



# Paola Pellegrini

## Personal information

Name	Paola Pellegrini
E-mail	paola.pellegrini@univ-eiffel.fr
Nationality	Italian
Date of birth	11-25-1980
Position	Research director, COSYS-LEOST, Université Gustave Eiffel (ex IFSTTAR), France Deputy director of the COSYS-LEOST laboratory
ResearcherID	Web of Science: E-1633-2015 Scopus: 15074252500 Orcid: 0000-0002-6087-651X

## Education and qualifications

- 2018 **Qualification to the function of Professore di prima fascia (full professor)**, *Section 01/A6* - Operations research, Italy.
- 2018 **Qualification to the function of Professore di seconda fascia (associate professor)**, *Section 01/A6* - Operations research, Italy.
- 2018 **HDR (Habilitation à Diriger des Recherches) in Mathematical Sciences**, *Université de Lille*, Lille, France,  
Thesis title: *Optimization for complex problems in air and rail transport*.
- 2013 **Qualification to the function of Maître de conférence**, *Section 61* - Computer science engineering, automatic and signal treatment, France.
- 2003–2007 **PhD in Economics, in the field of Mathematical Economics**, *Università Ca' Foscari Venezia*, Venice, Italy,  
Thesis title: *ACO: parameters, exploration and quality of solutions*.
- 1999–2003 **Master Degree in Business Economics**, *Università Ca' Foscari Venezia*, Venice, Italy,  
Thesis title: *Behavioral Model of an Ant Colony for a Problem of Distributive Logistics with multiple time windows: the case study Polo SpA* (in Italian).

## Research interests

Optimization, modeling, integer linear programming, metaheuristics, swarm intelligence, transportation, logistics, air traffic management, railway traffic management, autonomous agents, multi-agent systems, parameter tuning.

## Summary of scientific production

Nature of the contribution	total	since 2016
Articles published on international journals (peer-reviewed)	31	13
Book chapters	2	0
Articles published in the proceedings of international conferences (peer-reviewed)	48	22
Abstracts published in the proceedings of international conferences and workshops	51	26
Technical reports	23	7

## Work experience

### Research

- 2019–now **Research director**, *IFSTTAR, COSYS-LEOST*, (Institut Français des Sciences et Technologies des Transports, de l'Aménagement et des Réseaux), Lille, France.
- 2014–2019 **Researcher**, *IFSTTAR, COSYS-LEOST*, (Institut Français des Sciences et Technologies des Transports, de l'Aménagement et des Réseaux), Lille, France.
- 2011–2014 **Post-doctoral researcher**, *IFSTTAR, COSYS-ESTAS*, (Institut Français des Sciences et Technologies des Transports, de l'Aménagement et des Réseaux), Lille, France.
- 2010–2011 **Post-doctoral researcher**, *IRIDIA*, (Institut de Recherches Interdisciplinaires et de Développements en Intelligence Artificielle), Université Libre de Bruxelles, Bruxelles, Belgium.
- 2009–2010 **Post-doctoral researcher**, *Dipartimento di Matematica Applicata*, Università Ca' Foscari Venezia, Venice, Italy.
- 2008–2009 **Post-doctoral researcher**, *Dipartimento di Elettrotecnica, Elettronica e Informatica*, Università di Trieste, Trieste, Italy.
- 2005–2006 **Visiting researcher**, *IRIDIA*, (Institut de Recherches Interdisciplinaires et de Développements en Intelligence Artificielle), Université Libre de Bruxelles, Bruxelles, Belgium.
- 2004–2005 **Visiting researcher**, *Department of Systems and Industrial Engineering*, University of Arizona, Tucson, USA.

### Industry

- 2010–now **Member of the board of directors**, *GP Pellegrini SpA*, Venice, Italy, <http://www.pellegrini.it>.
- 2010–2017 **Member of the board of directors**, *GP Dati Hotel Service SpA*, Venice, Italy, <http://www.gpdatai.com>.
- 2010–2011 **Consultant for the development of a revenue management software tool**, *GP Dati Hotel Service SpA*, Venice, Italy, <http://www.gpdatai.com>.
- 2007–2008 **Project manager for the development of printing and management software**, *GP Pellegrini SpA*, Venice, Italy, <http://www.pellegrini.it>.
- 2003 **Trainee involved in the the development of a logistic software tool**, *Polo S.p.A.*, Padua, Italy, <http://www.poloristorazione.it>.

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## Institutional responsibilities

- 2020–now Representative of the COSYS department at the Research Body (Collège de la recherche), Université Gustave Eiffel
- 2019–now Member of the Board of IAROR - International Association of Railway Operations Research
- 2018–now Deputy director of the COSYS-LEOST laboratory, Université Gustave Eiffel
- 2017–2019 Co-facilitator of a thematic work-group on Autonomous Vehicles within the Unifying Project “Infrastructure of Energetic Transition”, IFSTTAR

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## Teaching experience

- 2020–now Coordinator of the Intelligent Public Transport CES (Certificat d'Études Spécialisées – Certificate of Specialized Studies) FC9TR06. Télécom Evolution, Paris, France.
- 2020 Invited lecturer on Applications of real-time traffic management (master course in Railway Traffic Management, 1 hour). Civil Engineering and Geosciences. Delft University of Technology, Delft, The Netherlands.
- 2020 Lecturer on Control-command (ERTMS-ETCS, CBTC) and traffic management (CES (Certificat d'Études Spécialisées (Certificate of Specialized Studies) in Intelligent Public Transport, 4 hour). Télécom Evolution, Paris, France.
- 2019 Invited lecturer on Models and solution of the real-time Railway Traffic Management Problem (master course in Optimization models, 4 hours). Department of Engineering and Architecture. Università di Trieste, Trieste, Italy.
- 2016 Invited lecturer on Models and solution of the real-time Railway Traffic Management Problem (master course in Optimization models, 4 hours). Department of Engineering and Architecture. Università di Trieste, Trieste, Italy.
- 2016 Invited lecturer on Railway Traffic Management in Europe: current practice and academic research (undergraduate course in Transportation, 4 hours). Faculty of Architecture. IUAV University of Venice, Venice, Italy.
- 2016 Invited lecturer on RECIFE-MILP: an effective heuristic for the real-time Railway Traffic Management Problem (master course in Optimization in public services, 6 hours). Faculty of Engineering. Università Roma 3, Rome, Italy.
- 2015 Invited lecturer on Models and solution of the real-time Railway Traffic Management Problem (master course in Optimization models, 4 hours). Department of Engineering and Architecture. Università di Trieste, Trieste, Italy.
- 2015 Invited lecturer on Railway Traffic Management in Europe: current practice and academic research (undergraduate course in Transportation, 4 hours). Faculty of Architecture. IUAV University of Venice, Venice, Italy.
- 2009–2010 Teaching assistant of Mathematics (undergraduate course, 27 hours), Università Ca' Foscari Venezia, Venice, Italy.
- 2008–2009 Teaching assistant of Mathematics (undergraduate course, 7.5 hours) and Logistics (undergraduate course, 15 hours), Università Ca' Foscari Venezia, Venice, Italy.
- 2006–2007 Lecturer of Elements of Informatics for Economics (undergraduate course, 30 hours), teaching assistant of Mathematics (undergraduate course, 7.5 hours) and Microeconomics II (PhD course, 15 hours), Università Ca' Foscari Venezia, Venice, Italy.

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## Invited talks

- October 2019 **OptiYard: Optimised Real-Time Yard and Network Management**, *Talk given at the 6th international symposium on railway operations research, BJTU, Beijing, China.*
- July 2018 **A Benders decomposition for the real-time Railway Traffic Management Problem**, *Talk given at TRAIL - Research School for Transport, Infrastructure and Logistics, TU Delft, Delft, The Netherlands.*
- November 2017 **RECIFE-MILP for real-time railway traffic optimization: main results and current research**, *Talk given at the Department of Science and Technology, Linköping University, Norrköping, Sweden.*
- May 2016 **On the actual impact of real-time railway traffic management optimization**, *Talk given at the Railway Operations Research Seminar: 'Put Passengers First', Leuven, Belgium.*
- November 2012 **Forecasting hotel demand: mathematical models and algorithms available to the revenue manager**, *Talk given at the Web Hotel Revenue Seminar 2012, Rome, Italy.*
- November 2012 **Forecasting of the demand: one of the most interesting challenges of revenue management: What mathematics can and cannot do**, *Talk given at the Web Hotel Revenue Seminar 2012, Rome, Italy.*
- April 2012 **Yield management and forecasting: How the revenue manager can profit from models and algorithms**, *Talk given at the GP Days Seminar 2012, organized by GP Dati Hotel Service SpA, Venice, Italy.*
- November 2011 **Mathematics and yield management: How the revenue manager can profit from models and algorithms**, *Talk given at the Web Hotel Revenue Seminar 2011, Rome, Italy.*
- June 2011 **Swarm Intelligence**, *Talk given at the Danish Pavilion at the 54th Venice Biennale, Venice, Italy.*

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## Invited lectures

- March 2015 **Real-time Railway Traffic Management**, *RailTokyo2015, 6th International Conference on Railway Operations Modelling and Analysis, Tokyo, Japan.*
- October 2011 **Mathematical methods for the yield management in the hospitality industry**, *GP Dati Hotel Service SpA, Venice, Italy.*
- May 2009 **Revenue management in air traffic management**, *Lecture given during the course of Quantitative methods for decision making in tourism. Faculty of Economics. Università Ca' Foscari Venezia, Venice, Italy.*
- November 2008 **Application of ant colony optimization to real-world problems**, *Lecture given during the course of Optimization models. Faculty of Engineering. Università di Trieste, Trieste, Italy.*
- November 2008 **Introduction to metaheuristics**, *Lecture given during the course of Optimization models. Faculty of Engineering. Università di Trieste, Trieste, Italy.*
- March 2008 **Revenue management in air traffic management**, *Lecture given during the course of Quantitative methods for decision making in tourism. Faculty of Economics. Università Ca' Foscari Venezia, Venice, Italy.*

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## Awards

- 2017 Best paper award, 7th International Conference on Railway Operations Modelling and Analysis - RailLille2017. [46]

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## Personal fellowships

- 2012 Configuring algorithms: A novel framework, three-year mandate of *chargé de recherches* F.R.S. - FNRS, A 4/5 - MCF/DM - 11191, Belgium. (Fellowship awarded but not accepted.)
- 2010 On-line meets Off-line Tuning: A novel approach for tuning the parameters of ant colony optimization and other metaheuristics, //AMG/VLD/WBI.WORLD/doh/2010/14511, Belgium.

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## Research project and initiative participation

### European projects and initiatives

- 2019–2023 X2RAIL-4 - Advanced signalling and automation system - Completion of activities for enhanced automation systems, train integrity, traffic management evolution and smart object controllers, S2R-CFM-IP2-01-2019.
- 2018–2021 Engage - European network for the ATM community, H2020-EU.3.4.7. - SESAR JU - 783287.
- 2017–2020 X2RAIL-2 - Enhancing railway signalling systems based on train satellite positioning, on-board safe train integrity, formal methods approach and standard interfaces, enhancing Traffic Management System functions, S2R-CFM-IP2-01-2017-777465.
- 2017–2019 Optimised Real-time Yard and Network Management (OptiYard), H2020-S2RJU-OC-2017-777594. Lead of Work Package 5.
- 2013–2017 Capacity4Rail - Increasing Capacity 4 Rail networks through enhanced infrastructure and optimised operations (CAPACITY4RAIL), FP7-SST-2013-RTD-1-605650. Lead of Work Package 3.3.
- 2011–2014 Optimal Networks for Train Integration Management across Europe (ON-TIME), FP7-SCP0-GA-2011-265647.
- 2008–2009 Contract-based Air Transportation System (CATS), TREN/07/FP6AE/S07.75348/036889.

### National projects

- 2013–2015 Simulation of an innovative freight traffic management (SIGIFret - Simulations d'une gestion innovante des circulations fret), Programme de REcherche et D'Innovation dans les Transports terrestres (PREDIT).

### Industrial projects

- 2019–2021 Design and assessment of an optimization algorithm for real-time on-demand passenger transportation planning (Conception et test d'un algorithme d'optimisation pour la planification temps-réel d'un service de transport de passagers à la demande sur voie dédiée), Société nationale SNCF.
- 2018–2020 Link Ingetime - RECIFE (LIERE - Liaison Ingetime Et REcife), Rail Concept.

- 2006 Study on the transportation and economic system in the areas interested by the project “Gronda Sud di Milano” (Studio trasportistico sull’assetto economico e logistico delle aree interessate dal progetto della Gronda Sud di Milano), Rete Ferroviaria Italiana SpA (RFI).

## Conference organization

- 2020 Member of the scientific advisory Committee committee of RailBeijing 2021 - 9th International Conference on Railway Operations Modelling & Analysis.
- 2020 Member of the program committee of GECCO 2020 - Genetic and Evolutionary Computation Conference, track on evolutionary combinatorial optimization and meta-heuristics.
- 2020 Organizer of the Railway Transport stream in ROADEF 2020 - 21th conference ROADEF of the French society of operations research and decision aid.
- 2020 Member of the program committee of ECTA 2020 - 12th International Conference on Evolutionary Computation Theory and Applications.
- 2020 Member of the program committee of the 20th European Conference on Evolutionary Computation in Combinatorial Optimisation (EvoCOP 2020).
- 2020 Member of the program committee of the 12th International Conference on Swarm Intelligence (ANTS 2020).
- 2019 Member of the program committee of RailNorrköping 2019 - 8th International Conference on Railway Operations Modelling and Analysis (ICROMA).
- 2019 Member of the program committee of ECTA 2019 - 11th International Conference on Evolutionary Computation Theory and Applications.
- 2018 Organizer of the Railway Transport stream in ROADEF 2018 - 19th conference ROADEF of the French society of operations research and decision aid.
- 2018 Member of the program committee of ANTS 2018 - 11th International Conference on Swarm Intelligence.
- 2018 Member of the program committee of EvoCOP 2018 - the 18th European Conference on Evolutionary Computation in Combinatorial Optimisation.
- 2017 Member of the program committee of ATMOS 2017 - the 17th Workshop on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems.
- 2017 Member of the program committee of EvoCOP 2017 - the 17th European Conference on Evolutionary Computation in Combinatorial Optimisation.
- 2016-2017 Member of the organization committee of RailLille 2017 - 7th International Conference on Railway Operations Modelling and Analysis.
- 2016 Member of the program committee of ANTS 2016 - 10th International Conference on Swarm Intelligence, track on ant colony optimization and other non-PSO optimization methods.
- 2015 Member of the program committee of GECCO 2015 - Genetic and Evolutionary Computation Conference, track on ant colony optimization and swarm intelligence.
- 2013 Member of the program committee of GECCO 2013 - Genetic and Evolutionary Computation Conference, track on evolutionary combinatorial optimization and meta-heuristics.
- 2013 Participant to the organization of XXVI EURO - INFORMS Joint International Conference, at Sapienza University, Rome, Italy.

- 2012 Member of the program committee of GECCO 2012 - Genetic and Evolutionary Computation Conference, track on evolutionary combinatorial optimization and metaheuristics, and of ANTS 2012 - Eighth International Conference on Swarm Intelligence.
- 2011 Member of the program committee of GECCO 2011 - Genetic and Evolutionary Computation Conference, track on combinatorial optimization and metaheuristics.
- 2010 Member of the program committee of GECCO 2010 - Genetic and Evolutionary Computation Conference, track on Combinatorial Optimization and Metaheuristics, and of ANTS 2010 - Fifth International Workshop on Ant Colony Optimization and Swarm Intelligence.
- 2009 Member of the program committee of GECCO 2009 - Genetic and Evolutionary Computation Conference, track on combinatorial optimization and metaheuristics, and of SLS 2009 - Engineering Stochastic Local Search Algorithms: Designing, Implementing and Analyzing Effective Heuristics.
- 2007 Member of the program committee of GECCO 2007 - Genetic and Evolutionary Computation Conference, track on ant colony optimization, swarm intelligence, and artificial immune systems.
- 2004 Participant to the organization of The Tenth International Conference on Stochastic Programming, at the University of Arizona, Tucson, USA.
- 2003 Participant to the organization of the 34th AIRO conference, at Università Ca' Foscari di Venezia, Venice, Italy.

## Editorial Activity for International Journals

### Editorial board membership

- Since 2020 *IET Intelligent Transport Systems*
- Since 2017 *Journal of Advanced Transportation*

### Participation to guest editorial board for special issues

Simulation and Optimization for Railway Operations Management, *Journal of Advanced Transportation*, 2018

### Referee activity

*Annals of Operations Research, Artificial Life journal, Complexity, Computers and Mathematics with Applications, Computers & Graphics, Computers & Industrial Engineering, Constraints Journal, European Journal of Operational Research, Expert Systems, IEEE Computational Intelligence Magazine, IEEE Transactions on Evolutionary Computation, IEEE Transactions on Systems Man and Cybernetics, IEEE Transactions on Vehicular Technology, European Journal of Transport and Infrastructure Research, IET Intelligent Transport Systems, Information Sciences, International Journal of Geographical Information Science, International Journal of Rail Transportation, Journal of Air Transport Management, Journal of Artificial Intelligence Research, Journal of Experimental & Theoretical Artificial Intelligence, Journal of Global Optimization, Journal of Rail Transport Planning & Management, Journal of the Operational Research Society, Journal of Zhejiang University Science C (Computers & Electronics), Mathematical Problems in Engineering, Nonlinear Processes in Geophysics, Optimization Letters, Swarm and Evolutionary Computation, Swarm Intelligence, Transactions on Parallel and Distributed Systems, Transportation Research Part A, Transportation Research Part B, Transportation Research Part C, Transportation Research Part E.*

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## Referee Activity for Scientific and Research Institutions

- 2020 Research project reviewer: Deutsche Forschungsgemeinschaft (DFG).
- 2010 Research project reviewer: The Netherlands Organisation for Scientific Research (NWO).

### Participation to doctoral committees

- 2020 Doctoral committee member: Rémi Lucas, Institut Polytechnique de Paris, France.
- 2020 Committee member for first year PhD research plan defense: Michael Nold, Swiss Federal Institute of Technology Zurich - ETH Zurich, Switzerland.
- 2020 Doctoral committee member: Florian Schanzenbächer, Université Paris-Est, France.
- 2018 Doctoral committee member: Nadjla Ghaemi, TU Delft, the Netherlands.
- 2017 Doctoral committee member: Stefano Costanzo, Università di Trieste, Italy.

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## Research supervision

### Post-doctoral researchers supervision

- 2020-now Supervision of Abbas Hamze, Université Gustave Eiffel, France: *Railway traffic management*.
- 2020-now Supervision of Ahmed Kadri, Université Gustave Eiffel, France: *Shuttle on demand*.
- 2019-2020 Supervision of Peng Guo, IFSTTAR, France: *Railway traffic management*.
- 2017-2019 Supervision of Samuel Deleplanque, IFSTTAR, France: *Real-time management of railway yards*.
- 2014-2015 Supervision of Rahimeh Neamatian-Monemi, IFSTTAR, France: *Multi-objective optimization for the quantification of capacity of railway nodes*.

### PhD students supervision

- 2020-now Supervision of Reza Shahin, COSYS-ESTAS, Université Gustave Eiffel, France: *Optimized management of a fleet of electric autonomous vehicles*.
- 2020 Supervision of Federico Naldini, Università Di Bologna, Italy: *Mataheuristic algorithms for minimizing delay and energy consumption in real-time railway traffic management*.
- 2017-2020 Supervision of Franck Kamenga, COSYS-ESTAS, IFSTTAR, France: *Local integrated optimization of rolling stock rostering and train movements*.
- 2014-2017 Supervision of Kaba Keita, COSYS-ESTAS, IFSTTAR, France: *Decomposition of large-scale problems in the operational management of railway traffic*.
- 2015-2017 Supervision of Teresa Montrone, Università del Salento, Italy: *Energy consumption minimization on a railway network*.
- 2015-2017 Supervision of Nicola Coviello, Università La Sapienza, Italy: *Evaluating railway capacity through timetable analysis: methodologies and application cases*.
- 2014-2016 Supervision of Diego Arenas, COSYS-ESTAS, IFSTTAR, Railenium, France: *Timetable re-optimization in case of maintenance activities on the railway infrastructure*.
- 2014-2016 Supervision of Marcella Samà, Università Roma 3, Italy: *Development of models and algorithms for public transports*.



## Master students supervision

- 2020 Supervision of the Master Thesis of Anik Chakrabarty, CY Cergy Paris Université, France: *Optimization of service modeling for real-time railway traffic management.*
- 2020 Supervision of the first year Master internship of Louise Penz, Université Grenoble Alpes, France: *Design, implementation and evaluation of algorithms for the selection of alternative train routes.*
- 2019 Supervision of the Master Thesis of Quentin Perrachon, Sorbonne Université, France: *Model of a distributed system for railway dispatching.*
- 2018 Supervision of the Master Thesis of Filippo Sorino, Università Roma 3, Italy: *Studies on the applicability of the RECIFE-MILP algorithm to large instances.*
- 2017 Supervision of the advanced training of Elisa Marcelli, Università di Camerino, Italy: *State of the art and modeling of railway traffic as autonomous or autonomic system.*
- 2016 Supervision of the Master thesis of Cristina Bernardis, Università di Trieste, Italy: *Analysis of the impact of speed variation dynamics on the optimization of the real-time railway traffic management problem.*
- 2016 Supervision of the Master thesis of Martino Marangon, Università di Trieste, Italy: *First steps toward the analysis of the impact of speed variation dynamics on the optimization of the real-time railway traffic management problem.*
- 2015 Supervision of the Master thesis of Cecilia Negri, Università La Sapienza, Italy: *Analysis of the interoperability and of the automatism of big perturbations of railway traffic.*
- 2013 Supervision of the final internship for the bachelor of science degree of Guillaume Douchet, Université Lille 1, France: *CPLEX parameter tuning to boost the performance of a heuristic algorithm for the real-time railway traffic management problem.*
- 2010 Supervision of the Master thesis of Gianpiero Francesca, Università degli Studi del Sannio, Italy: *A Study on Operator Selection for a Memetic Algorithm Applied to the QAP.*

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## Personal skills

### Languages

- Italian native language
- English proficient (spoken and written)
- French proficient (spoken and written)

### Computer skills

- Programming languages ASP, SQL, Visual Basic, R, Bash, Mosel, C and C++
- Modeling languages SysML, RailML
- Software Microsoft office, xIPrint Paris, xIPrint Miami, Kofax Ascent, OpenTrack
- Operating systems Windows, Linux

## Publications

### Journals

- [1] E. Marcelli and P. Pellegrini. Literature review toward decentralized railway traffic management. *IEEE Intelligent Transportation Systems Magazine*, 2020.
- [2] K. Keita, P. Pellegrini, and J. Rodriguez. A three-step benders decomposition for the real-time railway traffic management problem. *Journal of Rail Transport Planning & Management*, 13, 2020.
- [3] R. Licciardello, N. Adamko, S. Deleplanque, P. Hosteins, R. Liu, P. Pellegrini, A. Peterson, M. Wahlborg, and M. Zatkan. Integrating yards, network and optimisation models towards real-time rail freight yard operations. *Ingegneria Ferroviaria*, 6:417–440, 2020.
- [4] P. Pellegrini, G. di Tollo, and R. Pesenti. Scheduling ships movements within a canal harbor. *Soft Computing*, 23(9):2923–2936, 2019.
- [5] P. Pellegrini, R. Pesenti, and J. Rodriguez. Efficient train re-routing and rescheduling: Valid inequalities and reformulation of RECIFE-MILP. *Transportation Research Part B: Methodological*, 120:33–48, 2019.
- [6] T. Montrone, P. Pellegrini, and P. Nobili. Real-time energy consumption minimization in railway networks. *Transportation Research Part D: Transport and Environment*, 65:524–539, 2018.
- [7] D. Arenas, P. Pellegrini, S. Hanafi, and J. Rodriguez. Timetable rearrangement to cope with railway maintenance activities. *Computers and Operations Research*, 95:123–138, 2018.
- [8] P. Pellegrini, G. Marlière, and J. Rodriguez. RECIFE-SAT: a MILP-based algorithm for the railway saturation problem. *Journal of Rail Transport Planning & Management*, 7(1-2):19–32, 2017.
- [9] P. Pellegrini, T. Bolić, L. Castelli, and R. Pesenti. SOSTA: an effective model for the Simultaneous Optimisation of airport SloT Allocation. *Transportation Research Part E: Logistics and Transportation Review*, 99:34–53, 2017.
- [10] M. Samà, P. Pellegrini, A. D’Ariano, J. Rodriguez, and D. Pacciarelli. On the tactical and operational train routing selection problem. *Transportation Research Part C: Emerging Technologies*, 76:1–15, 2017.
- [11] P. Pellegrini, G. Marlière, and J. Rodriguez. A detailed analysis of the actual impact of real-time railway traffic management optimization. *Journal of Rail Transport Planning & Management*, 6(1):13–31, 2016.
- [12] M. Samà, P. Pellegrini, A. D’Ariano, J. Rodriguez, and D. Pacciarelli. Ant colony optimization for the real-time train routing selection problem. *Transportation Research Part B: Methodological*, 85:89–108, 2016.
- [13] E. Quaglietta, P. Pellegrini, R.M.P. Goverde, T. Albrecht, B. Jaekel, G. Marlière, J. Rodriguez, T. Dollevoet, B. Ambrogio, D. Carcasole, M. Giaroli, and G. Nicholson. The ON-TIME real-time railway traffic management framework: A proof-of-concept using a scalable standardised data communication architecture. *Transportation Research Part C: Emerging Technologies*, 63:23–50, 2016.
- [14] P. Pellegrini, G. Marlière, R. Pesenti, and J. Rodriguez. RECIFE-MILP: an effective MILP-based heuristic for the real-time railway traffic management problem. *Intelligent Transportation Systems, IEEE Transactions on*, 16(5):2609–2619, 2015.
- [15] P. Pellegrini, G. Marlière, and J. Rodriguez. Optimal train routing and scheduling for managing traffic perturbations in complex junctions. *Transportation Research Part B: Methodological*, 59C:58–80, 2014.
- [16] P. Pellegrini, F. Mascia, T. Stütze, and M. Birattari. On the sensitivity of reactive tabu search to its meta-parameters. *Soft Computing*, 18(1):2177–2190, 2014.
- [17] A. Ellero and P. Pellegrini. Are traditional forecasting models suitable for hotels in Italian cities? *International Journal of Contemporary Hospitality Management*, 26(3):383–400, 2014.
- [18] F. Mascia, P. Pellegrini, T. Stütze, and M. Birattari. An analysis of parameter adaptation in reactive tabu search. *International Transactions in Operational Research*, 21(1):127–152, 2014.

- [19] P. Pellegrini and J. Rodriguez. Single European Sky and Single European Railway Area: A system level analysis of air and rail transportation. *Transportation Research Part A: Policy and Practice*, 57:64–86, 2013.
- [20] R. Chevrier, P. Pellegrini, and J. Rodriguez. Energy saving in railway timetabling: A bi-objective evolutionary approach for computing alternative running times. *Transportation Research Part C: Emerging Technologies*, 37:20–41, 2013.
- [21] P. Pellegrini, L. Castelli, and R. Pesenti. Metaheuristic algorithms for the simultaneous slot allocation problem. *IET Intelligent Transport Systems*, 6(4):453–462, 2012.
- [22] P. Pellegrini, T. Stützle, and M. Birattari. A critical analysis of parameter adaptation in ant colony optimization. *Swarm Intelligence*, 6(1):23–48, 2012.
- [23] L. Castelli, P. Pellegrini, and R. Pesenti. Airport slot allocation in Europe: economic efficiency and fairness. *International Journal of Revenue Management*, 6(1/2):28–44, 2012.
- [24] P. Pellegrini and D. Favaretto. Quantifying the exploration performed by metaheuristics. *Journal of Experimental & Theoretical Artificial Intelligence*, 24(2):247–266, 2012.
- [25] P. Pellegrini, L. Castelli, and R. Pesenti. Secondary trading of airport slots as a combinatorial exchange. *Transportation Research Part E: Logistics and Transportation Review*, 48(5):1009–1022, 2012.
- [26] A. Ellero and P. Pellegrini. Computer language efficiency via data envelopment analysis. *Advances in Operations Research*, 2011. ID 154516.
- [27] L. Castelli and P. Pellegrini. An AHP analysis of air traffic management with target windows. *Journal of Air Transport Management*, 17(2):68–73, 2011.
- [28] P. Pellegrini and E. Moretti. A computational analysis on a hybrid approach: quick-and-dirty ant colony optimization. *Applied Mathematical Sciences*, 3(23):1127–1140, 2009.
- [29] M. Birattari, P. Pellegrini, and M. Dorigo. On the invariance of ant colony optimization. *IEEE Transactions on Evolutionary Computation*, 11(6):732–742, 2007.
- [30] D. Favaretto, E. Moretti, and P. Pellegrini. Ant colony system for a VRP with multiple time windows. *Journal of Interdisciplinary Mathematics*, 10(2):263–284, 2007.
- [31] D. Favaretto, E. Moretti, and P. Pellegrini. An ant colony system approach for variants of the traveling salesman problem with time windows. *Journal of Information and Optimization Sciences*, 27(1):35–54, 2006.

### Book chapters

- [32] T. Stützle, M. López-Ibáñez, P. Pellegrini, M. Maur, M. A. Montes de Oca, M. Birattari, and M. Dorigo. Parameter adaptation in ant colony optimization. In Y. Hamadi, E. Monfroy, and F. Saubion, editors, *Autonomous Search*, pages 191–215. Springer, Berlin, Germany, 2012.
- [33] P. Pellegrini and M. Birattari. Out-of-the-box and custom implementation of metaheuristics. A case study: the vehicle routing problem with stochastic demand. In M. Köppen et al., editor, *Intelligent Computational Optimization in Engineering: Techniques & Applications*, volume 366 of *Studies in Computational Intelligence*, pages 273–295. Springer, Berlin, Germany, 2011.

### Conference proceedings

- [34] Q. Perrachon, R. Chevrier, and P. Pellegrini. Experimental study on the viability of decentralized railway traffic management. In *WIT Transactions on The Built Environment (Proceedings of CompRail 2020 - Computers in Railways XVII)*, volume 199, pages 337–344, 2020.
- [35] J. Rodriguez, G. Marlière, S. Sobieraj Richard, and P. Pellegrini. An enhanced constraint programming approach for the real-time railway traffic management problem. In *WCRR 2019, 12th World Congress of Railway Research, Tokyo, Japan*, 2019.
- [36] F. Kamenga, P. Pellegrini, J. Rodriguez, B. Merabet, and B. Houzel. Integrating train unit shunting problem, train maintenance and routing. In *WCRR 2019, 12th World Congress of Railway Research, Tokyo, Japan*, 2019.
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*Operations Modelling and Analysis - RailNorrköping 2019, Norrköping, Sweden*, pages 1305–1320, 2019.

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