Sistemi Informatici e Calcolo Parallelo*, Sottoprogetto 6, 1991

Refereeing activities

- Served as referee for several journals/conferences, such as Networks, Transportation Science, Mathematical Programming, SIAM Journal on Control and Optimization, INFORMS JOC, Journal of Experimental Algorithmics, Discrete Applied Mathematics, Computers & Operations Research, Annals of Operations Research, European Journal of Operational Research, ITOR and all the INOC conferences
- Served as NSERC (Natural Sciences and Engineering Research Council of Canada) reviewer
- Served as FFG (Austrian Research Promotion Agency) reviewer

Scientific schools (first years of academic career) Has participated to several national and international schools, such as:

- *Combinatorial Optimization: Theory and Applications* School, Erice (TP), Italy, 1989 (from June 20 to June 30), presenting *A unifying procedural schema for the maximum flow problem*
- Miniworkshop on *Network Flow Problems*, Udine, Italy, February 12, 1990, presenting *A unifying approach to Max Flow algorithm*
- *ARIDAM VII (Seventh Advanced Research Institute on Discrete Applied Mathematics)* School, Rutgers University (New Jersey), 1992 (from May 28 to June 5)

Research activities

Mathematical programming models and methods have been proposed to the solution of discrete and continuous optimization problems. Specifically, linear and nonlinear models and algorithmic approaches have been devised to solve relevant optimization problems arising in application contexts such as telecommunications, transportation, health care, logistics and financial settings. Most of them are based on the wide expertise achieved in network optimization.

In fact, significant skills and relevant scientific results, in theory and also in practice, have been achieved in the area of network flow problems (single and multicommodity flows, static and dynamic networks, graphs and hypergraphs), and in the area of network design and routing, also addressing energy-aware optimization problems. Furthermore, robust optimization has been deeply addressed in a theoretical way, and also applied in telecommunications, health care and financial contexts.

From a bibliometric point of view, the spread of the obtained results is testified by $H - index$ 25 (17 since 2014), and by $i10 - index$ 46 (25 since 2014), according to Google Scholar (December 2019). Furthermore, always according to Google Scholar, the total number of citations to the published results was about 2548 (more than 1000 since 2014).

A summary of the main areas of research and a list of the investigated problems follows, with links to some relevant publications (links to the section *Publications*).

Main areas of research

- Combinatorial Optimization
- Robust Optimization
- Nonlinear Optimization
- Network Design and Routing
- Logistics

Classes of investigated problems

- Network flow problems (single and multicommodity flows, static and dynamic networks, graphs and hypergraphs): [13], [22], [23], [28], [29], [30], [32], [33], [34], [35], [36], [37], [38]
- Network design and routing problems (both nominal and robust versions): [2], [4], [7], [8], [10], [14], [15], [17], [19], [21], Short papers [2], [3], [4], [7]
- Location problems: [18], [24], [25], [26]
- Vehicle Routing problems: [1], [3], [5], [11], [18], [24], Short papers [1], [5], [6]
- Warehouse management problems
- Portfolio optimization problems: [6], [9], [16]
- Propositional Logic problems: [39], [40]

Main application contexts

- Telecommunications: [2], [4], [7], [8], [10], [14], [15], [17], [21], Short papers [2], [3], [4], [7]
- Transportation: [11], [18], [24], [32]
- Health Care: [1], [3], [5], Short papers [1], [5], [6]
- Energy: [2], [7], [8], [10], Short papers [2], [3], [4], [7]
- Financial Optimization: [6], [9], [16]

International research collaborations The research activity has been conducted also via a wide network of collaborations with national and international scientific groups. Relevant international research collaborations are:

- Lucent Bell Labs: research collaborations with Prof. C. Chekuri and Prof. F.B. Shepherd on robust network design (testified by paper [21])
- MIT, Boston: research collaborations with Prof. J.B. Orlin on dynamic paths and on paths with periodic traffic lights (testified by papers [28] and [32]) and on multi-exchange techniques (testified by paper [26]); research collaborations with Prof. D.P. Bertsekas on auction algorithms for shortest paths (testified by paper [36])
- University of Gainsville: research collaborations with Prof. R.K. Ahuja on dynamic paths and on paths with periodic traffic lights (testified by papers [28] and [32]) and on multi-exchange techniques (testified by paper [26])
- University of Lisbon: research collaborations with Prof. L. Gouveia on skill vehicle routing (testified by paper [11] and book chapter [2])

- University of Montreal: research collaborations with Prof. S. Nguyen on shortest path reoptimization (testified by book chapter [5]), and with Prof. B. Gendron on green wireless network design (testified by paper [2] and by short paper [7])
- Université Paris-Saclay: research collaborations with Prof. E. Şahin on Home Care problems (testified by paper [3])
- TU Graz: research collaborations with Prof. U. Pferschy on knapsack problems
- ZIB, Berlin: research collaborations with Dr. F. D'Andreagiovanni on robust green wireless network design (testified by short papers [2], [3])
- University of Aveiro, Portugal: research collaborations with Prof. Cristina Requejo on Generalized skill vehicle routing problems

Publications

International journal papers

1. P. Cappanera, M.G. Scutellà, F. Nervi, L. Galli, *Demand uncertainty in Robust Home Care Optimization*, Omega: The International Journal of Management Science, 80, 95 - 110, 2018, DOI: 10.1016/j.omega.2017.08.012,

Best paper for 2019 in the health care and optimization area

2. B. Gendron, M.G. Scutellà, R.G. Garroppo, G. Nencioni, L. Tavanti, *A branch-and-Benders-cut method for nonlinear power design in green wireless local area networks*, European Journal of Operational Research, 255, 151 - 162, 2016
3. S. Yalçındağ, P. Cappanera, M.G. Scutellà, E. Şahin, A. Matta, *Pattern-based decompositions for human resource planning in home health care services*, Computers & Operations Research, 73, 12 - 26, 2016
4. A. Frangioni, L. Galli, M.G. Scutellà, *Delay-Constrained Shortest Paths: Approximation Algorithms and Second-Order Cone Models*, Journal of Optimization Theory and Applications, 164 (3), 1051 - 1077, 2015
5. P. Cappanera, M.G. Scutellà, *Joint Assignment, Scheduling, and Routing Models to Home Care Optimization: A Pattern-Based Approach* (with related Online Supplement), Transportation Science, 49 (4), 830 - 852, 2015
6. R. Recchia, M.G. Scutellà, *Robust asset allocation strategies: relaxed versus classical robustness*, IMA Journal of Management Mathematics, 25 (1), 21 - 56, 2014
7. R.G. Garroppo, S. Giordano, G. Nencioni, M.G. Scutellà, *Power-Aware Routing and Network Design with Bundled Links: Solutions and Analysis*, Journal of Computer Networks and Communications, 2013, Article ID 154953, 2013
8. R.G. Garroppo, G. Nencioni, L. Tavanti, M.G. Scutellà, *Does traffic consolidation always lead to network energy savings?*, IEEE Communications Letters, 17 (9), 1852 - 1855, 2013
9. M.G. Scutellà, R. Recchia, *Robust portfolio asset allocation and risk measures*, Annals of Operations Research, 204 (1), 145 - 169, 2013 (this is an updated version of the paper that appeared in 4OR, 8(2), 113-139, 2010)
10. R.G. Garroppo, S. Giordano, G. Nencioni, M.G. Scutellà, *Mixed Integer Non-Linear Programming models for Green Network Design*, Computers & Operations Research, 40, 273 - 281, 2013
11. P. Cappanera, L. Gouveia, M.G. Scutellà, *Models and valid inequalities to asymmetric skill-based routing problems*, EURO Journal on Transportation and Logistics, 2, 29 - 55, 2013
12. L. Gouveia, M. G. Scutellà, *Editorial*, Networks, 59 (1), 1 - 2, 2012

13. P. Cappanera, M. G. Scutellà, *Color-Coding Algorithms to the Balanced Path Problem: Computational Issues (with related Online Supplement)*, INFORMS Journal on Computing, 23 (3), 446 - 459, 2011 (previously published online in Articles in Advance, August 31, 2010)
14. D. Cherubini, A. Fanni, A. Frangioni, A. Mereu, C. Murgia, M.G. Scutellà, P. Zudadas, *A Linear Programming Model for Traffic Engineering in 100% Survivable Networks under combined IS-IS/OSPF and MPLS-TE Protocols*, Computers & Operations Research, 38 (12), 1805 - 1815, 2011
15. A. Frangioni, F. Pascali, M.G. Scutellà, *Static and dynamic routing under disjoint dominant extreme demands*, Operations Research Letters, 39 (1), 2011
16. M.G. Scutellà, R. Recchia, *Robust portfolio asset allocation and risk measures*, Invited Survey, 4OR, 8 (2), 113 - 139, 2010
17. M.G. Scutellà, *On improving optimal oblivious routing*, Operations Research Letters, 37 (3), 197 - 200, 2009
18. D. Ambrosino, A. Sciomachen, M.G. Scutellà, *A heuristic approach based on multi-exchange techniques for a regional fleet assignment location-routing problem*, Computers & Operations Research, 36 (2), 442 - 460, Scheduling for Modern Manufacturing, Logistics, and Supply Chains, 2009
19. M.G. Scutellà, *The maximum congested cut problem and its robust counterpart: exact and approximation algorithms for the single and the multicommodity case*, Networks, 51 (2), 102 - 112, 2008
20. G. Gallo, M.G. Scutellà, *Foreword (dedicated to the memory of Stefano Pallottino)*, Networks, 51 (1), 1 - 3, 2008
21. C. Chekuri, F.B. Shepherd, G. Oriolo, M.G. Scutellà, *Hardness of Robust Network Design*, Networks, 50 (1), 50 - 54, 2007
22. M. G. Scutellà, *A note on the parametric maximum flow problem and some related reoptimization issues*, Arbib, Rossi and Smriglio (Eds.), Annals of Operations Research, Combinatorial Optimization and Application In Memory of Mario Lucertini, 150, 231 - 244, 2007
23. P. Cappanera, M. G. Scutellà, *Balanced paths in acyclic networks: tractable cases and related approaches*, Networks, 45 (2), 104 - 111, 2005
24. D. Ambrosino and M.G. Scutellà, *Distribution network design: New problems and related models*, European Journal of Operational Research, 165, 610 - 624, 2005
25. M. P. Scaparra, S. Pallottino and M. G. Scutellà, *Large-Scale Local Search Heuristics for the Capacitated Vertex p-Center Problem*, Networks, 43 (4), 241 - 255, 2004
26. R. K. Ahuja, J. B. Orlin, S. Pallottino, M. P. Scaparra and M. G. Scutellà, *A Multi-Exchange Heuristic for the Single-Source Capacitated Facility Location Problem*, Management Science, 50 (6), 749 - 760, 2004

27. A. Frangioni, M.G. Scutellà, E. Necciari, *A Multi-exchange Neighborhood for Minimum Makespan Machine Scheduling Problems*, Journal of Combinatorial Optimization, 8 (2), 195 - 220, 2004
28. R. K. Ahuja, J. B. Orlin, S. Pallottino, M.G. Scutellà, *Dynamic Shortest Paths Minimizing Travel Times and Costs*, Networks, 41(4), 197 - 205, 2003
29. S. Pallottino, M.G. Scutellà, *A new algorithm for reoptimizing shortest paths when the arc costs change*, Operations Research Letters, 31 (2), 2003
30. M.G. Scutellà, *An approximation algorithm for computing longest paths*, European Journal of Operational Research, 148(3), 584 - 590, 2003
31. G. Gallo, M.G. Scutellà, *A note on Minimum Makespan Assembly Plans*, European Journal of Operational Research, 142, 309 - 320, 2002
32. R. K. Ahuja, J. B. Orlin, S. Pallottino, M.G. Scutellà, *Minimum Time and Minimum Cost-Path Problems in Street Networks with Periodic Traffic Lights*, Transportation Science 36(3), 326 - 336, 2002
33. M.G. Scutellà, *A strongly polynomial algorithm for the Uniform Balanced Network Flow Problem*, Discrete Applied Mathematics 81, p. 123 - 131, 1998 (included in *Discrete Applied Mathematics - Editors' Choice, 1998*)
34. R. Cambini, G. Gallo, M.G. Scutellà, *Flows on hypergraphs*, Mathematical Programming 78, 195 - 217, 1997
35. S. Pallottino, M.G. Scutellà, *Dual algorithms for the shortest path tree problem*, Networks 29, 125 - 133, 1997
36. D.P. Bertsekas, S. Pallottino, M.G. Scutellà, *Polynomial Auction algorithms for Shortest Paths*, Computational Optimization and Applications 4, 99 - 125, 1995
37. G. Gallo, M.G. Scutellà, *Toward a programming environment for combinatorial optimization: a case study oriented to max-flow computations*, ORSA Journal on Computing 5, 120 - 133, 1993
38. G. Mazzoni, S. Pallottino, M.G. Scutellà, *The maximum flow problem: a max-preflow approach*, European Journal of Operational Research 53, 257 - 278, 1991
39. M.G. Scutellà, *A note on Dowling-Gallier's Top-Down algorithm for Propositional Horn Satisfiability*, Journal of Logic Programming 8, 265 - 273, 1990
40. G. Gallo, M.G. Scutellà, *Polynomially solvable satisfiability problems*, Information Processing Letters 29 221 - 227, 1988

Scientific books and edited proceedings

1. L. Gouveia, M. G. Scutellà (Eds.), *Special Issue on the INOC 2009 Conference, April 26 - 29, 2009, Pisa, Italy*, Networks , 59 (1), 1 - 189, 2012
2. G. Gallo, M. G. Scutellà (Eds.), *Special Issue In Memory of Stefano Pallottino*, Networks , 51 (1), 2008
3. G. Bigi, A. Frangioni, M. G. Scutellà (Eds.), *Proceedings of INOC 2009*, Pisa, Italy, 2009

Book chapters

1. D. Granata, R. Cerulli, M.G. Scutellà, A. Raiconi, *Maximum Flow Problems and an NP-complete variant on Edge Labeled Graphs*, P.M. Pardalos, D. Ding-Zhu and R.L. Graham (Eds.), Handbook of Combinatorial Optimization, 2nd Edition, Springer, 1913-1948, 2013
2. P. Cappanera, L. Gouveia, M.G. Scutellà, *The Skill Vehicle Routing Problem*, J. Pahl, T. Reiners and S. Voss (Eds.), Network Optimization. 5th International Conference, INOC 2011. Hamburg, Germany, June 2011, Lecture Notes in Computer Science, LNCS 6701, Springer-Verlag Berlin Heidelberg, 354 - 364, 2011
3. F. Pascali, M.G. Scutellà, *Ottimizzazione Robusta*, G. Ghiani and R. Musmanno (Eds.), Modelli e metodi decisionali in condizioni di incertezza e rischio, McGraw-Hill, 2009
4. M.G. Scutellà, *Teoria e Metodi di Riottimizzazione per Problemi di Flusso*, Atti della Scuola CIRO 2002, A. Agnetis and G. Di Pillo (Eds.), 441 - 472, Pitagora Editrice, 2003
5. S. Nguyen, S. Pallottino and M.G. Scutellà, *A new dual algorithm for shortest path reoptimization*, M. Gendreau and P. Marcotte (Eds.), Transportation and Network Analysis: Current Trends, Kluwer Academic Publishers, 221 - 235, 2002
6. S. Pallottino, M.G. Scutellà, *Shortest path algorithms in transportation models: classical and innovative aspects*, P. Marcotte and S. Nguyen (Eds.), Equilibrium and Advanced Transportation Modelling, Kluwer Academic Publishers, 245 - 281, 1998

Short papers (refereed)

1. P. Cappanera, M.G. Scutellà, *Pattern generation policies to cope with robustness in Home Care*, Springer Proceedings in Mathematics & Statistics, 210, Health Care Systems Engineering, HCSE, Florence, Italy, May 2017, Cappanera, Li, Matta, Sahin, Vandaele and Visintin (Eds.), 257 - 268, 2017
2. F. D'Andreagiovanni, R.G. Garroppo, M.G. Scutellà, *Green Design of Wireless Local Area Networks by Multiband Robust Optimization*, Electronic Notes in Discrete Mathematics, 64, 225 - 234, 2018, DOI: 10.1016/j.endm.2018.01.024

3. F. D'Andreagiovanni, R.G. Garroppo, M.G. Scutellà, *Power Savings with Data Rate Guarantee in Dense WLANs*, Proceedings of the 2017 International Conference on Selected Topics in Mobile and Wireless Networking, MoWNeT 2017, paper n. 8045946, DOI: 10.1109/MoWNet.2017.8045946
4. R.G. Garroppo, G. Nencioni, M.G. Scutellà, L. Tavanti, *Robust optimisation of green wireless LANs under rate uncertainty and user mobility*, Electronic Notes in Discrete Mathematics, 52, 221 - 228, 2016
5. P. Cappanera, M.G. Scutellà, F. Visintin, *Home Care Services delivery: equity versus efficiency in optimization models*, Springer Proceedings in Mathematics & Statistics, 61, Proceedings of the International Conference on Health Care Systems Engineering, Matta, Li, Sahin, Lanzarone and Fowler (Eds.), 1 - 15, 2014
6. P. Cappanera, M.G. Scutellà, *Home Care optimization: impact of pattern generation policies on scheduling and routing decisions*, Electronic Notes in Discrete Mathematics, 41, 53 - 60, 2013
7. B. Gendron, R.G. Garroppo, G. Nencioni, M.G. Scutellà, L. Tavanti, *Benders Decomposition for a Location-Design Problem in Green Wireless Local Area Networks*, Electronic Notes in Discrete Mathematics, 41, 367 - 374, 2013
8. R.G. Garroppo, S. Giordano, G. Nencioni, M. Pagano, M.G. Scutellà, *Energy saving heuristics in Backbone Networks*, Second IFIP Conference on Sustainable Internet and ICT for Sustainability, SustainIT 2012 , art. no. 6388039, Pisa, 2012
9. R.G. Garroppo, S. Giordano, G. Nencioni, M.G. Scutellà, *Network Power Management: models and heuristic approaches*, GLOBECOM - IEEE Global Telecommunications Conference, art. no. 6133918, Houston, 2011

Refereed proceedings of international conferences

1. P. Nepa, A. Motroni, A. Buffi, M. Frosolini, M. Braglia, M.G. Scutellà, M. Pappalardo, M. Passacantando, A. Congi, E.M. Ferro, M. Pesi, G. Giorgi, M. Lazzarotti, J. Bellucci, S. Galigani, A. Bigongiari, G. Isola, F. Bertuccelli, D. Lo Schiavo, A. Rubichi, C. Salvador, F. Bonifacio, F. Zani, *I-READ 4.0: Internet-of-READers for an efficient asset management in large warehouses with high stock rotation index*, 2019 IEEE 5th International Forum on Research and Technology for Society and Industry (RTSI), Paper Id: 1570554978, Firenze, 2019
2. G. Nencioni, R.G. Garroppo, S. Giordano, M.G. Scutellà, *Power Aware Routing and Network Design with Bundled Links*, Proceedings of GTTI 2011, Messina (Italy), 1 - 4, 2011
3. A. Frangioni, F. Pascali, M.G. Scutellà, *Chance constrained network design*, Proceedings of INOC 2009, G. Bigi, A. Frangioni, M.G. Scutellà (Eds.), paper TC2-2, Pisa (Italy), 2009

4. P. Cappanera, M.G. Scutellà, *Balanced paths in telecommunication networks: some computational results*, Proceedings of INOC 2007, Spa (Belgium), 2007
5. P. Cappanera, G. De Pascale, M. G. Scutellà, *Color-coding heuristic approaches for the balanced path problem*, Odysseus 2006, Third International Workshop on Freight Transportation and Logistics, E. Benavent, V. Campos, A. Corberan, R. Marti, E. Mota, I. Plana, J.M. Sanchis (Eds), Altea (Spain), 92 - 97, 2006 (ISBN: 84-96221-33-4)
6. C. Chekuri, G.P.Oriolo, M.G.Scutellà, F.B.Shepherd, *Hardness of Robust Network Design*, Proceedings of INOC 2005, Book 2, Gouveia e Mourao (Eds.), Lisbon, 455 - 461, 2005
7. M.G. Scutellà, *The maximum cut congestion problem*, Proceedings of INOC 2005, Book 3, Gouveia e Mourao (Eds.), Lisbon, 670 - 673, 2005
8. M.G. Scutellà, *A note on the parametric maximum flow problems and some related reoptimization issues*, Proceedings of INOC 2003, Evry (Paris), 516 - 520, 2003
9. I. Chabini, A. Glenn, S. Pallottino, M.G. Scutellà, *Reoptimization algorithms for minimum-time path problems in dynamic networks*, Proceedings of Transportation Research Board Annual Meeting, 2002

Refereed Italian journal papers

1. G. Gallo, M.G. Scutellà, *Directed Hypergraphs as a Modelling Paradigm*, Rivista AMASES 21, 97 - 123,1998
2. G. Gallo, F. Licheri, M.G. Scutellà, *The Hypergraph Simplex Approach: some experimental results*, Ricerca Operativa 78, 21 - 54, 1996
3. M. Gambale, M. Nonato, M.G. Scutellà, *The Cutting Stock Problem: a new model based on hypergraph flows*, Ricerca Operativa anno XXV, 74, 1995
4. S. Pallottino, M.G. Scutellà, *Strongly polynomial auction algorithms for shortest paths*, Ricerca Operativa 60, 33 - 53, 1991
5. M.G. Scutellà, *A note on Cherkasky's algorithm for the maximum flow problem*, Ricerca Operativa 53, 65 - 75, 1990
6. M.G. Scutellà, G. Scevola *A modification of Lipski-Preparata's algorithm for the maximum matching problem on bipartite convex graphs*, Ricerca Operativa 46, 63 - 77, 1988

PhD Dissertation

1. M.G. Scutellà, *A unified algorithmic framework for Max-Flow computations (Toward the design of a combinatorial optimization programming environment)*, Ph.D. Dissertation TD 1/90, Dip. di Informatica, Univ. di Pisa, 1990

Book Review

1. S. Pallottino, M.G. Scutellà, review of *Annotated Bibliographies in Combinatorial Optimization*, (Dell'Amico, Maffioli, Martello Eds.) *Ricerca Operativa* anno XXVII, 84, 63 - 68, 1997

Submitted papers and technical reports

1. P. Cappanera, M.G. Scutellà, *Addressing consistency and demand uncertainty in the Home Care planning problem*
2. R.G. Garroppo, M.G. Scutellà, F. D'Andreagiovanni, *Can Robust Mathheuristics actually be used for Greening Wireless Local Area Networks?*
3. P. Cappanera, C. Requejo, M.G. Scutellà, *Temporal constraints and device management for the Skill VRP: mathematical model and lower bounding techniques*
4. M.G. Scutellà, *A note on the hardness of some optimal oblivious routing generalizations*, Technical report, Dipartimento di Informatica, University of Pisa, 2012
5. P. Cappanera, L. Gouveia, M.G. Scutellà, *Models and valid inequalities to Skill-Based Routing Problems*, CIO - Working Paper 8/2011, Operations Research Center, Faculty of Sciences, University of Lisbon, 2011
6. M.G. Scutellà, *Hardness of some optimal oblivious routing generalizations*, TR 10-05, Dipartimento di Informatica, University of Pisa, 2010
7. M.P. Scaparra, M.G. Scutellà, *Facilities, Locations, Customers: Building blocks of location models. A survey*, TR 01-18, Dipartimento di Informatica, University of Pisa, 2001 (selected for basic courses in Location Analysis at the Department of Business Administration of Wien University)
8. A. Frangioni, D. Pretolani, M.G. Scutellà, *Fast Lower Bounds for the Capacitated Minimum Spanning Tree Problem*, TR 05/99, Dipartimento di Informatica, University di Pisa, 1999
9. B. Klinz, M.G. Scutellà, *A strongly polynomial algorithm for the Balanced network flow problem*, TR 99-17, Dipartimento di Informatica, University di Pisa, 1999

Didactic books

1. G. Bigi, A. Frangioni, G. Gallo, S. Pallottino, M.G. Scutellà, *Appunti di Ricerca Operativa*, Dipartimento di Informatica, Università di Pisa, SEU (Servizio Editoriale Universitario di Pisa), 2007

Other industrial collaborations

- Research collaboration on *Improving integrated algorithms for public transportation problems*, with M.A.I.O.R. S.r.l., 2012-2014
- Research collaboration on *Studio di tecniche di forecasting per serie storiche relative al fabbisogno di banconote*, with Basilichi S.p.a., 2012
- Research collaboration on *Algoritmi di ottimizzazione per modelli integrati per la formazione di tabelle orarie, turni macchina e turni uomo*, with M.A.I.O.R. S.r.l., 2010-2011
- Research collaboration on *Sviluppo di un modulo di ottimizzazione della pianificazione della produzione*, with Siemens VDO Automotive S.p.A., 2006
- Research collaboration on *Pianificazione robusta nel traffico aereo*, with M.A.I.O.R. S.r.l., 2006
- Research collaboration on *Cutting Stock Problems*, with BULL HN Sud

Teaching activities

Coordinator of Ph.D. activities

- Has been the President of the Ph.D. Program in *Mathematics for Economic Decisions* of the University of Pisa, from November 2011 to January 2016

Supervisor of Ph.D. students

- Daniela Ambrosino (currently assistant professor at the University of Genova): Ph.D. dissertation *Progetto di reti distributive: alcuni modelli ed un approccio di ricerca locale basato su tecniche multiscambio*, Ph.D. Program in *Mathematics for Economic Decisions* of the University of Pisa
- Maria Paola Scaparra (currently assistant professor at Kent University): Ph.D. dissertation *Multi-Exchange Algorithms for some Capacitated Facility Location Problems* (with S. Pallottino), Ph.D. Program in *Mathematics for Economic Decisions* of the University of Pisa
- Fausto Pascali: Ph.D. dissertation *Chance Constrained Network Design*, Ph.D. Program in *Mathematics for Economic Decisions* of the University of Pisa
- Raffaella Recchia (currently risk manager for a company of Intesa San Paolo): Ph.D. dissertation *Robust asset allocation problems: a new class of risk measure based models*, Ph.D. Program in *Mathematics for Economic Decisions* of the University of Pisa

Other Ph.D. activities

- Is a member of the Ph.D. Council of the Ph.D. Program in *Computer Science* of the University of Pisa, since 2010
- Delivered the Ph.D. course *Ricerca Operativa (Operations Research)* for the Ph.D. Program in *Mathematics for Economic Decisions* of the University of Pisa, since 1999
- Has been member of the Ph.D. Council of the Ph.D. Program in *Mathematics for Economic Decisions* of the University of Pisa, until November 2011
- Has been reviewer of a Ph.D. dissertation in Mathematics and Computer Science, “A metaheuristic approach for the VehicleRouting Problem with Backhauls” (Università di Cagliari, 2017)
- Has been reviewer of a Ph.D. dissertation in Ricerca Operativa, “Dynamic Flow Problems with bounded number of paths: Models, Algorithms and Applications” (Università La Sapienza di Roma, 2018)
- Has been member of the committee for the final defense of a Ph.D. dissertation in Information Engineering and Science, “Metaheuristic Algorithms for Transportation Problems in HealthCare” (Università di Siena, 2018)
- Has been reviewer of a Ph.D. dissertation in *Ingegneria dell’Informazione* (Politecnico di Milano, 2015)

Courses at Universities

1. Laurea Magistrale in Computer Science and Networking (held in English), University of Pisa:
 - *Metodi di Ottimizzazione delle Reti (Network Optimization Methods)*: academic years 2010-2011; 2011-2012; 2012-2013; 2013-2014; 2014-2015; 2015-2016; 2017-2018 (**held in English**)
2. Laurea Magistrale in Business Informatics (partially held in English), University of Pisa:
 - *Logistica (Logistics)*: academic years 2010-2011; 2011-2012
 - *Logistics*: academic year 2012-2013; 2013-2014; 2014-2015; 2015-2016; 2016-2017; 2017-2018; 2018-2019; 2019-2020 (**held in English**)
3. Corso di Laurea in Ingegneria Elettronica and Corso di Laurea in Ingegneria delle Telecomunicazioni (laurea triennale), University of Pisa:
 - *Ricerca Operativa I (Operations Research)*: academic years 2014-2015; 2015-2016; 2016-2017; 2017-2018; 2018-2019; 2019-2020
4. Corso di Laurea in Ingegneria delle Telecomunicazioni (laurea triennale), Accademia Navale di Livorno:

- *Ricerca Operativa I (Operations Research)*: academic years 2016-2017; 2017-2018; 2018-2019
5. Corso di Laurea in Informatica (lauree triennali and lauree specialistiche), University of Pisa:
- *Ricerca Operativa (Operations Research)*: academic years 2001-02, 2002-2003, 2003-2004, 2004-2005; 2005-2006; 2007-2008; 2008-2009; 2009-2010; 2010-2011; 2011-2012; 2012-2013; 2013-2014
 - *Logistica (Logistics)*: academic years 2001-02, 2002-2003, 2003-2004, 2004-2005, 2005-2006; 2006-2007; 2007-2008; 2008-2009; 2009-2010
 - *Ottimizzazione Combinatoria e Reti (Combinatorial Optimization and Networks)*: academic years 2004-2005, 2005-2006; 2006-2007; 2007-2008; 2008-2009; 2009-2010
6. Corso di Laurea in Informatica (laurea quinquennale), University of Pisa:
- *Programmazione Matematica (Mathematical Programming)*: academic years 95-96; 96-97
 - *Ottimizzazione Combinatoria (Combinatorial Optimization)*: academic years 97-98; 98-99; 2000-2001
 - *Ottimizzazione Combinatoria: Laboratorio (Combinatorial Optimization: Laboratory)*: academic year 97-98
 - *Ricerca Operativa: Reti di Comunicazione e di Trasporto (Operations Research: Communication and Transportation Networks)*: academic year 99-2000
7. Corso di Laurea in Scienze dell'Informazione, University of Pisa:
- *Ricerca Operativa and Gestione Aziendale (annual) (Operations Research)*: assistant in academic years 91-92; 93-94
 - *Teoria e Metodi dell'Ottimizzazione (annual) (Optimization Theory and Methods)*: assistant in academic years 93-94; 94-95; 95-96
8. Diploma in Informatica, University of Pisa:
- *Ricerca Operativa (Operations Research)*: since academic year 98-99
9. Corso di Laurea in Matematica, University of Pisa:
- *Ricerca Operativa (Operations Research)*: academic year 2000-2001
10. Corso di Laurea in Informatica Applicata, Polo Universitario di La Spezia:
- *Simulazione e Logistica: modulo di Logistica (Simulation and Logistics: Logistics module)*: academic years 2002-03; 2003-04

Other courses

- *Teoria e Metodi di Riottimizzazione per problemi di Flusso (Reoptimization Theory and Methods for Flow problems)*, CIRO School 2002, Siena
- *Problemi di flusso su ipergrafi (Flow problems on hypergraphs)*, Ph.D. course, University of Pisa
- *Fondamenti di Informatica (Computer Science: basic concepts)*, Scuola Diretta a Fini speciali in Informatica, University of Pisa, academic year 90/91
- *Problemi di Trasporto (Transportation problems)*, within European project related to the development of Gioia Tauro seaport

Committees related to teaching and evaluation

- Is a member of the *Commissione Didattica Paritetica* of the Dipartimento di Informatica, University of Pisa (since 2016)
- Has been a member of Italian *Evaluation Committees* to Full Professor position; recently: University of Catania (2017); University Milano Statale (2018); University La Sapienza, Roma (2019)
- Has been a member of two Italian *Evaluation Committees* to Associate Professor position
- Has been a member of Italian *Evaluation Committees* to Researcher position and to RTD-A position; recently: University of Pisa (2018) and University della Calabria (2019)
- Has been a member of Italian *Evaluation Committees* to RTD-B position: recently: IMT, Lucca (2019)
- Has been a member of Italian *Evaluation Committees* for postdoctoral positions; recently: DII, University of Pisa (2018)
- Has been a member of the *Commissione Didattica Paritetica* of the Corso di Laurea Magistrale in Business Informatics, University of Pisa
- Has been a member of the *Commissione Didattica (Teaching Committee)* of the Corso di Laurea in Ingegneria delle Telecomunicazioni, University of Pisa
- Has been the President of the *Tirocini* Committee of the Dipartimento di Informatica, University of Pisa, from April 2014 to November 2015
- Has been a member of the *Commissione Didattica (Teaching Committee)* of the Corso di Laurea Magistrale in Computer Science and Networking, University of Pisa
- Has been a member of the *Commissione Didattica (Teaching Committee)* of the Corso di Laurea Magistrale in Business Informatics, University of Pisa

- Has been a member of the *Commissione Didattica (Teaching Committee)* of the Dipartimento di Informatica, University of Pisa (until 2009)
- Has been a member of an Italian *Evaluation Committee* for Researcher confirmation (*Conferma in ruolo*)
- Has been a member of an Italian *Evaluation Committee* for Associate Professor confirmation (*Conferma in ruolo*)
- Has been CIVR evaluator

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae ai sensi del Decreto Legislativo 30 giugno 2003, n. 196, Codice in materia di protezione dei dati personali

Pisa, March 2020

Maria Grazia Scutellà