



Joaquin Rodriguez

Personal information

Name	Joaquin Rodriguez
E-mail	joaquin.rodriguez@univ-eiffel.fr
Nationality	French
Date of birth	02-10-1960
Position	Research director, COSYS-ESTAS, Univ. Gustave Eiffel (ex IFSTTAR), France Head of the COSYS-ESTAS laboratory

Education

- 2004 **HDR (Habilitation à Diriger des Recherches) in Computer Science**,
Université de Valenciennes, Valenciennes, France,
Thesis title : *Modélisation pour le diagnostic et la gestion du trafic dans les réseaux de transport (Modeling for the diagnosis and traffic management in transport networks)*.
- 1983 – 1986 **PhD in Automation and Signal processing**,
University of Technology of Compiègne, Compiègne, France,
Thesis title : *Traitement et analyse des structures dans les signaux : application aux signaux acoustiques émis lors de l'ébullition du sodium dans un réacteur nucléaire (Processing and analysis of structures in signals : application to acoustic signals from sodium boiling in a nuclear reactor)*.
- 1982 – 1983 **Post-Graduate in Automation and Signal processing**,
University of Technology of Compiègne, Compiègne, France,
Thesis title : *Modélisation des signaux de températures par des processus stochastiques, diagnostic et classification par des méthodes d'analyse de données (Modeling of temperature signals by stochastic processes, diagnosis and classification by data analysis methods)*.
- 1978 – 1983 **Engineering Degree in Computer Science**,
University of Technology of Compiègne, Compiègne, France,
Project Graduation merged with Post-Graduate thesis.

Research interests

Optimization, modeling, artificial intelligence, diagnosis, simulation, system engineering, scheduling theory, constraint programming, integer linear programming, transportation, public transport planning, railway traffic management, transport automation, railway safety management.

Summary of scientific production

Nature of the contribution	total	since 2016
Articles published on international journals (peer-reviewed)	29	11
Book chapters	7	0
Articles published in the proceedings of international conferences (peer-reviewed)	81	13
Abstracts published in the proceedings of international conferences and workshops	39	11
Technical reports	69	5

Work experience

Research

- 2004 – now **Research Director**, *IFSTTAR, COSYS-ESTAS*, (Institut Français des Sciences et Technologies des Transports, de l'Aménagement et des Réseaux), Lille, France.
- 1989 – 2004 **Researcher**, *IFSTTAR, COSYS-ESTAS*, (Institut Français des Sciences et Technologies des Transports, de l'Aménagement et des Réseaux), Lille, France.
- 1987 – 1989 **Post-doctoral researcher**, *UCMB*, (Unité de Conformation des Macromolécules Biologiques, Université Libre de Bruxelles, Bruxelles, Belgium).
- 1983 – 1986 **Doctoral researcher**, *Heudiasyc*, Heuristique et Diagnostic des Systèmes Complexes, UMR-CNRS 7253, University of Technology of Compiègne, Compiègne, France.

Industry and army

- 1986 **Parachutist dragon**, *Development and maintenance of frequency range management software for military communications*, Military service at 13rd Dragon Parachutist Regiment (13e RDP), Dieuze, France.
- 1983 **Engineer internship (6 month)**, *Study and realization of a communication software for transactions between a mainframe and an ATM (Automated Teller Machine)*, NCR (National Cash Register) Comporation , La Defense - Paris, France.

Institutional responsibilities

- 2020 – now Member of the board of Certifer - SA.
- 2013 – now Head of the COSYS-ESTAS laboratory, Université Gustave Eiffel.
- 2005 – now Member of the Board of IAROR - International Association of Railway Operations Research.

Teaching experience

- 2020 – 2021 Course «Introduction to the railway system» (engineer course in Industrial Engineering, teaching module «Logistic et mobility 4.0», 6 hours). École supérieure d'ingénieurs en électrotechnique et électronique (ESIEE), Paris, France.
- 2018 – 2019 Teaching module «Optimisation Models for Railway Planning and Operations» (master course of the Golden School program of School of Traffic and Transportation, 16 hours). Beijing Jiaotong University, China.
- 2017 – 2019 Course «Railway services optimisation» (engineer course of the Logistic and Transport branch, 9 hours), École Centrale de Lille, Villeneuve d'Ascq, France.

- 2016 – 2018 Teaching module «Components, Systems and Models for Planning and Operations of Guided Transportation Modes» (undergraduate course of the International Summer School on Traffic and Transportation, 16 hours). Beijing Jiaotong University, China.
- 2010 – 2020 Course «Optimisation, fluidification» (master course of the teaching module «Operation of rail and guided transport» - TRFER, Master VET, 3 hours). Université de Marne la Vallée-École Nationale des Ponts et Chaussées (ENPC), Marne la Vallée, France.
- 2010 – 2014 Teaching module «Operation and traffic management» (master course of the Advanced Master in Railway and Urban Transport System Engineering, lecturer / 3 hours, module coordinator / 30 hours) École Nationale des Ponts et Chaussées (ENPC), Marne-la-Vallée, France.
- 2009 – 2011 Course «Railway operation» (engineer course of the teaching module «Optimization of the Transport Infrastructures Usage», 3 hours). École Nationale des Travaux Publics de l'État (ENTPE), Vaulx-en-Velin France.
- 2005 – 2011 Course «Operation of guided transports», (master course of the teaching module «Introduction to the transport systems engineering» - SYSTA, Master VET, 2 hours) Université de Marne la Vallée-École Nationale des Ponts et Chaussées (ENPC), Marne-la-Vallée, France.
- 1998 – 2004 Course «Constraints based modelling» (engineer course, 4 hours), École des Hautes Études Industrielles, Lille, France
- 2000 – 2003 Course «Operation and safety of railways» (engineer course of the Transport-Production-Robotics branch, 10 hours), École Nationale Supérieure de Bourges (ENSIB), Bourges, France.
- 1996 – 1997 Course «Diagnostics of electronic systems» (engineer course , 4 hours), École des Hautes Études Industrielles (HEI), Lille, France.
- 1984 – 1985 Teaching module «Information management and databases» (engineer continuous training course for the engineers' Bull compagny, course / 15 hours, tutorials / 15 hours). University of Technology of Compiègne, Compiègne, France.
- 1984 – 1985 Teaching module «Logic circuits and microprocessors» (engineer tutorials in Computer Science and Biomedical Engineering, 30 hours). University of Technology of Compiègne, Compiègne, France.
- 1983 – 1984 Teaching module «Programming and algorithms», (engineer undergraduate tutorials, 30 hours). University of Technology of Compiègne, Compiègne, France.

Personal fellowships

- 1983 – 1986 Doctoral award from the French National Centre for Scientific Research (CNRS).

Research project and initiative participation

European projects and initiatives

- 2020 – 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-IP2-01-2019-881806. WP8 TMS services.
- 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. WP6 Traffic Management evolution.

- 2017 – 2019 Optimised Real-time Yard and Network Management (OptiYard), H2020-S2RJU-OC-2017-777594.
- 2013 – 2017 Capacity4Rail - Increasing Capacity 4 Rail networks through enhanced infrastructure and optimised operations (CAPACITY4RAIL), FP7-SST-2013-RTD-1-605650.
- 2011 – 2014 Optimal Networks for Train Integration Management across Europe (ON-TIME), FP7-SCP0-GA-2011-265647. Lead of Work Package 5 «Operation management of large scale disruptions», Lead of Task 4.5 «Algorithms and tools for automatic conflict detection and resolution».
- 2004 – 2005 EURNEX - European Rail Research Network of Excellence, Work Package «Identification of new joint projects», Task leader.
- 2003 – 2005 SAMNET - Safety Management and interoperability thematic NETWORK, Work Package «Strategy plan», WP leader.

National and regional 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). Project leader.
- 2006 – 2008 Research on railway infrastructure capacity (Specific action RECIFE 2 - REcherche sur la Capacité des Infrastructures FERroviaires), Nord-Pas-de-Calais region contract. Project leader.
- 2002 – 2003 Research on railway infrastructure capacity (RECIFE - REcherche sur la Capacité des Infrastructures FERroviaires). Nord-Pas-de-Calais region contract. Project leader.
- 2001 – 2006 New Research Action for Transport program (Programme «Action Nouvelle de Recherche pour les Transports»). Nord-Pas-de-Calais region contract. Project leader.
- 1998 – 2000 Model based diagnosis integrating probabilistic data («GRRT/SAFIR» Diagnostic à base de modèles intégrant des données probabilistes). Nord-Pas-de-Calais region contract. Project leader.
- 1998 – 2000 Railway node fluidification («GRRT/SAFIR» Fluidification de noeuds ferroviaires). Nord-Pas-de-Calais region contract. Project leader.
- 1996 – 1998 Decision support system for the railway circulations fluidification (SAFIR - Système d'Aide à la Fluidification des clrculations feRroviaires), Programme de REcherche et D'Innovation dans les Transports terrestres (PREDIT). Project leader

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). French Railways (SNCF).
- 2018 – 2020 Link Ingetime - RECIFE (LIERE - Liaison Ingetime Et REcife), Rail Concept.
- 2017 – 2020 Industrial Training Agreements through Research contract for Frank Kamenga PhD (Convention CIFRE). National Association Research Technology (ANRT) - French Railways (SNCF Réseau - DGEX Solutions)).
- 2017 – 2020 Industrial Training Agreements through Research contract for Sélim Cornet PhD (Convention CIFRE). National Association Research Technology (ANRT) - French Railways (SNCF Transilien).
- 2015 – 2018 Industrial Training Agreements through Research contract for Lucile Brethomé PhD (Convention CIFRE). National Association Research Technology (ANRT) - French Railways (SNCF I & R).

- 2014 – 2016 IRT Railenium contract for Luis Diego Arenas Pimentel PhD.
- 2012 – 2015 Industrial Training Agreements through Research contract for Pierre-Antoine Cuniasse PhD (Convention CIFRE). National Association Research Technology (ANRT) - French Railways (SNCF Transilien).
- 2012 – 2013 Timetable Engineering. Réseau Ferré de France (French Railway Infrastructure Manager) contract. Project leader.
- 2007 – 2009 RESCIPROC - REcherche sur la Sécurité de la PROtection des Chantiers (Research on site protection safety), French Railways (SNCF). Project leader.
- 1997 Study of the line speed profiles of a rubber-tired tram. Paris transport authority (Syndicat des transport parisien). Project leader.
- 1995 – 1998 Design of a decision support system for public transport operators. Société des Transports Intercommunaux de Bruxelles - STIB (Brussels Intercommunal Transport Company). Project leader.
- 1995 – 1998 Industrial Training Agreements through Research contract for Frédéric Lefebvre PhD (Convention CIFRE). National Association Research Technology (ANRT) - CS-Transport (Ansaldo STS).
- 1995 – 1998 ELODI - ÉLaboration de Dagnostics (Diagnostics making). CS-Transport (Ansaldo STS) contract. Project leader.
- 1994 Study of a regulation principle by progressive blocking for line 2 of the Lille VAL. Lille Public transport Company Transpole. Project leader.

Conference organization

- 2021 Member of the scientific advisory committee of the 9th International Conference on Railway Operations Modelling and Analysis RailBeijing 2021.
- 2019 Member of the scientific advisory committee of the 8th International Conference on Railway Operations Modelling and Analysis RailNorrköping 2019.
- 2018 Member of the scientific committee of the Symposium on Rail Transport Demand Management.
- 2017 Conference Chair of RailLille 2017 - 7th International Conference on Railway Operations Modelling and Analysis.
- 2017 – now Member of the technical committee of IEEE ITS Railroad Systems and Applications conference.
- 2012 – 2011 Member of the strategic committee of the Forum Systems and software for ICT in transport (Systèmes et logiciels pour les NTIC dans le transport).
- 2011 Editor and member of the program committee of the 4th International Conference on Railway Operations Modelling and Analysis RailRome2011.
- 2009 Editor and member of the program committee of the 3rd International Conference on Railway Operations Modelling and Analysis RailZurich2009.
- 2006 – now Member of the program committee of the «Lambda Mu» conference of Institute for Risk Management (IMdR - Institut pour la Maîtrise des Risques).
- 2006 – 2008 Member of the scientific committee of the International Workshop on Operations Research (IWOR'06) of IMECS (International MultiConference of Engineers and Computer Scientists).
- 1996 – 2008 Member of the scientific advisory committee of the Computers in Railways conferences.
- 1998 Member of the organization committee of the Transport Session of IEEE-System Man and Cybernetic, Computational Engineering in Systems Applications'98.

Editorial Activity for International Journals

Editorial board membership

- 2017 – now Associated editor of the *Journal of Rail Transport Planning & Management*.
- 2015 – now *Journal of Transportation Technologies*.
- 2007 – 2013 *The Open Transportation Journal*.

Participation to guest editorial board for special issues

- 2017 Guest editor for RailLille 2017 special issue of the *Journal of Rail Transport Planning & Management*.
- 2010 Guest editor for two Railway special issues of the journal *Recherche Transports et Sécurité* (Research Transport and Safety).

Selection or evaluation committees

- 2020 Jury member of TRA VISIONS 2020 Senior Researcher competition of *Transport Research Arena*.
- 2018 – now Member the scientific committee evaluation of scientific staff of the french Ecological Transition Ministry (CESAAR committee).
- 2018 Jury member of *Prix Robert Faure* of the *Société Française de Recherche Opérationnelle et d'Aide à la Décision*.
- 2017 Member of the committee evaluation of the call “Hosting talents” and “Industrial chairs” of Lille European Metropolis (MEL).

Referee activity

Transportation Science, Transportation Research - part A Policy and Practice, Transportation Research - part B Methodological, Transportation Research - part C Emerging Technologies, Transportation Research Record, Nature - Scientific Reports, Journal of Rail Transport Planning & Management, Advanced Engineering Informatics, Computers & Industrial Engineering, 4OR, Energies, Sustainability, Mathematical Problems in Engineering, European Journal of Operational Research, Networks and Spatial Economics, Journal of Advanced Transportation, Journal of Rail and Rapid Transit, Mathematical and Computer Modelling, The Open Transportation Journal, IET Intelligent Transport Systems, Recherche Transports et Sécurité, IEEE - Transactions on Intelligent Transportation Systems, IEEE - Intelligent Transportation Systems Magazine, Journal of Intelligent Transportation Systems, Simulation Modelling Practice and Theory, Annals of Operations Research.

Referee Activity for Scientific and Research Institutions

Participation to doctoral committees

- 2020 Doctoral committee member : Marie Milliet de Faverges, Conservatoire National des Arts et Métiers University, Paris, France.
- 2018 Doctoral committee member : Sofie Van Thielen, KU Leuven, Belgium.
- 2018 Doctoral committee member : Estelle Altazin, École Nationale Supérieure des Mines de Saint-Étienne, France.
- 2018 Doctoral committee member : Juliette Pochet, Paris-Saclay University, France.

- 2017 Doctoral committee member : Walid Behiri, Paris-Est University, France.
- 2016 HDR committee member : Pierre Oivier Vandanjon, NantesUniversity, France.
- 2015 Doctoral committee member : Lijie Bai, University, France.
- 2014 Doctoral committee chair : Baisi Liu, University, France.
- 2014 Doctoral committee member : Guoliang Zhu, University of Technology of Troye, France.
- 2006 Doctoral committee member : Julie Beugin, University, France.
- 2006 Doctoral committee member : Mohamed-Amine Maalej, Valenciennes University, France.
- 2006 Doctoral committee member : Jean-Louis Boulanger, University, France.
- 1998 Doctoral committee member : Arnaud Lefort, University, France.

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, COSYS-ESTAS, IFSTTAR, France : *Real-time management of railway yards.*
- 2014 – 2015 Supervision of Rahimeh Neamatian-Monemi, COSYS-ESTAS, IFSTTAR, France : *Multi-objective optimization for the quantification of capacity of railway nodes.*
- 2011 – 2014 Supervision of Paola Pellegrini COSYS-ESTAS, IFSTTAR, France : *MILP formulation and resolution of the real-time Railway Traffic Management Problem.*

PhD students supervision

- 2017 – now Supervision of Franck Kamenga, Lille University, France : *Local integrated optimization of rolling stock rostering and train movements.*
- 2017 – 2020 Supervision of Sélim Cornet, Lille University, France : *Robust timetables for dense railway networks.*
- 2015 – 2018 Supervision of Lucile Brethomé, École Centrale de Lille, France : *Passenger-oriented modelling and optimization of the railway transportation plan in a mass transit system.*
- 2015 – 2017 Supervision of Nicola Coviello, Università La Sapienza, Italy : *Evaluating railway capacity through timetable analysis : methodologies and application cases.*
- 2014 – 2017 Supervision of Kaba Keita, Lille University, France : *Decomposition of large-scale problems in the operational management of railway traffic.*
- 2014 – 2016 Supervision of Diego Arenas, Valenciennes University, 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.*
- 2012 – 2015 Supervision of Pierre-Antoine Cuniasse, Lyon University, France : *Modeling of the railway traffic using hydrodynamic approaches.*
- 2010 – 2014 Supervision of Aurélien Lejeune, Lille University, France : *Multi-criteria optimization of the real-time railway traffic management.*

- 2005 – 2008 Supervision of Jean David Roubach, École Centrale de Lille, France : *Mediator architecture for the integration of information sources of the railway safety management.*
- 2003 – 2007 Supervision of Fabien Degoutin, Valenciennes University,,France : *Optimization of the operation of railway infrastructure.*
- 2000 – 2003 Supervision of Xavier Delorme, Valenciennes University,France : *Modeling and solving of problems related to the operation of railway infrastructures.*
- 1996 – 2000 Supervision of Frédéric Lefebvre, Valenciennes University, France : *Contribution to modeling for the diagnosis of complex systems : Application to the signaling of high-speed lines.*
- 1995 – 1997 Supervision of Fernando Dutra-Michel, École Centrale de Paris, France : *Replanning railway services after to disruptions to rail traffic.*
- 1989 – 1992 Supervision of Sylvain Piéchowiak, Valenciennes University, France : *Knowledge-based diagnostic system based on first principles : Application to the diagnosis of electronic driving and safety equipment in guided transport.*

Personal skills

Languages

French	native language
English	fluent (spoken and written)
Spanish	fluent (spoken and written)

Computer skills

Programming languages	Fortran, Pascal, APL, Smalltalk, C and C++
Modeling languages	UML, SysML, RailML
Operating systems	Windows, Linux

Publications

Journals

- [1] 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 :100170, 2020.
- [2] S. Cornet, C. Buisson, F. Ramond, and J. Rodriguez. Comment estimer la durée d'arrêt des trains en gare en zone dense. *Revue Générale des Chemins de Fer*, (302), 2020.
- [3] S. Cornet, C. Buisson, F. Ramond, P. Bouvarel, and J. Rodriguez. Methods for quantitative assessment of passenger flow influence on train dwell time in dense traffic areas. *Transportation Research Part C : Emerging Technologies*, 106 :345 – 359, 2019.
- [4] 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.
- [5] 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.
- [6] 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.
- [7] 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.

- [8] A. Lejeune, R. Chevrier, P. O. Vandanjon, and J. Rodriguez. Towards eco-aware timetabling : evolutionary approach and cascading initialisation strategy for the bi-objective optimisation of train running times. *IET Intelligent Transport Systems*, 10(7) :483–494, 2016.
- [9] E. Quaglietta, P. Pellegrini, R. 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.
- [10] 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.
- [11] Marcella 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.
- [12] P.-A. Cuniasse, C. Buisson, J. Rodriguez, E. Teboul, and D. Almeida. Analyzing railroad congestion in a dense urban network through the use of a road traffic network fundamental diagram concept. *Public Transport*, 7(3) :355–367, 2015.
- [13] 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.
- [14] T. Albrecht, B. Jaekel, E. Quaglietta, J. Rodriguez, and G. Nicholson. Ein optimales und modulares verkehrsmanagement für eisenbahnen. *El-Eisenbahningenieur*, 2015.
- [15] F. Pinton and J. Rodriguez. ON-TIME : un projet pour augmenter la satisfaction des clients des réseaux ferroviaires européens. *Revue Générale des Chemins de Fer*, (253), 2015.
- [16] P. Pellegrini, G. Marlière, and J. Rodriguez. Impact of the granularity of infrastructure representation in real-time traffic management. *Transportation Research Part B : Methodological*, 59 :58–80, 2014.
- [17] 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.
- [18] 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.
- [19] X. Delorme, X. Gandibleux, and J. Rodriguez. Stability evaluation of a railway timetable at station level. *European Journal of Operational Research*, 195(3) :780–790, 2009.
- [20] J. Rodriguez, X. Delorme, X. Gandibleux, G. Marlière, R. Bartusiak, F. Degoutin, and S. Sobieraj. Modèles et outils pour l’analyse de la capacité ferroviaire. *Recherche Transports Sécurité*, 95 :19–36, 2007.
- [21] J. Rodriguez. A constraint programming model for real-time train scheduling at junctions. *Transportation Research Part B : Methodological*, 41(1) :231–245, 2007.
- [22] S. Piechowiak and J. Rodriguez. The localization and correction of errors in models : a constraint-based approach. *Applied Intelligence*, 23(3) :153–164, 2005.
- [23] X. Delorme, X. Gandibleux, and J. Rodriguez. GRASP for set packing problems. *European Journal of Operational Research*, 153(3) :564–580, 2004.
- [24] J. Rodriguez. Programmation par contraintes pour la gestion du trafic ferroviaire. *Revue Génie Logiciel*, 63 :34–39, 2002.
- [25] X. Delorme, J. Rodriguez, and X. Gandibleux. Heuristics for railway infrastructure saturation. *Electronic Notes in Theoretical Computer Science*, 50(1) :39–53, 2001.
- [26] S. Piechowiak and J. Rodriguez. Compilation des contraintes booléennes n-aires et application aux CSPs dynamiques. *Revue d’Intelligence Artificielle*, 15(2) :219–245, 2001.
- [27] J. Rodriguez and S. Piechowiak. Un algorithme de diagnostic par suspension de contraintes. *Revue Européenne de diagnostic et sûreté de fonctionnement*, 1(1) :3–35, 1991.
- [28] M. Rooman, J. Rodriguez, and S. Wodak. Relations between protein sequence and structure and their significance. *Journal of Molecular Biology*, 213 :23–48, 1990.
- [29] M. Rooman, J. Rodriguez, and S. Wodak. Recurrent local structure motifs in proteins. *Journal of Molecular Biology*, 213 :1–22, 1990.

Book chapters

- [30] J. Rodriguez. *Liber Amicorum - Farewell address to Prof. Ingo Hansen*, chapter Scheduling theory and constraint programming applied to rail traffic management. TU Delft, 2012.
- [31] X. Gandibleux, Julien Jorge, X. Delorme, and J. Rodriguez. *Artificial Ants*, chapter An ant algorithm for measuring and optimizing the capacity of a railway infrastructure. ISTE Ltd and John Wiley & Sons Inc., 2010.
- [32] J. Rodriguez. *Timetable Planning and Information Quality*, chapter The contribution of state resources in a constraint-based scheduling model for conflict solving at railway junctions. WIT press, 2010.
- [33] J. Rodriguez. *Parole de chercheurs 2 : Sur nos territoires . . . l'éco-mobilité*, chapter Ferroviaire : optimiser l'utilisation de l'infrastructure. Danaé Science, 2009.
- [34] J. Rodriguez, G. Marlière, S. Sobieraj, and F. Zann. *Innovations dans les transports guidés urbains et régionaux*, chapter 4 :Optimisation de la gestion des circulations dans une gare de métropole. IC2 : Série Systèmes automatisés. Hermès Science Publications, 2010.
- [35] X. Gandibleux, Julien Jorge, X. Delorme, and J. Rodriguez. *Fourmis artificielles, des bases algorithmiques aux concepts et réalisations avancés*, chapter Algorithme de fourmis pour mesurer et optimiser la capacité d'un réseau ferroviaire, page 30 pp. Hermès, 2009.
- [36] J. Rodriguez. *Transportation Research Trends*, chapter Applying constraint programming to rail traffic management problems at junctions. Nova Science Publishers, Inc., NY,USA, 2007.

Conference proceedings

- [37] S. Cornet, C. Buisson, F. Ramond, P. Bouvarel, and J. Rodriguez. Assessing performance of train timetables in a mass transit context using a data-based simulation method. In *2020 IEEE Intelligent Transportation Systems Conference (ITSC)*, Rhodes, Greece, 2020.
- [38] S. Cornet, C. Buisson, F. Ramond, P. Bouvarel, and J. Rodriguez. Methods for quantitative assessment of passenger flow influence on train dwell time in dense traffic areas. In *8th International Conference on Railway Operations Modelling and Analysis - RailNorrköping 2019, Sweden*, pages 375–394, 2019.
- [39] G. Marlière, S. Sobieraj Richard, P. Pellegrini, and J. Rodriguez. A new constraint based scheduling model for real-time railway traffic management problem using conditional time-intervals. In *8th International Conference on Railway Operations Modelling and Analysis - RailNorrköping 2019, Sweden*, page 1173–1192, 2019.
- [40] F. Kamenga, P. Pellegrini, J. Rodriguez, B. Merabet, and B. Houzel. Train unit shunting : Integrating rolling stock maintenance and capacity management in passenger railway stations. In *8th International Conference on Railway Operations Modelling and Analysis - RailNorrköping 2019, Sweden*, page 721–740, 2019.
- [41] P. Hosteins, P. Pellegrini, and J. Rodriguez. Studies on the validity of the fixed-speed approximation for the real time railway traffic management problem. In *8th International Conference on Railway Operations Modelling and Analysis - RailNorrköping 2019, Sweden*, page 1305–1320, 2019.
- [42] F. Kamenga, P. Pellegrini, J. Rodriguez, B. Merabet, and B. Houzel. Integrating train unit shunting-problem, train maintenance and routing. In *12th World Congress on Railway Research*, Tokyo, Japon, 2019.
- [43] J. Rodriguez, G. Marlière, S. Sobieraj, and P. Pellegrini. An enhanced constraint programming approach for the real-time railway traffic management problem. In *12th World Congress on Railway Research*, Tokyo, Japon, 2019. Article invité.
- [44] S. Cornet, P. Bouvarel, C. Buisson, Sncf Réseau, F. Ramond, and J. Rodriguez. Simulation of communication based train control for robustness assessment of a mixed traffic management system. In *MOSIM 2018 – 12ème conférence internationale Modélisation, Optimisation et Simulation*, 2018.
- [45] P. Pellegrini, G. Marlière, R. Pesenti, and J. Rodriguez. A MILP reformulation for train routing and scheduling in case of perturbation. In A. Sforza and C. Sterle, editors, *Optimization and Decision Science : Methodologies and Applications. ODS 2017. Springer Proceedings in Mathematics & Statistics*, volume 217, pages 495–503. Springer, Cham, 2017.
- [46] P. Pellegrini, G. Marlière, R. Pesenti, and J. Rodriguez. Boosting the performance of railway traffic management through the reformulation of RECIE-MILP. In *7th International Conference on Railway Operations Modelling and Analysis - RailLille2017, Lille, France*, pages 505–520, 2017.

- [47] N. Coviello, P. Pellegrini, S. Sobieraj Richard, and J. Rodriguez. Stability of saturated timetables : the influence of buffer times. In *7th International Conference on Railway Operations Modelling and Analysis*.
- [48] K. Keita, P. Pellegrini, and J. Rodriguez. A benders decomposition algorithm for the real-time railway traffic management problem. In *7th International Conference on Railway Operations Modelling and Analysis - RailLille2017, Lille, France*, pages 486–504, 2017.
- [49] D. Arenas, P. Pellegrini, S. Hanafi, and J. Rodriguez. Timetable optimization during railway infrastructure maintenance. In *7th International Conference on Railway Operations Modelling and Analysis - RailLille2017, Lille, France*, pages 1093–1112, 2017.
- [50] B. Jaekel, P. Pellegrini, S. Sobieraj Richard, and J. Rodriguez. SysML formalization of the disruption management process in european railways,. In *Transportation Research Board 96th Annual Meeting - TRB., Washigton, D.C., Etats-Unis, January 2017*.
- [51] D. Arenas, P. Pellegrini, S. Hanafi, and J. Rodriguez. Train timetabling during infrastructure maintenance activities. In *IEEE International Conference on Intelligent Rail Transportation - ICIRT 2016, 2016*.
- [52] P. Pellegrini, G. Marlière, and J. Rodriguez. Analysis of the robustness of real-time railway traffic management optimization. In *RailTokyo 2015, 6th International Seminar on Railway Operations Modelling and Analysis, Tokyo, Japan, 2015*.
- [53] M. Samà, P. Pellegrini, A. D’Ariano, J. Rodriguez, and D. Pacciarelli. A routing filter for the real-time railway traffic management problem based on ant colony optimization. In *18th Euro Working Group on Transportation, EWGT 2015, Delft, The Netherlands, jul 2015*.
- [54] P.-A. Cuniasse, C. Buisson, J. Rodriguez, E. Teboul, and D. De Almeida. Modelling the onset of congestion due to stochastic behavior of the components of the railroads system. In *18th Euro Working Group on Transportation, EWGT 2015, Delft, The Netherlands, jul 2015*.
- [55] P. Pellegrini, G. Marlière, and J. Rodriguez. Real-time railway traffic management optimization and imperfect information : preliminary studies. In *Proceedings of the International Conference on Industrial Engineering and Systems Management (IEEE-IESM’2015)*, pages 55 – 60, Seville, Spain, October 21-23 2015. University of Seville, International Institute for Innovation, Industrial Engineering and Entrepreneurship (I⁴e²). ISBN 978-2-9600532-6-5.
- [56] P. Pellegrini, G. Marlière, and J. Rodriguez. Analysis of the robustness of real-time railway traffic management optimization. In N Tomii & C Hirai IA Hansen, editor, *6th international conference on railway operations modelling and analysis, RailTokyo2015, International Association of Railway Operations Research, Tokyo, Japan, 2015*.
- [57] E. Quaglietta, R.M.P. Goverde, T. Albrecht, B. Jaekel, G. Marlière, P. Pellegrini, J. Rodriguez, T. Dollevoet, B. Ambrogio, D. Carcasole, M. Giaroli, and G. Nicholson. Optimal management of railway perturbations by means of an integrated support system for real-time traffic control. In N Tomii & C Hirai IA Hansen, editor, *6th international conference on railway operations modelling and analysis, RailTokyo2015, International Association of Railway Operations Research, Tokyo, Japan, 2015*.
- [58] N. Besinovic, V. Cacchiani, T. Dollevoet, R. Goverde, D. Huisman, M. Kidd, L. Kroon, E. Quaglietta, J. Rodriguez, P. Toth, L. Veelenturf, and J. Wagenaar. Integrated decision support tools for disruption management. In N Tomii & C Hirai IA Hansen, editor, *6th international conference on railway operations modelling and analysis, RailTokyo2015, International Association of Railway Operations Research, Tokyo, Japan, 2015*.
- [59] P. Pellegrini, G. Marlière, and J. Rodriguez. Optimal train routing and scheduling in case of traffic perturbations : improving solution time through parameter tuning. In *TRA2014 Transport Research Arena 2014, Ajaccio, France, 2014*.
- [60] G. Marlière, P. Pellegrini, and J. Rodriguez. Simulation of an innovative management of freight trains. In *International Symposium of Transport Simulation - ISTS2014, Ajaccio, France, 2014*.
- [61] J. Rodriguez, P. Pellegrini, G. Marlière, S. Hu, and S. Sobieraj Richard. Improvement of real-time traffic management by using optimization tools. volume 160, pages 465 – 473, 2014. {XI} Congreso de Ingenieria del Transporte (CIT 2014).
- [62] P.-A. Cuniasse, C. Buisson, J. Rodriguez, E. Teboul, and D. de Almeida. Analyzing railroad congestion in a dense urban network through the use of road traffic network fundamental diagram concept. In *TRB Annual Meeting, Washington-USA, 2014*.

- [63] P.-A. Cuniasse, C. Buisson, J. Rodriguez, E. Teboul, and D. de Almeida. Analyzing railroad congestion in a dense urban network through the use of road traffic network fundamental diagram concept. In *MT-ITS 2013, Models & Technologies for Intelligent Transportation Systems, Dresden, Germany*, 2013.
- [64] P. Pellegrini, G. Marlière, and J. Rodriguez. Boosting the performance of a MILP formulation for railway traffic management in complex junctions. In *MT-ITS 2013, Models & Technologies for Intelligent Transportation Systems, Dresden, Germany*, 2013.
- [65] R. Chevrier, P. Pellegrini, and J. Rodriguez. A better train timetabling for a better energy management : Computing alternative running times for helping timetable-makers. In *WCRR 2013, 10th World Congress of Railway Research, Sydney, Australia*, 2013.
- [66] P. Pellegrini, G. Douchet, G. Marlière, and J. Rodriguez. Real-time train routing and scheduling through mixed integer linear programming : Heuristic approach. In *IESM 2013, 5th International Conference on Industrial Engineering and Systems Management, Rabat, Morocco*, 2013.
- [67] P. Pellegrini, G. Marlière, and J. Rodriguez. A mixed-integer linear program for the real-time railway traffic management problem modeling track-circuits. In *5th International Seminar on Railway Operations Modelling and Analysis, RailCopenhagen 2013, Copenhagen, Denmark*, 2013.
- [68] R. Chevrier, P. Pellegrini, and J. Rodriguez. Computing multiple running times for railway timetabling : a speed-level based model for constructing alternative speed profiles. In *5th International Seminar on Railway Operations Modelling and Analysis, RailCopenhagen 2013, Copenhagen, Denmark*, 2013.
- [69] P. Pellegrini, G. Marlière, and J. Rodriguez. Real time railway traffic management modeling track-circuits. In Delling D. and Liberti L., editors, *12th Workshop on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems, ATMOS 2012*, volume 25 of *OpenAccess Series in Informatics (OASICS)*, pages 23–34, Dagstuhl, Germany, 2012. Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik.
- [70] J. Rodriguez, G. Marlière, and S. Sobieraj. Study on train speed profile adjustments of two fixed-speed models for the real-time railway traffic optimization problem. In *2nd International Conference on Models and Technologies for Intelligent Transportation Systems - (MT-ITS 2011)*, Leuven, Belgium, June 2011.
- [71] G. Marlière, S. Sobieraj, and J. Rodriguez. Évaluation par simulation des solutions d'un modèle à vitesse fixée pour l'optimisation du trafic ferroviaire. In *ROADEF'2011, 12ieme congrès de la société française de recherche opérationnelle et d'aide à la décision*, Saint-Étienne, February 2011.
- [72] S. Sobieraj, G. Marlière, and J. Rodriguez. Simulation of solutions of a fixed-speed model for the real-time railway traffic optimization problem. In *4th International Seminar on Railway Operations Modelling and Analysis - RailRome 2011*, Roma, Italy, February 2011.
- [73] R. Chevrier, G. Marlière, B. Vulturescu, and J. Rodriguez. Multi-objective evolutionary algorithm for speed tuning optimization with energy saving in railway : Application and case study. In *4th International Seminar on Railway Operations Modelling and Analysis - RailRome 2011*, Roma, Italy, February 2011.
- [74] R. Chevrier, J. Rodriguez, and G. Marlière. Evolutionary multi-objective optimization of speed tuning in railway management : A case study. In *META'2010, International Conference on Metaheuristics and Nature Inspired Computing*, Djerba (Tunisia), 2010.
- [75] J. Rodriguez, G. Marlière, and S. Sobieraj. A constraint-based scheduling model for optimal train dispatching. In *Joint Rail Conference, Urbana-Champaign, Illinois, USA*, April 2010.
- [76] J. Rodriguez, G. Marlière, and S. Sobieraj. Une heuristique de résolution d'un modèle d'ordonnancement á base de contraintes de la gestion opérationnelle du trafic ferroviaire. In *ROADEF'2010, 11ieme congrès de la société française de recherche opérationnelle et d'aide à la décision*, Toulouse, February 2010.
- [77] J. Rodriguez, G. Marlière, and S. Sobieraj. An incremental heuristic for the train routing and scheduling problem. In *International Conference on Models and Technologies for Intelligent Transportation Systems - (MT-ITS 2009)*, Roma, Italy, June 2009.
- [78] J. Rodriguez and S. Sobieraj. A study of an incremental texture-based heuristic for the train routing and scheduling problem. In *3rd International Seminar on Railway Operations Modelling and Analysis*, Zurich, Suisse, February 2009.
- [79] J. Rodriguez, S. Sobieraj, C. Blatter, and P. Vignes. Systems engineering approach for the railway worksites' safety modelling. In *Working On Safety Network, WOS 2008*, Hersonissos, Crète, 2008.
- [80] J. Rodriguez. An incremental decision algorithm for railway traffic optimisation in a complex station. In *Eleventh International Conference on Computer System Design and Operation in the Railway and Other Transit Systems*, Toledo, Spain, September 2008. WITPress. Article invité.

- [81] J. Rodriguez. A study of the use of state resources in a constraint-based model for routing and scheduling trains. In *2nd International Seminar on Railway Operations Modelling and Analysis*, Hannover, Germany, March 2007.
- [82] J. Rodriguez. The contribution of state resources in a constraint-based scheduling model for conflict solving at railway junctions. In *Tenth International Conference on Computer System Design and Operation in the Railway and Other Transit Systems*, Prague, July 2006. WITPress. Article invité.
- [83] X. Delorme, X. Gandibleux, and J. Rodriguez. Stability evaluation of a railway timetables. In *12th IFAC Symposium on Information Control Problems in Manufacturing*, volume III, Operational Research, pages 379–384, Saint-Etienne, France, May 2006. Elsevier.
- [84] J. Rodriguez. A constraint programming model for real-time trains scheduling at junctions. In *1st International Seminar on Railway Operations Modelling and Analysis - RailDelft2005*, Delft - The Netherlands, June 2005.
- [85] X. Gandibleux, J. Jorge, S. Angibaud, X. Delorme, and J. Rodriguez. An ant colony optimization inspired algorithm for the set packing problem with application to railway infrastructure. In *MIC2005 : The Sixth Metaheuristics International Conference*, Vienna, Austria, August 2005.
- [86] F. Degoutin and J. Rodriguez. Evaluation of Depth-bounded Discrepancy on a CSP model of the railway saturation problem. In *17th IMACS World Congress Scientific Computation, Applied Mathematics and Simulation*, Paris, France, July 2005.
- [87] F. Degoutin, J. Rodriguez, and X. Gandibleux. Évaluation des performances d'un modèle CSP pour le problème de saturation d'infrastructures ferroviaires. In J.C. Billaut and C. Esswen, editors, *ROA-DEF'05, 6^{ième} congrès de la société française de recherche opérationnelle et d'aide à la décision*, volume 1, pages 277–294, Tours-France, February 2005. Presse universitaire François Rabelais.
- [88] X. Delorme, X. Gandibleux, and J. Rodriguez. Modélisation du routage des trains dans un noeud complexe et étude de capacité. In *Conférence ROADEF*, Avignon - France, January 2003.
- [89] J. Rodriguez and G. Marlière. Outils pour la gestion opérationnelle du trafic ferroviaire. In *Innovation Technologique pour les Transports Terrestres (TILT)*, Lille-France, December 2003.
- [90] X. Delorme, X. Gandibleux, and J. Rodriguez. Résolution d'un problème d'évaluation de capacité d'infrastructure ferroviaire. In *Innovation Technologique pour les Transports Terrestres (TILT)*, Lille-France, December 2003.
- [91] V. Delcroix, S. Piechowiak, and J. Rodriguez. Computing diagnoses with higher posterior probability using bayesian networks. In *9th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, IPMU'2002*, July 2002.
- [92] J. Rodriguez, X. Delorme, and X. Gandibleux. Railway infrastructure saturation using constraint programming approach. In *Computers in Railways VIII*, pages 807–816, Lemnos-Greece, June 2002. WIT-Press.
- [93] X. Delorme, X. Gandibleux, and J. Rodriguez. GRASP for set packing problems. In *EURO Peripatetic Post-graduate Programme, ORP3*, Paris-France, September 2001. Association of European Operational Research Societies.
- [94] X. Delorme, J. Rodriguez, and X. Gandibleux. Heuristics for railway infrastructure saturation. In *International Colloquium on Atomata, Languages, and Programming, ICALP'2001, Satellite Workshop on Algorithmic Methods and Models for Optimization of Railways*, pages 41–55, Crete-Greece, July 2001.
- [95] V. Delcroix, S. Piechowiak, and J. Rodriguez. Diagnostic de circuits électroniques à l'aide de réseaux bayésiens. In *Journées Nationales sur les Modèles de Raisonnement, JNMR'01*, pages 51–66, May 2001.
- [96] G. Scemama, F. Balbo, M. Caruso, J. Rodriguez, and M. Tendjaoui. Real time aid to decision system for bus operators. In *X th IEE International Conference on Road transport information and control*, Londres-Grande Bretagne, February 2000.
- [97] J. Rodriguez. Empirical study of a constraint programming model applied to a railway traffic management problem. In *Computers in Railways VII*, pages 1017–1026, Bologne-Italie, September 2000. WITPress. Article invité.
- [98] F. Lefebvre, J. Rodriguez, and S. Piechowiak. Modeling of the maintenance tool for a high-speed signalling system. In *Conférence IEEE / Systems Man and Cybernetics*, San Diego - USA, September 1998.
- [99] J. Rodriguez and L. Kermad. Regulacion de las circulaciones en un nudo ferroviario complejo. In *Congrès Panaméricain d'Ingénierie du Trafic et Transport, XITT'98*, pages 597–606, Santander-Espagne, September 1998.

- [100] F. Lefebvre, J. Rodriguez, and S. Piechowiak. Diagnosis tool for high speed line signaling systems. In *Computers in Railways VI*, pages 723–732, Lisbonne-Portugal, September 1998. WITPress.
- [101] J. Rodriguez and L. Kermad. Constraint programming for real-time train circulation management problem in railway nodes. In *Computers in Railways VI*, Lisbonne-Portugal, September 1998. WITPress.
- [102] F. Dutra-Michel and J. Rodriguez. Realocação operacional de recursos em um sistema ferroviário : um modelo baseado em programação sujeita a restrições. In *XIème ANPET Conférence Annuelle de l'association brésilienne pour la recherche et l'enseignement sur les transports*, Rio de Janeiro-Bresil, November 1997.
- [103] J. Rodriguez. Software components for simulation of guided transit systems. In *IV th International Conference on Computer Aided Design, Manufacture and Operation in the Railway and other Advanced Mass Transit Systems, COMPRAIL '94*, Madrid-Espagne, September 1994. WITPress.
- [104] S. Piechowiak and J. Rodriguez. A model-based diagnostic tool using a constraint network manager. In *IFAC Conference on Integrated System Engineering*, Baden-Baden, Allemagne, September 1994.
- [105] S. Piechowiak and J. Rodriguez. A constraint network manager for diagnosing. In *7th Conference on Industrial & Engineering Applications of Artificial Intelligence & Expert Systems*, Austin, Texas-USA, June 1994.
- [106] J. Rodriguez and S. Piechowiak. Expressing the behaviour of time varying devices for model based diagnosis. In *Conférence Scientifique des Quatorzièmes Journées Internationales IA, Systèmes Experts et Langage Naturel*, pages 291–300, Paris-France, June 1994. EC2.
- [107] Guillaume Uster, F. Kuhn, and J. Rodriguez. Technological innovations : opportunities to reduce costs. dedicated single track for medium size cities. In *IV th International Conference on Automated People Movers*, pages 132–141, Irving, Texas-USA, March 1993. American Society of Civil Engineers (ASCE).
- [108] J. Rodriguez and S. Piechowiak. Constraint network representation of temporal relationship for model-based diagnosis. In *Conférence IEEE / Systems Man and Cybernetics '93*, Le-Touquet-France, October 1993.
- [109] J. Rodriguez and S. Piechowiak. Un système d'aide au diagnostic de cartes électroniques utilisant la propagation d'intervalles. In *Conférence ITTG'93*, Villeneuve d'Ascq-France, September 1993.
- [110] J. Rodriguez and S. Piechowiak. Object classes of model-based diagnosis using constraint propagation over intervals. In *Conférence Internationale sur le Diagnostic de Pannes TOOLDIAG'93*, Toulouse, April 1993.
- [111] S. Piechowiak, J. Rodriguez, and P. Millot. Méthode de diagnostic basée sur le modèle. In *8ème Colloque de fiabilité et de maintenabilité*, pages 750–761, Grenoble-France, October 1992.
- [112] J. Rodriguez and S. Piechowiak. A diagnostic tool based on a model of constraint network. In *III rd International Conference on Computer Aided Design, Manufacture and Operation in the Railway and other Advanced Mass Transit Systems, COMPRAIL '92*, Washington-USA, August 1992. WITPress.
- [113] S. Piechowiak, J. Rodriguez, and P. Millot. Une méthode de diagnostic basée sur la modélisation du fonctionnement correct des équipements. In *Conférence Transport 1992+*, pages 965–970, Montréal-Canada, June 1992. Canadian Society for Mechanical Engineering, SCGM.
- [114] J. Rodriguez. Composants logiciels pour la simulation de systèmes de transport guidés. In *Conférence Transport 1992+*, pages 952–956, Montréal-Canada, June 1992. Canadian Society for Mechanical Engineering.
- [115] S. Piechowiak, J. Rodriguez, and P. Millot. Implementation d'une méthode de diagnostic selon les premiers principes intégrant le temps. In *Conférence Scientifique des Douzième Journées Internationales IA, Systèmes Experts et Langage Naturel*, Avignon-France, June 1992.
- [116] S. Piechowiak, J. Rodriguez, and Patrick Millot. Implementation of an automatic diagnosis method using an object oriented language. In *ECC'91 European Control Conference*, Grenoble-France, July 1991.
- [117] J. Rodriguez and C. Faure. Learning waveform structures from examples. In *8th International Conference on Pattern Recognition*, Paris-France, October 1986.

Conference abstracts

- [118] J. Rodriguez, G. Marlière, S. Sobieraj, and P. Pellegrini. A new constraint based scheduling model for real-time railway traffic management problem using conditional time-intervals, 2018. Article invité.
- [119] P. Pellegrini, P. Hosteins, and J. Rodriguez. Assessing models for the real-time railway traffic management problem, 2018. Joint EURO/ALIO International Conference 2018 on Applied Combinatorial Optimization Aims and Objectives.

- [120] S. Deleplanque, P. Pellegrini, and J. Rodriguez. Optimiser une gare de triage en temps réel, 2018. 19th conference ROADEF of the French society of operations research et decision aid, Lorient, France.
- [121] K. Keita, P. Pellegrini, and J. Rodriguez. A three-step Benders decomposition approach for re-routing and rescheduling trains in case of perturbation, 2018. 19th conference ROADEF of the French society of operations research et decision aid, Lorient, France.
- [122] A. Marín, L. Cadarso, R. Garcia-Rodenas and P. Pellegrini, and J. Rodriguez. Integrate macro-micro real-time railway traffic management, 2017. 21st Conference of the International Federation of Operational Research Societies (IFORS2017), Quebec City, Canada.
- [123] D. Arenas, P. Pellegrini, J. Rodriguez, and S. Hanafi. Train timetable rearrangement facing infrastructure maintenance activities, 2017. 18th conference ROADEF of the French society of operations research et decision aid, Metz, France.
- [124] K. Keita, P. Pellegrini, and J. Rodriguez. A decomposition approach for the real time railway traffic management problem, 2017. 18th conference ROADEF of the French society of operations research et decision aid, Metz, France.
- [125] K. Keita, P. Pellegrini, and J. Rodriguez. Solving the real-time railway traffic management problem with Benders decomposition, 2016. 17th conference ROADEF of the French society of operations research et decision aid, Compiègne, France.
- [126] K. Keita, P. Pellegrini, J. Rodriguez, and A. Marín. A benders algorithm for real-time train routing and scheduling including effective inequalities, 2017. 21st Conference of the International Federation of Operational Research Societies (IFORS2017), Quebec City, Canada.
- [127] D. Arenas, P. Pellegrini, J. Rodriguez, and S. Hanafi. Timetable optimization to cope with railway infrastructure maintenance, 2016. 17th conference ROADEF of the French society of operations research et decision aid, Compiègne, France.
- [128] K. Keita, P. Pellegrini, and J. Rodriguez. Benders decomposition for the real-time railway traffic management, 2016. EURO 2016, Poznan, Poland.
- [129] P. Pellegrini, G. Marlière, and J. Rodriguez. Configuring a milp formulation for rail traffic management, 2013.
- [130] P. Pellegrini, G. Marlière, and J. Rodriguez. A mixed-integer linear program for the real-time railway traffic management problem : Quantification of the impact of a priori platform assignment, February 2013.
- [131] P. Pellegrini, G. Marlière, and J. Rodriguez. Exact models for the real time railway traffic management problem : tackling perturbed traffic considering real junction details, 2012. 21-th International Symposium on Mathematical Programming (ISMP 2012), Berlin, Germany.
- [132] J. Rodriguez. Real-time traffic management of railway bottlenecks, May 2011. Article invité.
- [133] J. Rodriguez, G. Marlière, and S. Sobieraj. Performance of a constraint-based scheduling model for optimal train dispatching, June 2011.
- [134] J. Rodriguez. La fluidication des circulations dans les noeuds ferroviaires, May 2009. Article invité.
- [135] J. Rodriguez. La fluidication des noeuds sensibles dans la gestion du réseau, March 2009. Article invité.
- [136] J.-D. Roubach, Pascal Yim, and J. Rodriguez. Description logics in the calculus of structures, June 2007.
- [137] J. Rodriguez. Model for the worksites' safety management, April 2007.
- [138] J. Rodriguez. Modèle d'ordonnement à base de contraintes pour la gestion du trafic ferroviaire, September 2006.
- [139] X. Delorme, X. Gandibleux, and J. Rodriguez. Selecting efficient solutions for the stability evaluation problem of a railway timetable, June 2006.
- [140] J. Rodriguez. Exploitation des systèmes ferroviaires : gestion en temps réel des circulations et analyse des capacités, December 2004.
- [141] J. Rodriguez. Action Spécifique RECIFE : Analyse de la capacité ferroviaire, June 2005.
- [142] J. Rodriguez. Constraint programming for real-time train circulation management in railway nodes, October 2002.
- [143] J. Rodriguez. Programmation par contraintes pour la gestion du trafic ferroviaire, May 2002.
- [144] S. Piechowiak and J. Rodriguez. Représentation des contraintes sous forme de règles : application aux CSP dynamiques, January 2001.

- [145] X. Delorme, X. Gandibleux, and J. Rodriguez. Application de la métaheuristique GRASP à la résolution d'un problème de capacité d'infrastructure ferroviaire, May 2001.
- [146] S. Piechowiak and J. Rodriguez. Constraint compiling into rules formalism for dynamic CSPs computing, July 2000. <http://arXiv.org/abs/cs.AI/0006043>.
- [147] J. Rodriguez. Le diagnostic à base de modèles : Applications aux systèmes de contrôle/commande des transports guidés, March 2000.
- [148] J. Rodriguez, F. Lefebvre, S. Piechowiak, and P. Sainton. Diagnostic à base de modèles : Application à signalisation des lignes à grande vitesse, March 2000.
- [149] J. Rodriguez. Application des techniques de programmation par contraintes à la gestion opérationnelle des circulation ferroviaires, March 1999.
- [150] J. Rodriguez and L. Kermad. Aide à la fluidification des circulations dans un noeud ferroviaire complexe, 1997.
- [151] J. Rodriguez. Modèle de simulation de la ligne 2 du val de lille - evaluation de la régulation de trafic, April 1997.
- [152] J. Rodriguez. Le diagnostic à base de modèles, June 1994.
- [153] S. Piechowiak and J. Rodriguez. A constraint based reasoning diagnosis,, October 1993.
- [154] M. Huysmans, J. Richelle, M. Moreau, M. Rooman, J. Rodriguez, and S. Wodak. Development of relational database for macromolecule structures, October 1988.
- [155] M. Rooman, S. Wodak, J. Rodriguez, J. Richelle, M. Huysmans, and M. Moreau. Systematic assessment of the predictive power of amino acid patterns, October 1988.
- [156] M. Huysmans, J. Richelle, J. Rodriguez, M. Rooman, M. Moreau, M. Deneker, S. Wodak, and Y. Willems. Knowledge base and inference algorithms applied to protein structures prediction, May 1987.

Technical reports

- [157] D. Arenas, P. Pellegrini, G. Marlière, and J. Rodriguez. RECIFE class manager. Technical report, IFSTTAR, Université Lille Nord de France, Lille, France, 2016.
- [158] D. Arenas, P. Pellegrini, S. Hanafi, and J. Rodriguez. Timetable rearrangement to cope with railway maintenance activities. Technical report, IFSTTAR, Université Lille Nord de France, Lille, France, 2016.
- [159] G. Marlière P. Pellegrini and J. Rodriguez. Recife-sat : a milp-based algorithm for saturating railway timetables. Technical report, IFSTTAR, Université Lille Nord de France, Lille, France, 2017.
- [160] S. Sobieraj Richard P. Pellegrini, G. Marlière and J. Rodriguez. Possible refinements of recife-milp. Technical report, IFSTTAR, Université Lille Nord de France,, Lille, France, 2017.
- [161] R. Pesenti P. Pellegrini and J. Rodriguez. Extended discussion on efficient train re-routing and rescheduling : valid inequalities and reformulation of recife-milp. Technical report, Université Lille Nord de France, Lille, France, 2017.
- [162] J. Rodriguez. Rapport d'étude sur le développement d'une plate-forme de modélisation et de simulation numérique pour le fret ferroviaire. Technical report, Railenium, Conférence sur le fret ferroviaire, 2015.
- [163] J. Rodriguez. Rapport d'étude pour sncf minilab exploitation agile. Technical report, SNCF I &R, Contrat D15AESTAS0001, 2015.
- [164] G. Marlière, P. Pellegrini, and J. Rodriguez. SIGIFret simulations d'une gestion innovante des circulations fret - livrable 1.1 : Résultats de simulation avec et sans fluidification. Technical report, Programme 190-0190-THUR-BSAF, Contrat 12-MT-PREDITGO4-3-CVS-033, 2013.
- [165] P. Pellegrini, G. Marlière, R. Neamatian-Nonemi, J. Rodriguez, J.P Orus, L. Pagès, M. De Nitto, and P. Michenot. SIGIFret simulations d'une gestion innovante des circulations fret - livrable final. Technical report, Programme 190-0190-THUR-BSAF, Contrat 12-MT-PREDITGO4-3-CVS-033, 2015.
- [166] WP5 partners. Decision support tools for the optimal human supervisory control of the recovery processes - deliverable 5.2. Technical report, FP7 ONTIME Project, 2014.
- [167] WP5 partners. Functional and technical requirements specification for large scale perturbation management - deliverable 5.1. Technical report, FP7 ONTIME Project, 2013.
- [168] WP4 partners. Tools for real-time perturbation management including human machine interface - deliverable 4.2. Technical report, FP7 ONTIME Project, 2014.
- [169] WP4 partners. Functional and technical requirements specification for perturbation management - deliverable 4.1. Technical report, FP7 ONTIME Project, 2013.

- [170] WP4 partners. Task 4.1 assessment of state-of-art of perturbation management. Technical report, FP7 ONTIME Project, 2013.
- [171] J. Rodriguez and R. Chevrier. État de l'art sur l'ingénierie des horaires - livrable I3.4 : Rapport final de tâche. Technical report, Ifsttar, 2013.
- [172] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I2.4 : Outils d'optimisation. Technical report, Ifsttar, 2012.
- [173] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I2.3 : Outils graphiques. Technical report, Ifsttar, 2012.
- [174] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I2.2 : Outils de simulation. Technical report, Ifsttar, 2012.
- [175] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I2.1 : Systèmes d'information. Technical report, Ifsttar, 2012.
- [176] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I1.8 : Rapport final de tâche. Technical report, Ifsttar, 2012.
- [177] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I1.6 : cas d'étude du réseau néerlandais. Technical report, Ifsttar, 2012.
- [178] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I1.5 : cas d'étude du réseau suisse. Technical report, Ifsttar, 2012.
- [179] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I1.4 : cas d'étude du réseau britannique. Technical report, Ifsttar, 2012.
- [180] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I1.3 : cas d'étude du réseau urbain. Technical report, Ifsttar, 2012.
- [181] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I1.2 : cas d'étude du réseau français. Technical report, Ifsttar, 2012.
- [182] J. Rodriguez and S. Sobieraj. État de l'art sur l'ingénierie des horaires - livrable I1.1 : grille d'analyse. Technical report, Ifsttar, 2012.
- [183] J. Rodriguez and S. Sobieraj. Procédure pour réaliser un accord-cadre afin d'obtenir des services d'étude et analyse dans le domaine d'optimisation des processus de la gestion du trafic ferroviaire en Belgique - Marché Infrabel No 81.125.158 - Lot 2. Technical report, INRETS, 2009.
- [184] S. Sobieraj, J. Rodriguez, and M. Cuvelier. Projet RESCIPROC : Recueil des diagrammes SysML. Rapport de recherche, INRETS, 2009.
- [185] J. Rodriguez, S. Sobieraj, M. Cuvelier, and S. Collart-Dutilleul. Projet RESCIPROC : Synthèse des résultats. Rapport de recherche, INRETS, 2009.
- [186] S. Sobieraj, J. Rodriguez, and M. Cuvelier. Tâche 4 du projet RESCIPROC : REX - Construction d'indicateurs. Rapport de recherche, INRETS, 2009.
- [187] Marielle Cuvelier, S. Sobieraj, and J. Rodriguez. Tâche 3 du projet RESCIPROC : REX - Rapports d'accidents/incidents. Rapport de recherche, INRETS, 2009.
- [188] S. Sobieraj, J. Rodriguez, and M. Cuvelier. Tâche 2 du projet RESCIPROC : Diagrammes SysML. Rapport de recherche, INRETS, 2009.
- [189] J. Rodriguez and S. Sobieraj. Tâche 1 du projet RESCIPROC : Analyse conceptuelle de la sécurité des chantiers ferroviaires. Rapport de recherche, INRETS, 2008.
- [190] X. Gandibleux, X. Delorme, and J. Rodriguez. Multi criteria decision support system for railway infrastructure capacity studies : the recife software. Rapport de Recherche INRETS/RR-09-722-FR, INRETS, August 2009.
- [191] J. Rodriguez. Enhancement of train routing and scheduling at a terminal station with constraints programming and temporal decomposition. Rapport de Recherche RR-07-731-FR, INRETS, December 2007.
- [192] J. Rodriguez. Application de la programmation par contraintes à la gestion du trafic d'un noeud ferroviaire. Rapport de Recherche RR-07-717-FR, INRETS, July 2007.
- [193] J. Rodriguez, P. Bon, F. Meers, and S. Hayat. Internal report work package 5.4 : funding opportunities. Technical report, INRETS, EURNEX – EUropean Rail research Network of EXcellence, April 2005. Contrat TNE3-CT-2003-506513, Deliverable D29,43 p.

- [194] E. M. El Koursi, S. Fletcher, L. Tordai, and J. Rodriguez. SAMNET Synthesis Report – Safety Management and Interoperability. Technical report, INRETS, SAMNET - SAFETY Management and interoperability thematic NETWORK for railway systems, February 2006. Contrat GTC2-2001-53012, Deliverable D1.3.6, 96 p.
- [195] C. Cassir, A. Eckel, A. Hale, K. Hartwig, M. Meyer zu Hörste K. Petersen, J. Rodriguez, E. Schnieder, S. Schwartz, and R. Slovak. Report on research needs - Research priorities related to safety management and interoperability. Technical report, INRETS, SAMNET - SAFETY Management and interoperability thematic NETWORK for railway systems, December 2005. Contrat GTC2-2001-53012, Deliverable D1.1.4, 19 p.
- [196] R. Bartusiak, X. Delorme, F. Degoutin, X. Gandibleux, G. Marlière, and J. Rodriguez. Rapport d'activités du projet RECIFE. Technical report, INRETS-ESTAS, 2004. Rapport No 2004-027.
- [197] F. Degoutin and J. Rodriguez. État d'avancement du travail de thèse optimisation de l'exploitation d'infrastructures ferroviaires. Technical report, INRETS-ESTAS, 2004. Rapport No 2004-025.
- [198] J. Rodriguez. Modélisation pour le diagnostic et la gestion du trafic dans les réseaux de transport. Thèse d'Habilitation à Diriger des Recherches, Université de Valenciennes, February 2004. Rapport INRETS-ESTAS No 2004-023.
- [199] Wiart M., G. Marlière, X. Delorme, and J. Rodriguez. Développement d'une API C++ pour la génération du modèle SPP-Résolution du problème de faisabilité sur la gare de Lille-Flandres. Rapport de Recherche RE-2004-026-FR, INRETS, September 2003.
- [200] J. Rodriguez. Analyse des conflits de circulations ferroviaires. Rapport de Recherche RR - 02 - 734 - FR, INRETS, December 2002.
- [201] S. Suray and J. Rodriguez. Conversion des données RECIFE-SAFIR. Rapport d'Étude, INRETS, August 2002.
- [202] X. Delorme, J. Rodriguez, and X. Gandibleux. Heuristics for railway infrastructure saturation. Rapport de Recherche RT-01-705-FR, INRETS, April 2001.
- [203] X. Delorme, X. Gandibleux, and J. Rodriguez. GRASP for set packing problems. Rapport de Recherche RT-01-704-FR, INRETS, March 2001.
- [204] F. Lefebvre, J. Rodriguez, S. Piechowiak, and P. Sainton. Diagnostic à base de modèles - application à la signalisation des lignes à grande vitesse. Projet ELODI/PREDIT/ASCOT - Rapport Final RR-00-702-FR, INRETS, April 2000. 17 p.
- [205] J. Rodriguez. Fluidification de noeuds ferroviaires. Projet SAFIR/GRRT prospectif - Rapport Final RR-00-724-FR, INRETS, December 2000. 61 p.
- [206] G. Tual and J. Rodriguez. Modèle de simulation d'un système de tram léger de type step - scénarios paramétrés. Rapport Convention d'Étude STP , INRETS, October 1998.
- [207] J. Rodriguez. Technique d'aide à la fluidification des circulations dans un noeud ferroviaire complexe - résultats obtenus et analyses. Rapport Contrat de Recherche SNCF N° 86-96, INRETS, December 1998.
- [208] J. Rodriguez and Benjamin Lamaire. Technique d'aide à la fluidification des circulations dans un noeud ferroviaire complexe - implémentation du modèle CSP. Rapport Contrat de Recherche SNCF No 86-96, INRETS, June 1998.
- [209] L. Kermad and J. Rodriguez. Technique d'aide à la fluidification des circulations dans un noeud ferroviaire complexe - modélisation du problème. Rapport Contrat de Recherche SNCF No 86-96, INRETS, June 1997.
- [210] J. Rodriguez. Modèle de simulation d'un système de tram léger de type STEP. Rapport Convention d'Étude STP , INRETS, December 1997.
- [211] L. Kermad and J. Rodriguez. Technique d'aide à la fluidification des circulations dans un noeud ferroviaire complexe - étude bibliographique. Rapport Contrat de Recherche SNCF No 86-96, INRETS, February 1997.
- [212] J. Rodriguez and P. Vanec. Modèle de simulation de la ligne 2 du val de lille - evaluation de la régulation de trafic. Rapport d'Étude Transpole 94-109, INRETS, December 1994.
- [213] S. Piechowiak, J. Rodriguez, and P. Millot. Représentation et traitement du temps sous la forme d'intervalles de valeurs dans un algorithme de calcul des diagnostics de matériel électroniques. Rapport Convention d'Étude Région Nord Pas de Calais/UVHC No 93-39-00-10, UVHC, September 1994.

- [214] S. Piechowiak, J. Rodriguez, and P. Millot. Traitement des intervalles de valeurs dans un algorithme de calcul des diagnostics de matériel électronique. Rapport Convention d'Étude Région Nord Pas de Calais/UVHC No 93-26-00-51 , UVHC, July 1994.
- [215] G. Uster, F. Khun, and J. Rodriguez. Etude d'un système a voie unique. Rapport de Recherche No 182, INRETS, May 1994. 172 p.
- [216] J. Rodriguez. Modèle de simulation pour les systèmes de transport guidés en langage objets. Rapport de Recherche No 179, INRETS, June 1994.
- [217] J. Rodriguez. Propagation d'intervalles de valeurs dans un réseau de contraintes : Application au diagnostic de pannes du bloc sécurité du pilote embarqué du val. Commande Matra-Transport No 809 985 T 92-124, INRETS, November 1992.
- [218] G. Uster, F. Kuhn, J. Rodriguez, P. Marx, C. Martinet, V. Gascon, A. Brenier, J. Berdubeau, and B. Constantin. Voie unique pour ligne complémentaire à automatisme intégral. Rapport d'Étude SERT No 900002, INRETS, February 1992.
- [219] J. Rodriguez and S. Piechowiak. Maquette d'un outil de diagnostic automatique basé sur un modèle. Commande Matra-Transport No 80703 W 451301, INRETS, June 1991.
- [220] J. Rodriguez. Méthodes de diagnostic à partir des premiers principes. Étude Bibliographique, INRETS, 1990.
- [221] S. Piechowiak and J. Rodriguez. Problème de la surveillance des équipements du système val et méthodes de diagnostic. Rapport convention INRETS/UVHC No 401-88-122, UVHC, April 1990.
- [222] J. Rodriguez. Maquette d'un dispositif d'aide au diagnostic en smalltalk 80. Technical report, INRETS, October 1989.
- [223] S. Piechowiak and J. Rodriguez. Première maquette du système expert de diagnostic des cartes électroniques : application à une partie du pilotage automatique à poste fixe. Rapport convention INRETS/UVHC No 401-88-122, UVHC, June 1989.
- [224] J. Rodriguez. Traitement et analyse des structures dans les signaux : Application aux signaux acoustiques émis lors de l'ébullition du sodium dans un réacteur nucléaire. Thèse Docteur-Ingénieur , Université de Technologie de Compiègne, February 1986.
- [225] J. Rodriguez. Modélisations et procédures de suivi des signaux de température de sortie des gaines du coeur d'une centrale nucléaire. Diplôme d'Études Approfondies, Université de Technologie de Compiègne, July 1983.