

Manuel Iori

Personal Information

Born January 1974 in Reggio Emilia, Italy. Italian nationality, unmarried.

Office: *Dipartimento di Scienze e Metodi dell'Ingegneria (DISMI)*
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Nov 2006 to present: researcher at the *Faculty of Engineering* of the *University of Modena and Reggio Emilia*, Italy. Research activities: study and development of mathematical models, algorithms and solutions for Operations Research, Combinatorial Optimization and Logistics. Didactic activities: teaching courses “Fondamenti di Ricerca Operativa” e “Metodi e Modelli per il Supporto alle Decisioni” for *Computer Science Engineering* and *Management and Industrial Engineering*.

Education

Jun 2004 – Set 2006: post doc fellow at the *Faculty of Engineering* of the *University of Bologna*, Italy, research and didactic activities related to Operations Research.

Jan 2001 – May 2004: Ph.D. in “Automatic and Operations Research” at the *University of Bologna*, Italy. Supervisor Prof. S. Martello. Thesis: “Metaheuristic Algorithms for Combinatorial Optimization Problems”.

Mar 2000: *laurea* (5–year degree) in *Management and Industrial Engineering* at the *University of Bologna*, Italy, mark 97/100. Thesis: “Exact and heuristic algorithms for the solution of the Two Dimensional Cutting Stock Problem”.

Research Activities

Development of exact and heuristic approaches for Operations Research and Combinatorial Optimization problems, particularly focused on Vehicle Loading and Routing, Multi-dimensional Cutting and Packing and Scheduling.

Contributions as referee to various international journals, including: *INFORMS Journal on Computing*, *Transportation Science*, *Networks*, *Journal of Heuristics*, *4OR*, *European Journal of Operational Research*, *Computers & Operations Research*, *OR Spectrum*, *Computers and Industrial Engineering*, *International Transactions in Operations Research*, *IEEE Transactions on Intelligent Transportation Systems*, *Annals of Operations Research*.

Research activities with various Italian and foreign Universities.

Research Periods Abroad

Ago 2007: visiting scholar at *Universidad de Santiago de Chile e Universidad de Concepcion* (Cile). Didactic and research activities (with V. Parada and L. Pradenas).

Jul – Set 2006: visiting scholar at *Universidade Estadual do Cearà* (Brazil). Development of mathematical models for optimizing fair lay-outs (with M. Negreiros).

2003 – 2007: periods of several months visiting the *Centre de Recherche sur les Transports* (CRT), *University of Montreal*, Canada, development of algorithms for Routing problems (with J.-F. Cordeau, M. Gendreau and G. Laporte).

Oct 2002 – Feb 2003: visiting scholar at the *Departamento de Estadística, Investigación Operativa y Computación* (DEIOC), *University of La Laguna*, Spain, for a project on exact approaches for Loading and Vehicle Routing Problems (with J. J. Salazar Gonzalez).

Jun – Dec 2000: visiting scholar at the *Tanaka Business School* of the *Imperial College of London*, United Kingdom, for a project on multidimensional Cutting and Packing Problems (with E. Hadjiconstantinou).

Sep 1997 – Dec 1998: engineering student at the *EPF Ecole d'Ingénieurs*, Paris.

Didactic Activities

Sep 2006 to present: teacher of the course “Fondamenti di Ricerca Operativa”, at the *Faculty of Engineering* of the *University of Modena and Reggio Emilia*.

Sep 2005 to present: teacher of the course “Modelli di Sistemi di Servizio”, at the *Faculty of Engineering* of the *University of Modena and Reggio Emilia*.

Sep 2005 to present: tutor of the course “Modelli di Sistemi di Produzione” (M. Dell’Amico), at the *Faculty of Engineering* of the *University of Modena and Reggio Emilia*.

Jan 2002 to present: supervisor of more than 20 Degree and Master Degree thesis at the *University of Modena and Reggio Emilia* and *University of Bologna*.

Jan 2002 – sep 2008: tutor for the courses of “Ricerca Operativa” and “Ricerca Operativa – teledidattico” (A. Caprara), at the *Faculty of Engineering* of the *University of Parma*.

Jan 2003 – Set 2006: tutor for the courses of “Fondamenti di Ricerca Operativa L-A” and “Ricerca Operativa L-S” (S. Martello), at the *Faculty of Engineering* of the *University of Bologna*.

Jan 2003 – Set 2006: tutor for the courses of “Laboratorio di Ricerca Operativa” and “Laboratorio di Strumenti di Ottimizzazione” (A. Lodi), at the *Faculty of Engineering* of the *University of Bologna*.

Professional Activities

Jan 2002 – to present: working with the Italian Engineers Order for examining the admission of new candidates.

Jun 2006, Jun 2005 and Jun 2004: contracts for software development for the *Consiglio Nazionale Ricerche* (CNR).

Apr 2005: founding member of the society “GiroGPS Società Cooperativa”, for developing underwater positioning and navigation systems.

Jan 2001 – Aug 2002: consultant for the furniture company GAM S.p.A., Reggio Emilia.

Languages

Italian: mother tongue

Spanish: fluent

English: fluent

Portuguese: discrete

French: fluent

German: basic knowledge

Grants and Achievements

Jan 2006: selected among the three best PhD thesis in Europe in the years 2004-05, for participating at the *EDDA (EURO Doctoral Dissertation Award) 2006*.

Oct 2005: third position at the business plan competition *L'idea si fa impresa 2005*, with *GiroGPS* project, Carpi (MO).

Oct 2004: winner of the *Start Cup 2004* competition with project *GiroGPS*. Best innovative idea from the *University of Bologna*.

Jun 2004: winner of a 2 year “post doc” grant for a research project on transportation at the *University of Bologna*.

Jan 2001: winner of a 3–year Italian Grant for a Ph.D. in Operations Research at the *University of Bologna*.

1997 – 2006: winner of grants and participation at research projects, among which:

- ✓ “Overseas” grant, awarded for a research project on freight transportation;
- ✓ “Marco Polo” grant, awarded for a research project on freights transportation;
- ✓ “Giovani Ricercatori” grant, awarded for a Scheduling research project;
- ✓ participation to MIUR PRIN project (2006), responsible prof. S. Martello;
- ✓ participations to MIUR “ex 60%” projects (2001 – 2005), responsible prof. S. Martello;
- ✓ participation to MIUR “SORSA” project, responsible prof. G. Rinaldi;
- ✓ grant of the *Faculty of Engineering* of the *University of Bologna*, awarded for a research project on cutting and packing;
- ✓ European “Erasmus” grant, awarded for a period of studies abroad.

Seminars and Congresses

2002 to present: participation at the following conferences:

- ✓ “Route 2009”, Rolighed (Denmark);
- ✓ “6th ESICUP Meeting”, Valencia (Spain);
- ✓ “Matheuristics 2008”, Bertinoro (Italy);
- ✓ “EURO XXI”, Reykjavik (Iceland);
- ✓ “ROUTE 2005”, Bertinoro, Italy;
- ✓ “MAPSP05” Siena, Italy;
- ✓ “9th Combinatorial Optimization Workshop”, Aussois, France;

- ✓ National Congress “AIRO 2004”, Lecce, Italy;
- ✓ National Congress “AIRO 2003”, Venice, Italy;
- ✓ “7th Combinatorial Optimization Workshop”, Aussois, France;
- ✓ National Congress “AIRO 2002”, L’Aquila, Italy;
- ✓ “Modelli ed Algoritmi per il Coordinamento di Sistemi in Rete”, Belluno, Italy;
- ✓ “Two days Local Search Workshop”, *City University of London*, United Kingdom.

2002 to present: participation at the following summer schools:

- ✓ “IPCO Summer School”, Bertinoro, Italy;
- ✓ “Approaches for Integer Programming”, Lisbona, Portugal;
- ✓ “Euro Summer Institute XXI (ESI XXI)”, Nida, Lithuania;
- ✓ “Ricerca Operativa”, Cortona, Italy;
- ✓ “C.I.R.O. 2002”, Siena, Italy;

2003 – 2007: speaker of the following seminars:

- ✓ “Freight Transportation”, *Universidad de Concepcion* (Chile);
- ✓ “A Branch-and-Cut Algorithm for the Pickup and Delivery Traveling Salesman Problem with LIFO Loading”, *University of Vienna* (Austria);
- ✓ “Theoretical Aspects and Real-World Applications of the Capacitated Vehicle Routing Problem with Loading Constraints”, *Universidade Estadual do Ceará* (Brazil);
- ✓ “On the Capacitated Vehicle Routing Problem with Multi-Dimensional Loading Constraints”, *University of Vienna* (Austria);
- ✓ “An exact approach for vehicle routing problems with two dimensional loading constraints”, *Université de Montréal* (Canada).

Selected Publications

International Journals

1. Fernandes Muritiba AE, Iori M, Malaguti E, Toth, P. “Algorithms for the Bin Packing Problem with Conflicts”, *INFORMS Journal on Computing* (2010, to appear).
2. Fernandes Muritiba AE, Iori M, Martello S, Negreiros M. “Models and Algorithms for Optimizing Fair Layouts”, *Annals of Operations Research* (2010, to appear).
3. Tricoire F, Doerner K, Hartl R, Iori M, “Heuristic and Exact Algorithms for the Multi-Pile Vehicle Routing Problem”, *OR Spectrum* (2010, to appear).
4. Cordeau J-F, Iori M, Laporte G, Salazar Gonzalez JJ, “Branch-and-Cut for the Pickup and Delivery Traveling Salesman Problem with LIFO Loading”, *Networks* 55: 46-59 (2010).
5. Cordeau J-F, Dell’Amico M, Iori M, “Branch-and-Cut for the Pickup and Delivery Traveling Salesman Problem with FIFO Loading”, *Computers & Operations Research* 37: 970-980 (2010).
6. Fuellerer G, Doerner K, Hartl R, Iori M, “Metaheuristics for Vehicle Routing Problems with Three-Dimensional Loading Constraints”, *European Journal of Operational Research* 201: 751-759 (2010).
7. Dell’Amico M, Diaz Diaz JC, Iori M, Montanari R, “The single-finger keyboard layout problem”, *Computers & Operations Research* 36: 3002 – 3012 (2009).

8. Fuellerer G, Doerner K, Hartl R, Iori M, “Ant Colony Optimization for the Two-Dimensional Loading Vehicle Routing Problem”, *Computers & Operations Research* 36: 655 – 673 (2009).
9. Dell'Amico M, Iori M, Martello S, Monaci M, “Heuristic and Exact Algorithms for the Identical Parallel Machine Scheduling Problem”, *INFORMS Journal on Computing* 20 (3): 333-344 (2008).
10. Dell'Amico M, Iori M, Pretolani D, “Shortest Paths in Piecewise Continuous Time-Dependent Networks”, *Operations Research Letters* 36: 688-691 (2008).
11. Gendreau M, Iori M, Laporte G, Martello S, “A tabu search heuristic for the vehicle routing problem with two-dimensional loading constraints”, *Networks* 51 (1): 4-18 (2008).
12. Doerner K, Fuellerer G, Gronalt M, Hartl R, Iori M, “Metaheuristics for the Vehicle Routing Problem with Loading Constraints”, *Networks* 49 (4): 294-307 (2007).
13. Hadjiconstantinou E, Iori M, “A hybrid genetic algorithm for the two-dimensional single large object placement problem”, *European Journal of Operational Research* 183: 1150-1166, (2007).
14. Iori M, Salazar Gonzalez JJ, Vigo D, “An exact approach for the vehicle routing problem with two-dimensional loading constraints”, *Transportation Science* 41 (2): 253-264 (2007).
15. Dell'Amico M, Iori M, Martello S, Monaci M, “Lower Bounds and Heuristic Algorithms for the k_i Partitioning Problem”, *European Journal of Operational Research* 171: 725-742 (2006).
16. Gendreau M, Iori M, Laporte G, Martello S, “A tabu search algorithm for a routing and container loading problem”, *Transportation Science* 40: 342-350 (2006).
17. Iori M, “Metaheuristic algorithms for combinatorial optimization problems”. *4OR* 3: 163-166 (2005).
18. Dell'Amico M, Iori M, Martello S, “Heuristic Algorithms and Scatter Search for the Cardinality Constraint $P//C_{max}$ Problem”, *Journal of Heuristics* 10: 169-204 (2004).

Refereed Volumes

19. Iori M, Martello S, “Scatter Search Algorithms for Identical Parallel Machine Scheduling Problems”, in *Metaheuristics for Scheduling in Industrial and Manufacturing Applications*, Springer, *Studies in Computational Intelligence* 128: 41-59 (2008).
20. Iori M, Martello S, Monaci M, “Metaheuristic Algorithms for the Strip Packing Problem”, in Pardalos P, Korotkich V editors, *Optimization and Industry: New Frontiers*, pp. 159-179, Kluwer Academic Publisher (2003).

Works submitted to publication

21. Iori M, Martello S. “Routing Problems with Loading Constraints”, technical report, DISMI, *Università di Modena e Reggio Emilia* (2010), submitted.
22. Fernandes Muritiba AE, Iori M, Martello S, Negreiros, M. “Fair Layout Optimization”, technical report, DEIS, *Università di Bologna* (2009), submitted.
23. Iori M, Martello S, Pretolani D. “An Aggregate Label Setting Policy for the Multi-Objective Shortest Path Problem”, technical report, DISMI, *Università di Modena e Reggio Emilia* (2009), submitted.

Thesis

24. Iori M, “Metaheuristic algorithms for combinatorial optimization problems”. PhD thesis, DEIS, *Università di Bologna* (2004).
25. Iori M, “Exact and heuristic algorithms for the solution of the Two Dimensional Cutting Stock Problem”. Master thesis, DEIS, *Università di Bologna* (2000).

Other

Co-author of more than 30 abstracts and extended abstracts appeared in proceedings of conferences.

Reggio Emilia (Italy), January 19, 2010

Manuel Iori