

Curriculum Vitae

Personal information

First name(s) / Surname(s)

Emanuele Tresoldi

Nationality

Italian

Work experience

<p>Dates</p> <p>Occupation or position held</p> <p>Name and address of employer</p> <p>Type of business or sector</p>	<p>July 2018 - Now</p> <p>Fixed-Term Researcher (type A)</p> <p>Università degli studi di Milano Dipartimento di informatica Via Bramante 65, 26013 Crema, Italy</p> <p>Research / Optimization Algorithms Scientific director Prof. Giovanni Righini (giovanni.righini@unimi.it)</p>
<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p> <p>Name and address of employer</p> <p>Type of business or sector</p>	<p>January 2014 – June 2018</p> <p>Post-Doc Research Fellow</p> <p>Design and development of optimization algorithms for real-time scheduling and routing problems.</p> <p>Politecnico di Milano Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB) Via Ponzio 34/5, Milano</p> <p>Research / Optimization Algorithms Supervisor Prof. Federico Malucelli (federico.malucelli@polimi.it)</p>
<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p> <p>Name and address of employer</p> <p>Type of business or sector</p>	<p>January 2012 – December 2013</p> <p>Post-Doc Research Fellow</p> <p>Development and analysis of algorithms for the optimization of the Italian electrical network.</p> <p>Università degli Studi di Milano and RSE/CESI Via R. Rubattino 54, Milano</p> <p>Research / Optimization Algorithms Supervisor Dott. Alberto Gelmini (alberto.gelmini@rse-web.it)</p>
<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p> <p>Name and address of employer</p> <p>Type of business or sector</p>	<p>11 January 2010 – 11 June 2010</p> <p>Visiting Student</p> <p>5 months training within the Lifelong Learning Programme Supervisor: Prof. Roberto Wolfler-Calvo</p> <p>Research activity: The Multicolor Travelling Salesman Problem</p> <p>Lab. Informatique Paris Nord UMR CNRS 7030 Université Paris XIII Paris, France</p> <p>Research / Optimization Algorithms Supervisor Prof. Roberto Wolfler Calvo (wolfler@lipn.univ-paris13.fr)</p>
<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p> <p>Name and address of employer</p> <p>Type of business or sector</p>	<p>20 June 2008 – 31 December 2008</p> <p>Research Fellow (Borsa Laborlab Giovani Promettenti)</p> <p>Research activity: VPR/Orienteering, Planning and Scheduling problems and mathematical modelling</p> <p>Università degli studi di Milano Dipartimento di tecnologie dell'informazione Via Bramante 65, 26013 Crema, Italy</p> <p>Optimization Algorithms Supervisor Prof. Giovanni Righini (giovanni.righini@unimi.it)</p>
<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p> <p>Name and address of employer</p> <p>Type of business or sector</p>	<p>01 November 2007 – 01 April 2008</p> <p>Trainee / Software Developer</p> <p>Design and development of a decision support tool prototype for scheduling data transmissions Mars-Earth and Earth-Mars in Mars Express space Mission.</p> <p>ESA/ESOC Robert-Bosch-Str. 5 64293 Darmstadt, Germany</p> <p>Space operations, Software Development, Optimization Algorithms, Decision Support System. Supervisor Dott. Erhard Rabenau (erhard.rabenau@esa.int)</p>

Education and training	
<p>Dates Title of qualification awarded Title of the Thesis Principal subjects / occupational skills covered Name and type of organization providing education and training</p>	<p>2009 – March 2012 Dottorato di ricerca in Informatica (Doctor of Philosophy in Computer Science) Supervisor Prof. Giovanni Righini and Prof. Alberto Ceselli (DTI, Università degli Studi di Milano) Coordinator Prof Ernesto Damiani (DTI, Università degli Studi di Milano). "Location and Routing Problems: a Unified Approach" Computer Science, Optimization Algorithms, Mathematical Models, Artificial Intelligence, Transportations Science, Logistics, Applied Math. Università degli studi di Milano. Scuola di dottorato in Informatica Via Celoria 51 Milano Italy Supervisor Prof. Alberto Ceselli (DTI, Università degli Studi di Milano, alberto.ceselli@unimi.it) Co-Supervisor Prof Giovanni Righini (DTI, Università degli Studi di Milano, giovanni.righini@unimi.it)</p>
<p>Dates Title of qualification awarded Title of the Thesis Principal subjects / occupational skills covered Name and type of organization providing education and training</p>	<p>2004 - 2007 Laurea Magistrale in Scienze e Tecnologie dell'Informazione (Master degree). Voto 108/110 "Optimization algorithms for data transmission planning and scheduling problems in ESA's Mars express space mission" Supervisor Prof. Giovanni Righini (DTI, Università degli Studi di Milano) Computer Science, Optimization Algorithms, Artificial Intelligence, Mathematics, Networks and Operating Systems Security. Università degli studi di Milano. Dipartimento di Tecnologie dell'Informazione. Via Bramante 65 26013 Crema Italy</p>
<p>Dates Title of qualification awarded Title of the Thesis Principal subjects / occupational skills covered Name and type of organization providing education and training</p>	<p>2000 - 2004 Laurea di primo livello in Informatica (Bachelor's degree). "Confronto sperimentale tra diversi intorni in un algoritmo di ricerca tabu per il problema del commesso viaggiatore con operazioni miste di consegna e raccolta" Supervisor Prof. Giovanni Righini (DTI, Università degli Studi di Milano) Computer Science, Optimization Algorithms, Mathematics, Programming Languages, Networks Management and Security Università degli studi di Milano. Dipartimento di Tecnologie dell'Informazione. Via Bramante 65 26013 Crema Italy</p>
<p>Dates Title of qualification awarded Principal subjects / occupational skills covered Name and type of organization providing education and training</p>	<p>1995 - 2000 Diploma Maturità Scientifica Mathematics, Physics, Chemistry, Latin, Computer Science. Liceo Scientifico Giordano Bruno 20062 via papa Giovanni XXIII Cassano d'Adda (MI), Italy</p>

Publications	
Journal Papers:	<ol style="list-style-type: none"> Giovanni Righini, Emanuele Tresoldi, "A mathematical programming solution to the Mars Express memory dumping problem". IEEE Transactions on Systems, Man, and Cybernetics—Part C: Applications and Reviews, May 2010, Volume 40, Issue 3, pp. 268-277. DOI: https://doi.org/10.1109/TSMCC.2009.2034838 Giovanni Righini, Emanuele Tresoldi, Nicola Policella, Alessandro Donati, Erhard Rabenau. "An automatic planning and scheduling system for the Mars Express uplink scheduling problem". IEEE Transactions on Systems, Man, and Cybernetics—Part C: Applications and Reviews, November 2011, Volume 41, Issue 6, pp. 942-954. DOI: https://doi.org/10.1109/TSMCC.2011.2114880 Alberto Ceselli, Giovanni Righini, Emanuele Tresoldi, "Modeling and solving profitable location and distribution problems". Optimization Letters, October 2013, Volume 7, Issue 7, pp 1471-1480. DOI: https://doi.org/10.1007/s11590-012-0550-0 Alberto Ceselli, Giovanni Righini, Emanuele Tresoldi, "Combined Location and Routing Problems for Drug Distribution". Discrete Applied Mathematics, March 2014, Volume 165, Pages 130–145. DOI: https://doi.org/10.1016/j.dam.2013.07.016 Alberto Ceselli, Giovanni Righini, Emanuele Tresoldi, "Vehicle Routing Problems with Different Service Constraints: a Branch-and-Cut-and-Price Algorithm", Networks, Volume 64, Issue 4, pages 282–291, December 2014. DOI: https://doi.org/10.1002/net.21584 Federico Malucelli, Emanuele Tresoldi, "Delay and disruption management in local public transportation via real-time vehicle and crew re-scheduling: a case study", Public Transport, February 2019. DOI: https://doi.org/10.1007/s12469-019-00196-y
Referred proceedings:	<ol style="list-style-type: none"> A. Ceselli, G. Righini, E. Tresoldi. "Combined Location and Routing Problems for Drug Distribution in Case of Emergency". Proceedings of 10-th Cologne-Twente Workshop (CTW), Villa Mondragone, Frascati, June 14-16, 2011. http://ctw2011.dia.uniroma3.it/ctw_proceedings.pdf Alberto Ceselli, Giovanni Righini, Emanuele Tresoldi, "Optimal Routing Of Planetary Surface Exploration Vehicles". ESA's Acta Futura, January 2012, Issue 5, pg 17-27. DOI: 10.2420/ACT-BOOK-AF, http://www.esa.int/gsp/ACT/doc/ACTAFUTURA/AF05/ACT-BOK-AF05.pdf Emanuele Tresoldi, Federico Malucelli, Stefano Gualandi and Samuela Carosi, "Delay Management in Public Transportation: Service Regularity Issues and Crew Re-scheduling", Transportation Research Procedia, Volume 10, 2015, Pages 483–492, September 2015. DOI: https://doi.org/10.1016/j.trpro.2015.09.002 Federico Malucelli, Maddalena Nonato, Emanuele Tresoldi, Optimization based planning of Pedibus lines: an arc based approach, Transportation Research Procedia, Volume 27, 2017, Pages 760-767, ISSN 2352-1465, https://doi.org/10.1016/j.trpro.2017.12.049. Federico Malucelli, Maddalena Nonato, Emanuele Tresoldi, Designing Pedibus Lines: a Path Based Approach. Electronic Notes in Discrete Mathematics, Volume 69, 2018, Pages 149-156, August 2018.
Conferences and Workshops	<ul style="list-style-type: none"> "Location and Routing Problems for Drug Distribution" A. Ceselli, G. Righini, E. Tresoldi. At TRISTAN VII, Rica Ishavshotel, Tromsø, Norway, June 20-25 2010. "Exact and Heuristic algorithms for the multi-color TSP" S. Borne, E. Tresoldi, R. Wolfler Calvo, G. Laporte, F. Semet. At AIRO2010, Villa San Giovanni, Italy. September 7-10 2010. "Combined Location and Routing Problems for Drug Distribution in Case of Emergency". A. Ceselli, G. Righini, E. Tresoldi. 10-th Cologne-Twente Workshop (CTW), Villa Mondragone, Frascati, June 14-16, 2011 "Le problème du voyageur de commerce multicolore". S. Borne, E. Tresoldi, R. Wolfler Calvo, G. Laporte, F. Semet. 12ème congrès de la Société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF2011), Mars 2011, Saint-Etienne, France. "A Branch-And-Price Algorithm for optimal routing of explorer vehicles". A. Ceselli, G. Righini, E. Tresoldi. International Joint Conference on Artificial Intelligence (IJCAI), Barcelona, Spain. July 16-22 2011. "Location and Routing Problems: A Unified Approach". A. Ceselli, G. Righini, E. Tresoldi. AIRO2011, Brescia, Italy. September 6-9, 2011. "Location and Routing Problems: A Unified Approach". A. Ceselli, G. Righini, E. Tresoldi. CG2k12, Bromont, Québec, Canada. June 10 - 13, 2012 "Location and Routing Problems: A Unified Approach". A. Ceselli, G. Righini, E. Tresoldi. AIRO2012, Vietri sul Mare (SA), Italy. September 4-7, 2012. "A Branch and Price and Cut approach to the Multi-Depot Vehicle Routing Problem with

	<p>Private fleet and Common carriers." A. Ceselli, G. Righini, E. Tresoldi, D. Vigo. EURO/INFORMS 2013, Roma, Italy. July 1-4, 2013.</p> <ul style="list-style-type: none"> • "Disruption Management in Local Public Transport: Service Regularity Issues" S. Gualandi, F. Malucelli, E. Tresoldi. AIRO 2014, September 2-5, 2014. • "Disruption Management in Local Public Transport: Service Regularity Issues", Emanuele Tresoldi, Federico Malucelli, Stefano Gualandi and Samuela Carosi, 2015 TSL Workshop, 6-8 July 2015. • "Delay Management in Public Transportation: Service Regularity Issues and Crew Re-scheduling", Emanuele Tresoldi, Federico Malucelli, Stefano Gualandi and Samuela Carosi, EWGT 2015, 14-16 July 2015. • "Real-time Delay Management in Local Public Transportation via Vehicle and Crew Re-scheduling: a Case Study" Emanuele Tresoldi, Federico Malucelli and Samuela Carosi. AIRO 2016, 6-9 September 2016. • "Optimization based planning of PEDIBUS lines: an arc based approach", Federico Malucelli, Maddalena Nonato, Emanuele Tresoldi. EWGT 2017, 4-6 September 2017. • "Recovery from disruption in a subway network", Emanuele Tresoldi, Federico Malucelli, Valerio De Maria. ODS 2017, 4-7 September 2017. • "Designing Pedibus Lines: a Path Based Approach", Emanuele Tresoldi, Federico Malucelli, Maddalena Nonato. EURO/ALIO 2018, 25-26 June 2018 • "A primal stabilization approach for column generation applied to vehicle scheduling problems", Benedetta Pratelli, Samuela Carosi, Antonio Frangioni, Laura Galli, Leopoldo Girardi, Emanuele Tresoldi. ODS 2018, 10-13 September 2018
Prizes	<ul style="list-style-type: none"> • In 2008 my master's degree thesis "Optimization Algorithms for data transmission planning and scheduling problems in ESA's Mars Express space mission" has been rewarded by Associazione Italiana Ricerca Operativa as best Italian master's degree thesis in Operational Research. • In 2009, Ph.D. grant at Università degli Studi di Milano. • In 2016 I have received the Best application-oriented paper award by Associazione Italiana di Ricerca operativa for the "Disruption and delay management algorithm project". Collaboration with ATM (Azienda Trasporti Milanesi) and MAIOR. • Second place in the MINO Challenge 2016: "The Total Waste Water Network Design and Operation Problem". The competition was organized by ORTEC, the Mixed Integer Nonlinear Optimization initial training network (MINO), and Royal Dutch Shell. MINO president prof. Andrea Lodi (andrea.lodi@polymtl.ca)
Projects and collaborations	<ul style="list-style-type: none"> • PRIN 2008 (PUR 90%), analysis of mathematical models for deterministic and stochastic optimization. • UPPO/NUP, new algorithms for the day-ahead energy market. Collaboration between RSE (Ricerca sul Sistema Energetico) and GME (Gestore del Mercato Energetico, company wholly owned by the Ministry of Economy and Finance managing the energy market in Italy) From January 2012 to December 2013, Supervisor Dott. Alberto Gelmini (alberto.gelmini@rse-web.it). • SINTESI, real-time optimization for public transport. Collaboration between MAIOR, Politecnico di Milano and Università di Pisa supported by Regione Toscana. From January 2014 to January 2015 Supervisor prof Federico Malucelli (federico.malucelli@polimi.it) • DMA, disruption management algorithms for public transport. Collaboration between ATM (Azienda Trasporti Milanesi, the company managing public transport in Milano, Italy), MAIOR and Politecnico di Milano. From January 2015 to January 2017 Supervisor prof Federico Malucelli (federico.malucelli@polimi.it) • Sustainable Transportation, design and development of optimization algorithm for network design and routing problems related to means of transportation having low impact on the environment. Collaboration between Politecnico di Milano and Università degli studi di Ferrara. Supervisors prof Federico Malucelli (federico.malucelli@polimi.it) and prof.ssa Maddalena Nonato (nntmdl@unife.it). • AD-COM Advanced Cosmetics Manufacturing, in collaboration with Ancorotti Cosmetics Srl, Eurofins Biolab Srl, Omnicos Group Srl, Regi Srl, Lumson Spa, Politecnico di Milano. Scientific Director Prof Riovanni Righini (Giovanni.righini@unimi.it)

Teaching	
Dates Occupation or position held Main activities and responsibilities Name and address of employer Type of business or sector	January 2016 – Now Co-Supervisor for Master Degree Thesis Co-Supervisor for Master Degree Thesis in computer science engineering (concentration: operations research) Politecnico di Milano Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB) Via Ponzio 34/5 Milano, Italy Mathematical Modeling, Operations Research
Dates Occupation or position held Main activities and responsibilities Name and address of employer Type of business or sector	March 2016 – January 2018 Lab Teacher Lab Teacher for the Graph Optimization Class (English/Italian) Politecnico di Milano Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB) Via Ponzio 34/5, Milano, Italy Teaching, Lab, Mathematical Modeling, Network Optimization Algorithm.
Dates Occupation or position held Main activities and responsibilities Name and address of employer Type of business or sector	March 2014 – June 2018 Lab Teacher Lab Teacher for the Foundations of Operations Research Class (English/Italian) Politecnico di Milano Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB) Via Ponzio 34/5, Milano Italy Teaching, Lab, Operations Research
Dates Occupation or position held Main activities and responsibilities Name and address of employer Type of business or sector	March 2015 – Now Teaching assistant Teacher for Exercises Sessions of the Foundations of Operations Research Class (English/Italian) Politecnico di Milano Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB) Via Ponzio 34/5, Milano Italy Teaching, Operations Research
Dates Occupation or position held Main activities and responsibilities Name and address of employer Type of business or sector	October 2008 – Now On-line Tutor On-line Tutor for the Algorithms and Data Structures On-line Class Supervisor Prof.ssa Sabrina De Capitani di Vimercati Università degli studi di Milano Dipartimento di tecnologie dell'informazione Via Bramante 65, 26013 Crema, Italy Tutoring, Teaching, Algorithms and Data Structures
Dates Occupation or position held Main activities and responsibilities Name and address of employer Type of business or sector	April 2012, April 2013 Teacher Teacher for the project "La ricerca operativa nelle scuole superiori" Organizer Prof. Giovanni Righini Total Hours: 4 Università degli studi di Milano Dipartimento di tecnologie dell'informazione Via Bramante 65, 26013 Crema, Italy Teaching / Operational research
Dates Occupation or position held Name and address of employer Type of business or sector	September 2010, September 2011 Teacher for MiniMat class (Introduction to Mathematics 24 hours/year) Organizer Prof. Stefania De Stefano (Dipartimento di Matematica, Università degli Studi di Milano) Università degli studi di Milano Dipartimento di tecnologie dell'informazione Via Bramante 65, 26013 Crema, Italy Teaching / Math

Personal skills and competences Mother tongue(s) Other language(s) Self-assessment <i>European level (*)</i> English French Certificate Social skills and competences Organizational skills and competences Technical skills and competences Computer skills and competences Artistic skills and competences Driving license(s)	Italian																								
	<table border="1"> <thead> <tr> <th colspan="4">Understanding</th> <th colspan="2">Speaking</th> </tr> <tr> <th colspan="2">Listening</th> <th colspan="2">Reading</th> <th colspan="2">Spoken interaction</th> </tr> </thead> <tbody> <tr> <td>B2</td> <td>Independent user</td> <td>B2</td> <td>Independent user</td> <td>B2</td> <td>Independent user</td> </tr> <tr> <td>A2</td> <td>Basic User</td> <td>A2</td> <td>Basic User</td> <td>A2</td> <td>Basic User</td> </tr> </tbody> </table>	Understanding				Speaking		Listening		Reading		Spoken interaction		B2	Independent user	B2	Independent user	B2	Independent user	A2	Basic User	A2	Basic User	A2	Basic User
	Understanding				Speaking																				
	Listening		Reading		Spoken interaction																				
	B2	Independent user	B2	Independent user	B2	Independent user																			
A2	Basic User	A2	Basic User	A2	Basic User																				
<i>(*) Common European Framework of Reference (CEF) level</i> <i>Cambridge English: First, also known as First Certificate in English (FCE).</i>																									
Good ability to live in multicultural environments. Good ability to adapt to different working places.																									
Sense of organization (experience in management of a little store as voluntary). Good experience in schoolboys' management (experience in didactic support as voluntary).																									
Good knowledge of Operational Research techniques, Mathematical Programming, Constraint Programming, Optimization Algorithms and Heuristics. Good command of solver tool like SCIP, CPLEX, GLPK, DICOPT, CONOPT, IPOPT, LP_SOLVE. Good command of high-level modeling system for mathematical programming problems like COMET, GAMS, AMPL.																									
Good knowledge of C/C++/C#, Python, R and Java programming languages. Knowledge of HTML/XML/CSS, Flash, SQL, PHP. Good command of Microsoft Office and Openoffice tools. Detailed knowledge of Microsoft Windows (98/2000/XP/Vista/7/10) and Linux. Basic knowledge of graphic design applications.																									
Used to be a guitar player.																									
Category B.																									

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 (Codice in materia di protezione dei dati personali) e sue successive modifiche e integrazioni, nonché del Regolamento UE 679/2016 (Regolamento Generale sulla Protezione dei dati o, più brevemente, RGPD).

Milano 12/02/2019

Emanuele Tresoldi