



Academic appointments

- 2025– Associate Professor of Computer Science, Department of Economical Sciences, University of Bergamo, Bergamo, Italy.
- 2022–2025 Researcher in Computer Science, Department of Economical Sciences, University of Bergamo, Bergamo, Italy.
- 2020–22 Associate Professor of Operational Research, Department of Mathematical Sciences, University of Southampton, Southampton, UK.
- 2016–20 Lecturer (Level 5, equiv. to Lecturer B) in Operational Research, Department of Mathematical Sciences, University of Southampton, Southampton, UK.
- 2019 Visiting Professor, Université Paris Dauphine.
- 2018 Visiting Professor, Politecnico di Milano.
- 2018 Visiting Professor, Université Paris Dauphine.
- 2012–16 Postdoctoral researcher, Lehrstuhl II für Mathematik (Department of Mathematics II), RWTH Aachen University, Aachen, Germany, Discrete Optimization group headed by Prof. Arie Koster.
- 2011–12 Postdoctoral researcher, Dipartimento di Elettronica e Informazione (Department of Electronics and Computer Science), Politecnico di Milano, Italy, Operations Research group headed by Prof. F. Maffioli.
- 2010 Visiting scholar, Tepper School of Business, Carnegie-Mellon University, Pittsburgh, US, Pennsylvania, Supervisor: Prof. F. Margot.

Qualifications

- 2022 National Scientific Qualification (Abilitazione Scientifica Nazionale) as Full Professor - sector “01/A6 Ricerca Operativa” (Operations Research).
- 2021–23 Fellow of the Alan Turing Institute, UK.
- 2021 National Scientific Qualification (Abilitazione Scientifica Nazionale) as Associate Professor - sector “01/B1 Informatica” (Computer Science).
- 2020 National Scientific Qualification (Abilitazione Scientifica Nazionale) as Associate Professor - sector “01/A6 Ricerca Operativa” (Operations Research).
- 2017– Fellow of the Academy HE (formerly known as Higher Education Academy) (awarded: 15.12.2017), awarded in recognition of attainment against the “UK Professional Standards Framework” for teaching and learning support in higher education.
Recognition reference: PR139371
- 2008–11 PhD in Information Technology (awarded: 16.02.2011), Dipartimento di Elettronica e Informazione (Department of Electronics and Computer Science, Operations Research Group), Politecnico di Milano, Advisor: Prof. E. Amaldi.
Thesis: *On coordinated cutting plane generation and mixed integer programs with nonconvex 2-norm constraints.*
- 2005–07 MSc in Engineering of Computing Systems (awarded: 20.12.2007), Politecnico di Milano, Grade: 110/110 cum laude.
Thesis: *Hyperplane clustering and piecewise linear model fitting.*
- 2002–05 BSc in Engineering of Computing Systems (awarded: 28.09.2005), Politecnico di Milano, Grade: 110/110 cum laude.
Thesis: *New constructive heuristics for finding minimal fundamental cycle bases in graphs.*

Research grants

- 2023–25 **Principal Investigator of the project Space-time graph convolutional neural networks (ST-GCN): learning and predicting time-varying graph relationships with applications to the air transportation sector**, *funder: University of Bergamo*, budget: 64,800 EUR.
- 2023–25 **Investigator (and Local-Unit Leader) of PRIN-PNRR Project HEXAGON: Highly-specialized EXact Algorithms for Grid Operations at the National level**, *funder: EU's Next-Generation EU initiative and Italian Ministry of University and Research (MUR)*, budget: 232,300 EUR.
- 2022–22 **Investigator of Project 7316614: Ad Hoc Training On Stochastic Programming & Optimisation**, *funder: Sainsbury's, UK*, budget: 6,400 GBP.
- 2020–22 **Recipient of a Royal Society and China National Science Foundation International Exchange Grant**, *funder: the UK's Royal Society and China's National Science Foundation*, budget: 12,000 GBP.
- 2020–21 **Investigator of the “Economic Ageing of Transformers” project**, *funder: the National Grid*, budget: 446,814 GBP.
- 2018–19 **Recipient of the Paris Dauphine Visiting Professor Grant**, *funder: Université Paris Dauphine*, budget: 2,900 GBP.
- 2018–19 **Recipient of the ESRC Impact Acceleration 'Next Generation Services' fund**, *funder: University of Southampton*, budget: 3494.40 GBP.
- 2017–18 **Recipient of the Paris Dauphine Visiting Professor Grant**, *funder: Université Paris Dauphine*, budget: 2,900 GBP.
- 2017–18 **Recipient of the SIRDF-FBLA Strategic Interdisciplinary Research Development Fund 2017/2018 for the project: W-GREENBELT: Workshop on GREEN and BluE Logistics and Transport**, *funder: Faculty of Business, Law and Arts, University of Southampton*, budget: 6,789 GBP.
- 2016–17 **Recipient of the SIRDF-FHSMS Strategic Interdisciplinary Research Development Fund 2016/2017 for the project Hierarchical optimization techniques for forecasting**, *funder: Faculty of Social, Human and Mathematical Sciences, University of Southampton*, budget: 6,959 GBP.
- 2015–16 **Recipient of the RWTH Start-Up grant for early-career researchers for the project From the simplex method to cutting plane algorithms: bound-optimal cuts and bound-improving pivoting rules**, *funder: RWTH Aachen University*, budget: 20,000 EUR.

Participation to research projects and consultancy activities

- 2022–22 **Ad Hoc Training On Stochastic Programming & Optimisation**, *funded by Sainsbury's, UK*.
- 2020–21 **Economic Ageing of Transformers**, *funded by the National Grid, UK*.
Development of optimization algorithms for assessing the economical impact of updating the ratings of transformers
- 2018 **UK Met Office, Exeter, UK**.
Development of optimization algorithms for personnel rostering subject to fairness and cyclicity constraints.
- 2014–16 **Robust optimization of power networks**, *funded by BMWi, Bundesministerium für Wirtschaft und Energie (Federal ministry for economy and energy), Germany*, industrial partner: ProCom GmbH, university: RWTH Aachen University.
- 2013–16 **VINO: Virtual Network Optimization**, *funded by BMBF, Bundesministerium für Bildung und Forschung (Federal ministry for education and research), Germany*, university: RWTH Aachen University.
- 2012–13 **Robust Mixed-Integer Linear Programming**, *funded by Google Inc.*, university: RWTH Aachen University.
- 2011–12 **Planning and operation of IP networks with low energy consumption**, *funded by Lombardy Region (Italy), within the project “Green ICT & ICT for Green”*, university: Politecnico di Milano.
- 2011–12 **CESI (Centro Elettronica Sperimentale Italiano, Italian Center for Experimental Electronics), Milan, Italy**.
Development of Mixed-Integer Linear Programming techniques to solve optimal power flow, outage minimization, and unit commitment problems in the Italian power network.
- 2011 **Coordinated cutting plane methods for integer linear programming**, *funded by MIUR, Ministero dell'Istruzione, dell'Università e Ricerca (Ministry for education, university, and research), Italy*, university: Politecnico di Milano.
- 2008–10 **DECEMbRIA: decisions in health-care emergencies**, *funded by Lombardy Region, Health-care Directorate-General (Italy)*, partner: 118 Emergency Service operations center, university: Politecnico di Milano.

Industrial collaborations within student supervisions

- 2016– Collaborations with the following companies, Airbus, British Telecom, Babcock Aviation, Babcock Land, Gousto, De La Rue, Royal National Lifeboat Institute, Hampshire City Council (UK), Johnsons Controls, Microlise, Movement Strategies.

PhD dissertation

- [D1] **On coordinated cutting plane generation and mixed integer programs with nonconvex 2-norm constraints**, Dipartimento di Elettronica e Informazione, Politecnico di Milano, 2011.

Edited volumes

- [E1] **Computational Logistics: 8th International Conference, ICCL 2017, Southampton, United Kingdom, October 18-20, 2017, Proceedings**, with T. Bektas, T. Martinez-Sykora, S. Voß, Lecture Notes in Computer Science, Springer, volume 10572.

Chapters in books

- [C2] **Definitional questions in a historical perspective**, “Artificial Intelligence: a research agenda (Intelligenza artificiale: un’agenda di ricerca)”, M.F. Murru, ed., Università degli studi di Bergamo, 2024.
- [C1] **A Unified Framework for Multistage Discrete Optimization**, with T. Ralphs, “Bilevel optimization: advances and next challenges”, Dempe, S., Zemkoho, A., eds., Springer, 513–560, 2020.

Journal papers

- [J29] **Bridging theory and practice: Efficiently solving the unit commitment problem in production cost models**, with P. Bunnak, S. Galelli, Energy, 322 (2025), 135454.
- [J28] **Let There be Direction in Hypergraph Neural Networks**, with S. Fiorini, M. Ciavotta, A. Del Bue, Transactions on Machine Learning Research (2024).
- [J27] **Using artificial intelligence and deep learning to optimise the selection of adult congenital heart disease patients in S-ICD screening**, with ElRefai, M., Abouelasaad, M., Conibear, I., Wiles, B.M., Dunn, A.J., Zemkoho, A.B., Morgan, J. and Roberts, P.R., Indian Pacing and Electrophysiology Journal 24 (4), 192-199 (2024).
- [J26] **A numerically exact algorithm for the bin-packing problem**, with R. Baldacci, J.F. Cordeau, F. Furini, INFORMS Journal on Computing, 36(1), pp. 141-162 (2024).
- [J25] **Deep learning and hyperparameter optimization for assessing one’s eligibility for a subcutaneous implantable cardioverter-defibrillator**, with A.J. Dunn, M. ElRefai, P.R. Roberts, B.M. Wiles, A.B. Zemkoho, Annals of Operations Research, 238:309–335 (2023).
- [J24] **Correlation analysis of deep learning methods in S-ICD**, with M. ElRefai, M. Abouelasaad, B.M. Wiles, A.J. Dunn, A.B. Zemkoho, J.M. Morgan, P.R. Roberts, Annals of Noninvasive Electrocardiology, 2023, 28(4).
- [J23] **Role of deep learning methods in screening for subcutaneous implantable cardioverter defibrillator in heart failure**, with M. ElRefai, M. Abouelasaad, B.M. Wiles, A.J. Dunn, A.B. Zemkoho, J.M. Morgan, P.R. Roberts, Annals of Noninvasive Electrocardiology, 2023, 28(1), e13028.
- [J22] **Energy Storage Operation and Electricity Market Design: On the Market Power of Monopolistic Storage Operators**, with E. Bjorndal, M. Bjorndal, M.-F. Körner, C. Leinauer, M. Weibelzahl, European Journal of Operational Research, 307(2), 887–909 (2023).
- [J21] **Submodular maximization of concave utility functions combined with a set-union operator with applications to maximal covering location problems**, with F. Furini, I. Ljubic, Mathematical Programming, 195, 9–56 (2022).
- [J20] **Deep learning-based insights on T:R ratio behaviour during prolonged screening for S-ICD eligibility**, with M. ElRefai, M. Abouelasaad, Benedict M. Wiles, Anthony J. Dunn, Alain B. Zemkoho, Paul R. Roberts, Journal of Interventional Cardiac Electrophysiology (first online 13th May 2022).
- [J19] **Deep learning methods for screening patients’ S-ICD implantation eligibility**, with A. Dunn, M. ElRefai, P. Roberts, B. Wiles, A. Zemkoho, Artificial Intelligence in Medicine 119 (2021) 102139.
- [J18] **On the exact separation of cover inequalities of maximum depth**, with D. Catanzaro, F. Furini, Optimization Letters 16, 449–469 (2022).
- [J17] **Optimizing over the Closure of Rank Inequalities with a Small Right-Hand Side for the Maximum Stable Set problem via Bilevel Programming**, with S. Gualandi, INFORMS Journal on Computing 34(2):1006-1023 (2021).

- [J16] **Airport Capacity Extension, Fleet Investment, and Optimal Aircraft Scheduling in a Multi-Level Market Model: Quantifying the Costs of Imperfect Markets**, with *M. Sirvent, M. Weibelzahl*, *OR Spectrum* 43 (2), 367–408 (2021).
- [J15] **A new combinatorial branch-and-bound algorithm for the Knapsack Problem with Conflicts**, with *F. Furini, P. San Segundo*, *European Journal of Operational Research*, 289 (2), 435–455 (2021).
- [J14] **Elastic traffic engineering subject to a fair bandwidth assignment via bilevel programming**, with *L. Gianoli, E. Amaldi, A. Capone*, *IEEE/ACM Transactions on Networking*, 28 (6), 2407–2420 (2020).
- [J13] **A lexicographic pricer for the fractional bin packing problem**, with *F. D’Andreagiovanni, F. Furini*, *Operations Research Letters*, 47(6), 622–628 (2019).
- [J12] **Computing a Pessimistic Leader-Follower Equilibrium with Multiple Followers: the Mixed-Pure Case**, with *A. Marchesi, N. Gatti*, *Algorithmica*, 82(5), 1189–1238 (2019).
- [J11] **Leadership in Singleton Congestion Games: What is Hard and What is Easy**, with *A. Marchesi, M. Castiglioni, N. Gatti*, *Artificial Intelligence (AIJ)*: 227, 1–31 (2019).
- [J10] **Bilevel programming methods for computing single-leader-multi-follower equilibria in normal-form and polymatrix games**, with *N. Basilico, A. Marchesi, N. Gatti*, *EURO Journal on Computational Optimization*, 8(1), 3–31 (2019).
- [J9] **A new branch-and-bound algorithm for the maximum edge-weighted clique problem**, with *P. San Segundo, F. Furini, I. Ljubic*, *European Journal of Operational Research (EJOR)*: 278 (1), 76–90 (2019).
- [J8] **Lot sizing with storage losses under demand uncertainty**, with *A. Koster, N. Spiekermann*, *Journal of Combinatorial Optimization* 36: 763–788 (2018).
- [J7] **A workload-dependent task assignment policy for crowd-sourcing**, with *I. Catallo, P. Fraternali, D. Martinenghi*, *World Wide Web Journal*: 20 (6): 1179–1210 (2017).
- [J6] **Discrete optimization methods to fit piecewise-affine models to data**, with *E. Amaldi, L. Taccari*, *Computers and Operations Research*, 75: 214–230 (2016).
- [J5] **Data Uncertainty in Virtual Network Embedding: Robust Optimization and Protection Levels**, with *A. Koster, M. Tieves*, *Journal of Network and Systems Management*, 24(3): 681–710 (2016).
- [J4] **Coordinated cutting plane generation via multi-objective separation**, with *E. Amaldi, S. Gualandi*, *Mathematical Programming, series A*, 143(1–2): 87–110 (2014).
- [J3] **Network optimization problems subject to max-min fair flow allocation**, with *E. Amaldi, A. Capone, L. Gianoli*, *IEEE Communications Letters*, 17(7): 1463–1466 (2013).
- [J2] **A distance-based point reassignment heuristic for the k -hyperplane clustering problem**, with *E. Amaldi*, *European Journal of Operations Research*, 227(1): 22–29 (2013).
- [J1] **On coordinated cutting plane generation and mixed integer programs with nonconvex 2-norm constraints**, *single author*, *4OR: A Quarterly Journal of Operations Research*, 11(1): 95–96 (2013).

Peer-reviewed papers published in conference proceedings

- [P26] **Graph Learning in 4D: a Quaternion-valued Laplacian to Enhance Spectral GCNs**, with *S. Fiorini, M. Ciavotta, E. Messina*, *AAAI Conference on Artificial Intelligence AAAI, Vancouver, CA, 2024. Proceedings of 41st AAAI*
- [P25] **SigMaNet: One Laplacian to Rule Them All**, with *S. Fiorini, M. Ciavotta, E. Messina*, *AAAI Conference on Artificial Intelligence AAAI, Washington, US, 2023. Proceedings of 40th AAAI*
- [P24] **Private Bayesian Persuasion with Sequential Games**, with *N. Celli, N. Gatti*, *AAAI Conference on Artificial Intelligence AAAI, New York, US, 2020. Proceedings of 37th AAAI*
- [P23] **Computing Optimal Ex Ante Correlated Equilibria in Two-Player Sequential Games**, with *A. Celli, N. Gatti*, *International Conference on Autonomous Agents and Multiagent Systems (AAMAS), Montreal, Canada, 2019. Proceedings of the 18th AAMAS*
- [P22] **Leadership in Singleton Congestion Games**, with *A. Marchesi, N. Gatti*, *International Joint Conference on Artificial Intelligence (IJCAI), Stockholm, Sweden, 2018. Proceedings of the 27th IJCAI, pages: 447–453*
- [P21] **Facility location with item storage and delivery**, with *J. Fliege, R. Walton*, *Optimization and Decision Science (ODS), Sorrento, Italy, 2017. Springer Proceedings in Mathematics and Statistics, A. Sforza, C. Sterle, eds., 2017*

- [P20] **On the separation of topology-free rank inequalities for the max stable set problem**, with *S. Gualandi*, International Symposium on Experimental Algorithms (SEA), London, UK, 2017. Leibniz International Proceedings in Informatics, pages 21:1–29:13, 2017
- [P19] **Pessimistic Leader-Follower Equilibria with Multiple Followers**, with *N. Gatti, A. Marchesi*, International Joint Conference on Artificial Intelligence (IJCAI), Melbourne, Australia, 2017. Proceedings of the 26th IJCAI, pages: 171–177
- [P18] **Bilevel programming approaches to the computation of optimistic and pessimistic leader-multi-follower equilibria**, with *N. Basilico, N. Gatti, A. Marchesi*, International Symposium on Experimental Algorithms (SEA), London, UK, 2017. Leibniz International Proceedings in Informatics, pages 31:1–31:14, 2017
- [P17] **On robust lot sizing problems with storage deterioration, with applications to heat and power cogeneration**, with *A. Koster, N. Spiekermann*, International Symposium on Combinatorial Optimization (ISCO), Vietri Sul Mare, Salerno, Italy, 2016. Combinatorial Optimization, LNCS, 9849: 26–37, 2016
- [P16] **Methods for Finding Leader-Follower Equilibria with Multiple Followers**, with *N. Basilico, N. Gatti*, International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2016), Singapore, 2016.
- [P15] **On the generation of cutting planes which maximize the bound improvement**, with *M. Tieves*, International Symposium on Experimental Algorithms (SEA), Paris, France, 2015. Experimental Algorithms, LNCS, 9125: 97–109, 2015
- [P14] **Virtual network embedding under uncertainty: exact and heuristic approaches**, with *A. Koster, M. Tieves*, International Conference on Design of Reliable Communication Networks (DRCN), Kansas City, US, Missouri, 2015. IEEE Xplore, 10.1109/DRCN.2015.7148978, 1–8, 2015
- [P13] **On the computational complexity of the virtual network embedding problem**, with *A. Koster, M. Tieves*, International Network Optimization Conference (INOC), Warsaw, Poland, 2015. Electronic Notes in Discrete Mathematics, 52: 213–220, 2016
- [P12] **Maximum throughput network routing subject to fair flow allocation**, with *E. Amaldi, L. Taccari*, International Symposium on Combinatorial Optimization (ISCO), Lisbon, Portugal, 2014. Combinatorial Optimization, LNCS, 8596: 1–12, 2014.
- [P11] **Bound-optimal cutting planes**, *single author*, Cologne-Twente Workshop on Graphs and Combinatorial Optimization (CTW), Enschede, Netherlands, 2013.
- [P10] **Energy-aware traffic engineering with elastic demands and MMF bandwidth allocation**, with *E. Amaldi, A. Capone, L. Gianoli*, IEEE International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD), IEEE, Berlin, Germany, 2013. IEEE Xplore, 10.1109/CAMAD.2013.6708111, 169–174, 2013
- [P9] **On single-path network routing subject to max-min fair flow allocation**, with *E. Amaldi, L. Gianoli, C. Ieri*, International Network Optimization Conference (INOC), Tenerife, Spain, 2013. Electronic Notes in Discrete Mathematics, 41: 543–550, 2013
- [P8] **k -Piecewise Affine Model Fitting: Heuristics based on multiway linear classification**, with *E. Amaldi, L. Taccari*, Cologne-Twente Workshop on Graphs and Combinatorial Optimization (CTW), Munich, Germany, 2012.
- [P7] **The impact of the norm on the k -Hyperplane Clustering problem: relaxations, restrictions, approximation factors, and exact formulations**, *single author*, Cologne-Twente Workshop on Graphs and Combinatorial Optimization (CTW), Frascati (Rome), Italy, 2011.
- [P6] **Formulations and heuristics for the k -Piecewise Affine Model Fitting problem**, with *E. Amaldi, L. Taccari*, Cologne-Twente Workshop on Graphs and Combinatorial Optimization (CTW), Frascati (Rome) Italy, 2011.
- [P5] **Improving cutting plane generation with 0-1 inequalities by bi-criteria separation**, with *E. Amaldi, S. Gualandi*, International Symposium on Experimental Algorithms (SEA), Ischia (Naples), Italy, 2010. Experimental Algorithms, LNCS, 6049: 266–275, 2010
- [P4] **Single and multi-group evacuation in medium and maxi health-care emergencies**, with *E. Amaldi, C. Iuliano*, Operations Research Applied to Health Services Conference (ORAHS), Genoa, Italy, 2010.
- [P3] **Optimization models for injured people evacuation in medium/maxi health-care emergencies**, with *E. Amaldi, C. Iuliano*, Workshop on Health Care Management (WHCM), IEEE, Venice, Italy, 2010. IEEE Xplore, 10.1109/WHCM.2010.5441250, 1–6, 2010

- [P2] ***k*-hyperplane clustering problem: column generation and a metaheuristic**, with *E. Amaldi, K. Dhyani*, Cologne-Twente Workshop on Graphs and Combinatorial Optimization (CTW), Paris, France, 2009.
- [P1] **An adaptive point-reassignment metaheuristic for the *k*-hyperplane clustering problem**, with *E. Amaldi*, Metaheuristic International Conference (MIC), Hamburg, Germany, 2009.

Invited talks and seminars

- [M22] **Advances in Spectral Graph and Hypergraph Learning: towards more expressive Laplacian matrices**, *Invited by Prof. S. Gualandi*, Università di Pavia, Pavia, 2025.
- [M21] **Graph and Hypergraph Learning via Complex- and Quaternion-Valued Spectral Convolutional Operators**, *MATH4AI, UMI Workshop*, Bari, Italy, 2025.
Keynote invited by UMI Group Mathematics for Artificial Intelligence and Machine Learning
- [M20] **Integer programming and norm minimization (in machine learning?)**, *Invited by Prof. P. Avella*, Università del Sannio, Benevento, 2023.
- [M19] **Bound-optimal cutting-plane generation**, *Invited by G. Eichfelder, J. Kronqvist, A. Lodi, F. Oliveira, E. Rönnberg*, Learning from Both Sides Linear and Nonlinear Mixed-Integer Optimization @ Institute Mittag-Leffler, Djursholm (SWE), 2023.
- [M18] **A Numerically-Exact Algorithm for the Bin Packing Problem**, *Invited by Prof. L. Mariani*, Università di Milano-Bicocca, Milan, 2023.
- [M17] **Minimizing vector norms with integer programming**, *Invited by Prof. S. Gualandi*, Università di Pavia, Pavia (virtually), 2022.
- [M16] **Integer programming and norm minimization for data science**, *Invited by Prof. E. Messina*, Università di Milano-Bicocca, Milan (virtually), 2021.
- [M15] **Bilevel programming and the computation of pessimistic single-leader-multi-follower equilibria in Stackelberg games**, *Invited by Dr. S. Toubaline*, LAMSADE, Université Paris-Dauphine, Paris, FR, 2019.
- [M14] **The bin packing problem with item class setups**, *Invited by Prof. E. Amaldi*, Politecnico di Milano, Department of Electronics, Information, and Biotechnologies, Milan, 2019.
- [M13] **Bilevel programming and the computation of pessimistic single-leader-multi-follower equilibria in Stackelberg games**, *Invited by Dr. T. Oertel*, Cardiff University, Department of Mathematics, Cardiff, 2019.
- [M12] **Computing Optimistic and Pessimistic Leader-Follower Equilibria with Multiple Followers**, *Invited by Dr. R. Misener*, Imperial Colledge London, Department of Computing, London, 2018.
- [M11] **Network routing through the Internet as a Stackelberg game**, *Invited by Prof. T. Ralphs*, Lehigh University, Department of Industrial and Systems Engineering, Bethlehem, US, Pennsylvania, 2018.
- [M10] **Exact single level and bilevel programming approaches to the computation of Leader-Follower Nash Equilibria in games with many followers**, *Invited by Dr. L. Tran-Thanh*, University of Southampton, AIC (Agents, Interactions and Complexity) seminar series, Department of Electronics and Computer Science, Southampton, 2017.
- [M9] **Network routing through the Internet as a Stackelberg game**, *Invited by Prof. H. Xu*, University of Southampton, Business Advisory Board meeting, CORMSIS (Centre for Operational Research, Management Science and Information Systems), University of Southampton, 2017.
- [M8] **Exact single level and bilevel programming approaches to the computation of Leader-Follower Nash Equilibria in games with many followers**, *Invited by Dr. S. Gualandi*, Pavia University, Pavia, 2017.
- [M7] **Network routing through the Internet as a Stackelberg game**, *Invited by Prof. A. Koster*, RWTH Aachen University, Aachen, 2017.
- [M6] **Computing Leader-Follower Nash Equilibria in games with many followers via optimistic and pessimistic bilevel programming**, *Invited by Prof. A. Koster*, RWTH Aachen University, Aachen, 2016.
- [M5] **On bilevel programming and the computation of Leader-Follower (Nash) Equilibria in games with many followers**, *Invited by Prof. N. Gatti*, Politecnico di Milano, Milan, 2016.
- [M4] **(Bilevel programming and) bound-optimal cutting plane generation**, *Invited by Prof. T. Ralphs*, Department of Industrial and Systems Engineering, Lehigh University, Bethlehem, US, Pennsylvania, 2015.
- [M3] **On the exact separation of rank inequalities for the maximum stable set problem**, *Invited by Dr. F. D'Andreagiovanni*, Zuse Institute Berlin (ZIB), Berlin, Germany, 2014.

- [M2] **Coordinated cutting plane generation via multi-objective separation and extensions**, *Invited by Prof. A. Koster*, RWTH Aachen University, Aachen, Germany, 2012.
- [M1] **Applications of exact mathematical programming**, *Invited by Dr. M. Pozzi*, Centro Elettronica Sperimentale Italiano, Italian Center for Experimental Electronics (CESI), Milan, Italy, 2011.

Conference oral/poster presentations

- [O38+M22] **Graph and Hypergraph Learning via Complex- and Quaternion-Valued Spectral Convolutional Operators**, *3rd Workshop of UMI Group Mathematics for Artificial Intelligence and Machine Learning (MATH4AI 2025)*, Bari, Italy, 2025.
Keynote invited by UMI Group Mathematics for Artificial Intelligence and Machine Learning
- [O37] **Graph and Hypergraph Learning via Complex- and Quaternion-Valued Spectral Convolutional Operators**, *Economics Winter Seminar 2025*, Castione della Presolana, Italy, 2025.
- [O38] **Graph Learning in 4D: a Quaternion-valued Laplacian to Enhance Spectral GCNs**, *AAAI Conference on Artificial Intelligence (AAAI 2024)*, Vancouver, Canada.
- [O37] **Investment models in the energy and aviation markets via multi-level optimization**, *Economics Winter Seminar 2024*, Castione della Presolana, Italy, 2024.
- [O36+M19] **Bound-optimal cutting-plane generation**, *with T. Ralphs*, *Learning from Both Sides Linear and Nonlinear Mixed-Integer Optimization @ Institute Mittag-Leffler, Djursholm (SWE)*, 2023.
Invited by G. Eichfelder, J. Kronqvist, A. Lodi, F. Oliveira, E. Rönnberg
- [O35] **Mixed integer bilevel programming methods for solving pessimistic multi-follower bilevel problems over simplices.**, *1st International Conference on Bilevel Optimization (ICBO2023)*, 2023.
Southampton, UK
- [O34] **A Numerically-Exact Algorithm for the Bin Packing Problem**, *with R. Baldacci, F. Cordeau, F. Furini*, *31th Annual conference of the Association of European Operational Research Societies (EURO)*, Espoo, Finland, 2022.
- [O33] **Norm minimization problems in data science: an integer programming perspective**, *ECCO XXXV - CO 2022 Joint Conference*, Online, 2022.
- [O32] **Infinite-Precision Pattern-Enumeration Techniques for Bin Packing Problems**, *with R. Baldacci, F. Furini*, *63th Annual Meeting of the Operational Research Society (OR63)*, Online, 2021.
- [O31] **Decomposition methods for maximizing a submodular function combined with a set-union operator**, *with F. Furini, I. Ljubic*, *3rd IMA/OR Society Conference*, Online, 2021.
- [O30] **Decomposition methods for maximizing a submodular function combined with a set-union operator**, *with F. Furini, I. Ljubic*, *International Conference on Optimization and Decision Science (ODS)*, Online, 2020.
- [O29] **The bin packing problem with item class setups**, *with F. Furini, I. Ljubic*, *30th Annual conference of the Association of European Operational Research Societies (EURO)*, Dublin, Ireland, 2019.
- [O28] **Computing Pessimistic Leader-Follower Equilibria with Multiple Followers (in the mixed-pure case)**, *with N. Gatti, A. Marchesi*, *International Symposium on Mathematical Programming (ISMP)*, Bordeaux, France, 2018.
- [O27] **Computing Leader-follower equilibria with multiple followers under the assumption of pessimism in the mixed-pure case**, *with N. Gatti, A. Marchesi*, *International Workshop on Bilevel Programming (IWOBIP)*, Lille, France, 2018.
- [O26] **Using Mathematical Optimisation and Game Theory to improve the speed of broadband connections over the Internet**, *with E. Amaldi, A. Capone, L. Gianoli*, *STEM for Britain, House of Commons (Westminster)*, London, UK, 2017.
- [O25] **On the separation of topology-free rank inequalities for the max stable set problem**, *with S. Gualandi*, *International Symposium on Experimental Algorithms (SEA)*, London, UK, 2017.
Leibniz International Proceedings in Informatics, pages 21:1–29:13, 2017
- [O24] **Bilevel programming approaches to the computation of optimistic and pessimistic leader-multi-follower equilibria**, *with N. Basilico, N. Gatti, A. Marchesi*, *International Symposium on Experimental Algorithms (SEA)*, London, UK, 2017.
Leibniz International Proceedings in Informatics, pages 31:1–31:14, 2017
- [O23] **On the computational complexity of the virtual network embedding problem**, *with A. Koster, M. Tieves*, *International Network Optimization Conference (INOC)*, Warsaw, Poland, 2015.
Electronic Notes in Discrete Mathematics, 52: 213–220, 2016

- [O22] **On the generation of cutting planes which maximize the bound improvement**, with *M. Tieves*, International Symposium on Experimental Algorithms (SEA), Paris, France, 2015.
Experimental Algorithms, LNCS, 9125: 97–109, 2015
- [O21] **Dynamic robust optimization approaches to lot sizing**, with *A. Koster, N. Spiekermann, L. Taccari*, Modeling and optimization: theory and applications (MOPTA), Bethlehem, US, Pennsylvania, 2015.
- [O20] **Applications of bilevel programming to cutting plane generation**, with *M. Tieves, S. Gualandi*, International Symposium on Mathematical Programming (ISMP), Pittsburgh, US, Pennsylvania, 2015.
- [O19] **Bound optimal cutting planes: on the generation of cuts which maximize the bound improvement**, Annual Conference of the French Operations Research Society (ROADEF), Marseille, FR, 2015.
- [O18] **On the exact separation of rank inequalities for the maximum stable set problem**, with *S. Gualandi*, Integer Programming and Combinatorial Optimization (IPCO), Bonn, Germany, 2014.
- [O17] **Maximum throughput network routing subject to fair flow allocation**, with *E. Amaldi, L. Taccari*, International Symposium on Combinatorial Optimization (ISCO), Lisbon, Portugal, 2014.
Combinatorial Optimization, LNCS, 8596: 1–12, 2014.
- [O16] **Virtual network embedding with network design elements: reservation of physical resources**, with *A. Koster, M. Tieves*, INFORMS Annual Meeting, San Francisco, US, California, 2014.
- [O15] **On the generation of cuts which maximize the bound improvement**, with *M. Tieves*, Annual Conference of the Italian Operational Research Society (AIRO), Como, Italy, 2014.
Within the “Mixed-integer linear programming” organized session, chaired by myself and *S. Gualandi*.
- [O14] **On the exact separation of rank inequalities for the stable set problem**, with *S. Gualandi*, International Symposium on Combinatorial Optimization (ISCO), Lisbon, Portugal, 2014.
- [O13] **Bilevel optimization models for traffic engineering with elastic demands and fair flow allocation**, with *E. Amaldi, A. Capone, L. Gianoli*, INFORMS Telecommunications Conference (INFORMS TELECOM), Lisbon, Portugal, 2014.
- [O12] **Bound-optimal cutting planes**, *single author*, Cologne-Twente Workshop on Graphs and Combinatorial Optimization (CTW), Enschede, Netherlands, 2013.
- [O11] **Valid inequalities and lifting for the 0-1 Gamma-robust knapsack problem**, with *C. Büsing, A. Koster*, European Conference on Operational Research (EURO), Rome, Italy, 2013.
- [O10] **Spatial branch-and-bound for nonconvex Euclidean norm constrained mathematical programs**, with *F. Margot*, International Symposium on Mathematical Programming (ISMP), Berlin, Germany, 2012.
- [O09] **The impact of the norm on the k -Hyperplane Clustering problem: relaxations, restrictions, approximation factors, and exact formulations**, *single author*, Cologne-Twente Workshop on Graphs and Combinatorial Optimization (CTW), Frascati (Rome), Italy, 2011.
- [O08] **Multi-objective separation for sequentially coordinated cutting plane generation**, with *E. Amaldi, S. Gualandi*, Combinatorial Optimization Workshop (COW), Aussois, France, 2011.
- [O07] **(Beyond) sequentially coordinated cutting plane generation for inequalities with integer coefficients**, with *E. Amaldi, S. Gualandi*, Mixed Integer Programming Workshop (MIP), Waterloo, Canada, Ontario, 2011.
- [O06] **Improving cutting plane generation with 0-1 inequalities by bi-criteria separation**, with *E. Amaldi, S. Gualandi*, International Symposium on Experimental Algorithms (SEA), Ischia (Naples), Italy, 2010.
Experimental Algorithms, LNCS, 6049: 266–275, 2010
- [O05] **Exact bi-criteria cutting plane generation for inequalities with 0-1 coefficients**, with *E. Amaldi, S. Gualandi*, Mixed Integer Programming Workshop (MIP), Atlanta, US, Georgia, 2010.
- [O04] **An adaptive point-reassignment metaheuristic for the k -hyperplane clustering problem**, with *E. Amaldi*, Metaheuristic International Conference (MIC), Hamburg, Germany, 2009.
- [O03] **k -Hyperplane Clustering: an adaptive point-reassignment algorithm**, with *E. Amaldi*, International Symposium on Mathematical Programming (ISMP), Chicago, US, Illinois, 2009.
- [O02] **Towards a decision support system for injured people evacuation in medium/maxi emergencies**, with *E. Amaldi, C. Iuliano*, PhD Alumni Association Meeting (PhDei), Milan, Italy, 2009.
- [O01] **Discrete optimization algorithms for the k -hyperplane clustering problem**, with *E. Amaldi, K. Dhyan*, Annual Conference of the Italian Operational Research Society (AIRO), Ischia (Naples), Italy, 2008.

Activities as conference organizer

- [CO6] **HEXAGON2025**, *The second HEXAGON Workshop on Power Grids*, Benevento, Italy, September 2025.

- [CO6] **HEXAGON2024**, *The HEXAGON Workshop on Power Grids*, Bergamo, Italy, June 2024.
- [CO5] **ICBO2023**, *1st International Conference on Bilevel Optimization*, Southampton, UK, August 2023.
- [CO4] **OR63**, *63rd Annual conference of the Operational Research Society*, University of Southampton (Virtual), September 2021.
- [CO3] **W-GREENBELT 2018**, *Workshop on GREEN and BluE Logistics and Transport*, University of Southampton, 16-17 July 2018.
- [CO2] **ICCL 2017**, *International Conference on Computational Logistics*, University of Southampton, 18-20 October 2017.
- [CO1] **BODAF 2017**, *(Bilevel) Optimization, Data Analysis and Forecasting*, University of Southampton, 3-4 July 2017.

Activities as conference stream organizer

- [CStO2] **64th Annual Conference of the Operational Research Society 2022**, (*Warwick, UK*), stream title: “Combinatorial Optimisation”.
- [CStO1] **63rd Annual Conference of the Operational Research Society 2021**, (*Online, UK*), stream title: “Combinatorial Optimisation”; sessions: “Integer programming and combinatorial optimisation”, “Heuristic and scheduling problems”, “Submodularity, robustness and nonlinear optimisation”, speakers: I. Aliev, S. Gualandi, Y. Lu, V.T. Ramamoorthy, D. Paraskevopoulos, C. Lamas-Fernandez, J. Ward, F. Garuba, M. Anjos, and myself.

Activities as conference session organizer

- [CSO6] **ICBO2023**, *1st International Conference on Bilevel Optimization*, Southampton, UK, session title: “(Mixed) integer (nonlinear) bilevel optimization”, jointly organized with M. Schmidt.
- [CSO5] **IMA and OR Society Conference on Mathematics of Operational Research 2021**, (*Online, UK*), session title: “(Multilevel) optimization methods for energy transmission”, speakers: L. Schewe, M. Weibelzahl, P. Bartmeyer.
- [CSO4] **European Conference on Operational Research (EURO) 2019**, (*Dublin, IR*), session title: “Packing and Covering with Integer Programming”, speakers: P. Fath, F. Antonio Medrano, S. Coniglio, M. Sorensen.
- [CSO3] **IMA and OR Society Conference on Mathematics of Operational Research 2017**, (*Birmingham, UK*), session title: “Nonlinear and Bilevel Optimisation”, speakers: M. Sinnl, A. Zemkoho, S. Brierley.
- [CSO2] **International Symposium on Mathematical Programming (ISMP) 2015**, (*Pittsburgh, US, Pennsylvania*), session title: “Applications of Bilevel Programming to Combinatorial Optimization and Game Theory”, speakers: M. Carvalho, L. Lozano, C. Casorran-Amilburu.
- [CSO1] **Annual Conference of the Italian Operations Research Society (AIRO) 2014**, (*Como, Italy*), session title: “Mixed-integer linear programming”, speakers: S. Smriglio, M. Boccia, S. Coniglio.

Visits for scientific collaborations

- [I12] **Università La Sapienza, Rome**, February 2023, invited by Prof. F. Furini.
- [I11] **Dauphine University, Paris**, November 2019, invited by Dr. F. Furini.
- [I10] **Dauphine University, Paris**, June/July 2019, invited by Dr. F. Furini.
- [I9] **Dauphine University, Paris**, October 2018, invited by Dr. F. Furini.
- [I8] **Dauphine University, Paris**, May 2018, invited by Dr. F. Furini.
- [I7] **Lehigh University, Bethlehem**, April 2018, invited by Prof. T. Ralphs.
- [I6] **RWTH Aachen University, Aachen**, March 2017, invited by Prof. A. Koster.
- [I5] **RWTH Aachen University, Aachen**, April 2016, invited by Prof. A. Koster.
- [I4] **Politecnico di Milano, Milan**, March 2016, invited by Prof. N. Gatti.
- [I3] **Lehigh University, Bethlehem**, July 2015, invited by Prof. T. Ralphs.
- [I2] **Zuse Institute Berlin (ZIB), Berlin**, December 2014, invited by Dr. F. D’Andreagiovanni.
- [I1] **Politecnico di Milano, Milan**, a number of times since September 2012, invited by Prof. E. Amaldi and N. Gatti.
- [I0] **Carnegie-Mellon University, Pittsburgh**, January-March 2010, invited by Prof. F. Margot.

Researchers invited for scientific collaborations

- [V5] **S. Gualandi (University of Pavia)**, November 2018, invited to University of Southampton.

- [V4] **F. Furini (Dauphine University)**, *August 2018*, invited to University of Southampton.
- [V3] **T. Ralphs (Lehigh University)**, *April 2017*, invited to University of Southampton.
- [V2] **L. Taccari (Politecnico di Milano)**, *March 2015*, invited to RWTH Aachen University.
- [V1] **S. Gualandi (AntOptima)**, *November 2013*, invited to RWTH Aachen University.

Activities as editorial board member

2020 - **Associate Editor**, *Asia-Pacific Journal of Operational Research*.

Activities as reviewer

National research evaluation **VQR 2015-19 (Italian Research quality evaluation)**, *Referee*, ERC codes: *PE1_15 (Discrete mathematics and combinatorics)*, *PE6_6 (Algorithms, distributed, parallel and network algorithms, algorithmic game theory)*, *PE6_7 (Artificial intelligence, intelligent systems, multi agent systems)*, *PE6_11 (Machine learning, statistical data processing and applications using signal processing (e.g., speech, image, video))*.

Grants **Chilean National Fund for Scientific and Technological Development, FONDECYT (FONDECYT-CHILE)**, 2022.

Natural Sciences and Engineering Research Council of Canada (NSRC), 2020.

Journals **4OR**.

Annals of OR.

Applied Soft Computing.

Computational and Applied Mathematics.

Computer Networks.

Computers and Operations Research.

Discrete Optimization.

Energy.

EURO Journal on Computational Optimization.

European Journal of Operational Research.

European Journal on Computational Optimization.

Expert Systems with Applications.

IIIE Transactions.

IEEE Transactions on Cloud Computing.

IEEE Transactions on Network and Service Management.

INFOR (Information Systems and Operational Research).

INFORMS Networks.

INFORMS Journal on Computing.

INFORMS Operations Research.

International Journal of Hydrogen Energy.

International Journal of Parallel, Emergent and Distributed Systems.

Journal of Experimental Algorithmics.

Journal of the Operational Research Society.

Operations Research Letters.

Optimization Letters.

RAIRO Operations Research.

SIAM Journal of Optimization.

TOP (Journal of the Spanish Society of Statistics and Operations Research).

Conferences **NeurIPS 2025**, *Annual Conference on Neural Information Processing Systems*.

ODS 2025, *Optimization and Data Science*.

ECAI 2025, *European Conference on Artificial Intelligence*.

AAAI 2025, *AAAI Conference on Artificial Intelligence*.

EvoStar 2024.

AAAI 2024, *AAAI Conference on Artificial Intelligence*.

EvoApps 2023.

IPCO 2023, *Conference on Integer Programming and Combinatorial Optimization*.

EvoStar 2022.

WI 2021, *Internationale Tagung Wirtschaftsinformatik (International Conference on Information Systems)*.

STACS 2019, *Symposium on Theoretical Aspects of Computer Science*.

IJCAI 2018, *International Joint Conference on Artificial Intelligence*.

ICCL 2018, *International Conference on Computational Logistics*.

AAAI 2018, *AAAI Conference on Artificial Intelligence*.

ICCL 2017, *International Conference on Computational Logistics*.

ICAT 2017, *International Conference on Information, Communication and automation technologies*.

EvoCOMNET 2017, “Application of Nature-inspired Techniques for Communication Networks and other Parallel and Distributed Systems” track within *EvoSTAR 2017*.

AAAI 2017, *AAAI Conference on Artificial Intelligence*.

IJCAI 2016, *International Joint Conference on Artificial Intelligence*.

AAAI 2016, *AAAI Conference on Artificial Intelligence*.

CP 2015, *Conference on Principles and Practice of Constraint Programming*.

ENIC 2015, *European Network Intelligence Conference*.

INOC 2015, *International Network Optimization Conference*.

OPODIS 2014, *International Conference on Principles of Distributed Systems*.

DRCN 2014, *Design of Reliable Communication Networks*.

AAAI 2014, *AAAI Conference on Artificial Intelligence*.

SEA 2013, *Symposium on Experimental Algorithms*.

Activities as program committee member

EvoApplications 2026, *29th International Conference on the Applications of Evolutionary Computation*.

AAAI 2026, *AAAI Conference on Artificial Intelligence*.

NeurIPS 2025, *Annual Conference on Neural Information Processing Systems*.

ECAI 2025, *European Conference on Artificial Intelligence*.

AAAI 2025, *AAAI Conference on Artificial Intelligence*.

AAAI 2024, *AAAI Conference on Artificial Intelligence*.

EvoAPPS 2024, *27th International Conference on the Applications of Evolutionary Computation (part of EvoStar2024))*.

AAAI 2023, *AAAI Conference on Artificial Intelligence*.

EvoAPPS 2023, *26th International Conference on the Applications of Evolutionary Computation (part of EvoStar2023)*.

EvoAPPS 2021, *24th European Conference on the Applications of Evolutionary Computation, (part of EvoStar2021)*.

EvoAPPS 2020, *23rd European Conference on the Applications of Evolutionary and bio-inspired Computation, (part of EvoStar2020)*.

IJCAI 2019, *International Joint Conference on Artificial Intelligence*.

ICCL 2018, *International Conference on Computational Logistics*.

IJCAI-ECAI 2018, *International Joint Conference on Artificial Intelligence and European Conference on Artificial Intelligence*.

AAAI 2018, *AAAI Conference on Artificial Intelligence*.

EvoCOMNET 2018, *(workshop of EvoStar 2018)*.

ICCL 2017, *International Conference on Computational Logistics*.

EvoCOMNET 2017, *(workshop of EvoSTAR 2017)*.

AAAI 2017, *AAAI Conference on Artificial Intelligence*.

IJCAI 2016, *International Joint Conference on Artificial Intelligence*.

AAAI 2016, *AAAI Conference on Artificial Intelligence*.

Participation to conferences and workshops

As an organizer

2024 **HEXAGON2024**, *The HEXAGON Workshop on Power Grids, Bergamo, Italy, June 2023*.

As an organizer & presenter

- 2023 **1st International Conference on Bilevel Optimization (ICBO2023)**, 2023, Southampton, UK.
- 2021 **63th Annual Meeting of the Operational Research Society (OR63)**, 2021, Online.
- 2019 **OptML: Optimization and Machine Learning**, 2019, Southampton, UK.
- 2018 **W-GREENBELT 2018, Workshop on GREEN and BluE Logistics and Transport**, 2018, Southampton, UK.
- 2017 **International Conference on Computational Logistics**, 2017, Southampton, UK.
- . **(Bilevel) Optimization, Data Analysis and Forecasting**, 2017, Southampton, UK.

With an oral/poster presentation

- 3rd Workshop of UMI Group Mathematics for Artificial Intelligence and Machine Learning**, Bari, Italy.
- Economics Winter Seminar 2025**, Castione della Presolana, Italy.
- 2024 **AAAI Conference on Artificial Intelligence (AAAI 2024)**, Vancouver, Canada.
- Economics Winter Seminar 2024**, Castione della Presolana, Italy.
- 2023 **Learning from Both Sides (Linear and Nonlinear Mixed-Integer Optimization)**, 2022, Institute Mittag-Leffler, Djursholm, Sweden.
- 2022 **33rd Annual conference of the Association of European Operational Research Societies (EURO 2022)**, 2022, Espoo, Finland.
- 2021 **63th Annual Meeting of the Operational Research Society (OR63)**, 2021, Online.
- . **3rd IMA/OR Society Conference**, 2021, Online.
- 2020 **International Conference on Optimization and Decision Science (ODS)**, 2020, Online.
- 2019 **30th Annual conference of the Association of European Operational Research Societies (EURO 2019)**, 2019, Dublin, Ireland.
- 2018 **International Symposium on Mathematical Programming (ISMP)**, 2018, Bordeaux, France.
- . **International Workshop on Bilevel Programming (IWOBIP)**, 2018, Lille, France.
- 2017 **STEM for Britain, House of Commons (Westminster)**, 2017, London, UK.
- Symposium on Experimental Algorithms (SEA)**, 2017, London, UK.
- 2015 **Modeling and Optimization: Theory and Applications (MOPTA)**, 2015, Bethlehem, US, Pennsylvania.
- . **International Symposium on Mathematical Programming (ISMP)**, 2015, Pittsburgh, US, Pennsylvania.
- . **Symposium on Experimental Algorithms (SEA)**, 2015, Paris, France.
- . **International Network Optimization Conference (INOC)**, 2015, Warsaw, Poland.
- . **Conference of the French Society of Operations Research and Decision Support (ROADEF)**, 2015, Marseille, France.
- 2014 **Integer Programming and Combinatorial Optimization (IPCO)**, 2014, Bonn, Germany.
- . **INFORMS Annual Meeting**, 2014, San Francisco, US, California.
- . **International Symposium on Combinatorial Optimization (ISCO)**, 2014, Lisbon, Portugal.
- . **INFORMS Telecommunications Conference**, 2014, Lisbon, Portugal.
- 2013 **EURO-INFORMS Joint International Meeting**, 2013, Rome, Italy.
- . **Cologne-Twente Workshop on Graphs and Combinatorial Optimization (CTW)**, 2013, Enschede, Netherlands.
- 2012 **International Symposium on Mathematical Programming, ISMP**, 2012, Berlin, Germany.
- 2011 **Cologne-Twente Workshop on Graphs and Combinatorial Optimization (CTW)**, 2011, Rome, Italy.
- . **Mixed-Integer Programming Workshop (MIP)**, 2011, Waterloo, Canada, Ontario.
- . **Combinatorial Optimization Workshop (COW)**, 2011, Aussois, France.
- 2010 **Symposium on Experimental Algorithms (SEA)**, 2010, Naples, Italy.
- . **Mixed-Integer Programming Workshop (MIP)**, 2010, Atlanta, US, Georgia.
- 2009 **International Symposium on Mathematical Programming, ISMP**, 2009, Chicago, US, Illinois.
- 2008 **Annual Conference of the Italian Operations Research Society (AIRO)**, 2008, Naples, Italy.
- . **Metaheuristics International Conference (MIC)**, 2008, Hamburg, Germany.

As a delegate

- 2025 **9th AIRO Young Workshop**, 2025, Pavia, IT.
I acted as member for the Fedegari Best Poster Prize committee
- 2024 **Four Motors for Europe – Artificial Intelligence as an opportunity for**, *Four Motors for Europe – presidency handover to Lombardy*, 2024, Stuttgart, DE.
- 2024 **Mathematics for Artificial Intelligence and Machine Learning (MATH4AI 2023)**, 2024, Milan, Italy.
- 2023 **Ultraoptymal Workshop**, 2023, Bergamo, Italy.
. **L’Ufficio per il Processo tra presente e futuro nell’Italia del nord-ovest**, 2023, Turin, Italy.
- 2022 **DSA Summer conference**, 2022, Milan, Italy.
. **Workshop on Quantum Computing and Operations Research**, 2022, Fields Institute, Toronto (Online).
. **AI UK 2022**, *Alain Turing Institute*, 2022, ATI (Online).
- 2021 **Mixed Integer Programming Workshop**, 2021, Online.
- 2020 **Mathematical Foundations of Optimisation in Data Science**, *Newton Institute*, 2020, Online.
. **ISCO (International Symposium on Combinatorial Optimization)**, 2020, Online.
- 2016 **Annual Analytics Summit**, *OR Society*, 2016, London, UK.
. **First Aachen Discrete Mathematics Days**, 2016, Aachen, Germany.
. **Combinatorial Optimization Workshop (COW)**, 2016, Aussois, France.
- 2015 **Mixed-Integer Nonlinear Methods for Energy Systems Engineering (MINOMESE)**, 2015, Aachen, Germany.
- 2013 **Combinatorial Optimization Workshop (COW)**, 2013, Aussois, France.
- 2009 **Integer Programming and Combinatorial Optimization (IPCO)**, 2009, Bertinoro, Italy.

Administrative service

- 2023– Member of the University of Bergamo’s Interdisciplinary Working Group on Artificial Intelligence (**Tavolo di lavoro interdisciplinare sull’intelligenza artificiale dell’Università di Bergamo**), University of Bergamo, (<https://www.unibg.it/node/16191>).
- 2023– **BSc Dissertation Officer**, University of Bergamo.
- 2018–2022 **MSc Admission Officer**, *MSc programs: Operational Research, Operational Research & Finance, Operational Research & Statistics, Data and Decision Analytics*, University of Southampton.
- 2017–18 **MSc Exam Officer**, *MSc programs: Operational Research, Operational Research & Finance, Operational Research & Statistics*, University of Southampton.
- 2016–17 **Deputy Ethics Officer**, *Department of Mathematical Sciences*, University of Southampton.

Honors and awards

- 2021 **Paper in the “Selection of most cited papers” on EJCO**, paper title: “Bilevel programming methods for computing single-leader-multi-follower equilibria in normal-form and polymatrix games”, published on EURO Journal on Computational Optimization.
- 2017 **STEM for Britain**, Selected for “STEM for Britain” poster competition among early-career researchers at the House of Commons (Westminster), London, UK.
- 2008–10 **PhD scholarship**, (1st classified over more than 80 applicants at Dipartimento di Elettronica e Informazione, Politecnico di Milano), granted by MIUR (Italian Ministry for University and Research).
- 2002–07 **BSc and MSc student scholarships**, reduced student tuition fees (each eligible year) for merit.

Teaching experience (as instructor/lecturer)

- 2024–25 **Neural Networks and Deep Learning**, *Instructor & module leader*, 48 hours, with \simeq 30 MSc of Economics and Data Analysis, University of Bergamo.
Topics: history of AI, foundations of neural networks and deep learning, backpropagation, feedforward neural networks, recurrent neural networks, convolutional and graph-covolutional neural networks, variational autoencoders, large language models and generative AI
- . **Intelligenza Artificiale per la Comunicazione**, *Instructor & module leader*, 38 hours with \simeq 80 Msc students of Comunicazione, Informazione ed Editoria, University of Bergamo.
Topics: foundations of AI, history of AI, agentic modeling and reasoning, search problems and algorithms, neural networks and deep learning, large language models and generative AI

- . **INFORMATICA 86038**, *Instructor & module leader*, 48 hours with \simeq 350 BSc students of Economics and Management, University of Bergamo.
Topics: history of computer science, Boolean algebra and circuit synthesis, information representation, spreadsheets, databases, Python programming
- 2023–24 **INFORMATICA 86038 & 87111**, *Instructor & module leader*, 48 hours (twice) with \simeq 150 BSc students of Economics and Management, University of Bergamo.
Topics: history of computer science, Boolean algebra and circuit synthesis, information representation, spreadsheets, databases, Python programming
- 2022–23 **INFORMATICA 86038 & 87111**, *Instructor & module leader*, 48 hours (twice) with \simeq 150 BSc students of Economics and Management, University of Bergamo.
Topics: history of computer science, Boolean algebra and circuit synthesis, information representation, spreadsheets, databases
- 2021–22 **MATH2014: Algorithms**, *Instructor & module leader*, 48 hours with \sim 80 BSc students of Mathematics, University of Southampton.
Topics: Spanning Trees, Shortest Paths, Network Flows, Bipartite Matchings, Computational Complexity, \mathcal{NP} -Hardness and Approximability, Dynamic Programming
, (sabbatical in Sem I).
Combinatorial Optimization, NATCOR, *Course co-leader and co-instructor*, \sim 50 PhD students, University of Southampton (virtual).
Topics: Integer programming and norm minimization for machine learning, modeling techniques for integer programming, Lagrangian relaxations
- 2020–21 **MATH1058: Operational Research I and Mathematical Computing**, *Co-instructor & module leader*, 30 hours with \sim 160 BSc students of Mathematics, University of Southampton.
Topics: Sorting Algorithms, Computational Complexity, Dijkstra’s algorithm, Critical Path Method, Linear Programming, Simplex Method
MATH2014: Algorithms, *Instructor & module leader*, 48 hours with \sim 80 BSc students of Mathematics, University of Southampton.
Topics: Spanning Trees, Shortest Paths, Network Flows, Bipartite Matchings, Computational Complexity, \mathcal{NP} -Hardness and Approximability, Dynamic Programming
- 2019–20 **MATH1058: Operational Research I and Mathematical Computing**, *Co-instructor & module leader*, 30 hours with \sim 160 BSc students of Mathematics, University of Southampton.
Topics: Sorting Algorithms, Computational Complexity, Dijkstra’s algorithm, Critical Path Method, Linear Programming, Simplex Method
MATH2014: Algorithms, *Instructor & module leader*, 48 hours with \sim 80 BSc students of Mathematics, University of Southampton.
Topics: Spanning Trees, Shortest Paths, Network Flows, Bipartite Matchings, Computational Complexity, \mathcal{NP} -Hardness and Approximability, Dynamic Programming
Combinatorial Optimization, NATCOR, *Co-instructor*, \sim 50 PhD students, University of Southampton.
Topics: Integer programming and norm minimization for machine learning
- 2018–19 **MATH1058: Operational Research I and Mathematical Computing**, *Co-instructor & module leader*, 30 hours with \sim 160 BSc students of Mathematics, University of Southampton.
Topics: Sorting Algorithms, Computational Complexity, Dijkstra’s algorithm, Critical Path Method, Linear Programming, Simplex Method
MATH2014: Algorithms, *Instructor & module leader*, 48 hours with \sim 80 BSc students of Mathematics, University of Southampton.
Topics: Spanning Trees, Shortest Paths, Network Flows, Bipartite Matchings, Computational Complexity, \mathcal{NP} -Hardness and Approximability, Dynamic Programming
- 2017–18 **MATH1058: Operational Research I and Mathematical Computing**, *Co-instructor & module leader*, 30 hours with \sim 160 BSc students of Mathematics, University of Southampton.
Topics: Sorting Algorithms, Computational Complexity, Dijkstra’s algorithm, Critical Path Method, Linear Programming, Simplex Method
MATH2014: Algorithms, *Instructor & module leader*, 48 hours with \sim 80 BSc students of Mathematics, University of Southampton.
Topics: Sorting Algorithms, Spanning Trees, Shortest Paths, Network Flows, Bipartite Matchings, Computational Complexity, \mathcal{NP} -Hardness and Approximability
MATH2013: Introduction to Operational Research, *Co-instructor & module co-leader*, \sim 60 BSc students of Mathematics, University of Southampton.
Topics: Linear and Integer Programming, Simplex Method, Project Networks, Inventory Control

- 2016–17 **MATH2014: Algorithms**, *Instructor & module leader*, 48 hours with ~ 80 BSc students of Mathematics, University of Southampton.
Topics: Sorting Algorithms, Spanning Trees, Shortest Paths, Network Flows, Bipartite Matchings, Computational Complexity, \mathcal{NP} -Hardness and Approximability
- 2015–16 **MATH2014: Algorithms**, *Co-instructor (with Prof. C. Potts)*, 24 hours with ~ 80 BSc students of Mathematics, University of Southampton.
Topics: Network Flows, Bipartite Matchings, Computational Complexity, \mathcal{NP} -Hardness and Approximability
- 2015–16 **Optimization B**, *Co-instructor (with Prof. A. Koster)*, 20 hours with ~ 40 BSc/MSc students of Mathematics, RWTH Aachen University.
Topics: Shortest paths, Linear Programming with TUM and TDI formulations, Bipartite and Nonbipartite Matchings
- 2011–12 **Foundations of Operations Research & module leader**, *Instructor*, 45 hours with ~ 100 MSc students of Computer Science Engineering, Politecnico di Milano, Como Campus.
Topics: Shortest paths, Spanning Trees, Network flows, Linear Programming, Mixed-Integer Linear Programming

Teaching experience (as teaching assistant)

- 2014–15 **Integer Linear Optimization**, *Teaching assistant (course tutor, homework grading)*, MSc students of Mathematics, RWTH Aachen University.
- 2012–13 **Optimization B**, *Teaching assistant (course tutor, homework grading)*, BSc/master students of Mathematics, RWTH Aachen University.
- 2010–11 **Optimization**, *Teaching assistant (course and lab demonstrations tutor)*, MSc students of Computer Science Engineering and Mathematical Engineering, Politecnico di Milano.
Foundations of Operations Research, *Teaching assistant (course and lab demonstrations tutor)*, MSc students of Computer Science Engineering and Mathematical Engineering, Politecnico di Milano.
- 2009–10 **Optimization**, *Teaching assistant (course and lab demonstrations tutor)*, MSc students of Computer Science Engineering and Mathematical Engineering, Politecnico di Milano.
Operations Research, *Teaching assistant (course tutor)*, BSc students of Computer Science Engineering, Politecnico di Milano, Como campus.
- 2008–09 **Fundamentals of Operations Research D**, *Teaching assistant (lab demonstrations tutor)*, BSc students of Computer Science Engineering, Politecnico di Milano, Como Campus.
Fundamentals of Operations Research D-E, *Teaching assistant (course tutor)*, BSc students of Computer Science Engineering, Politecnico di Milano.
- 2007–08 **Fundamentals of Operations Research D**, *Teaching assistant (lab demonstrations tutor)*, BSc students of Computer Science Engineering, Politecnico di Milano, Como Campus.
Complements of Operations Research, *Teaching assistant (lab demonstrations tutor)*, MSc students of Computer Science Engineering and Mathematical Engineering, Politecnico di Milano.
Fundamentals of Operations Research D-E, *Teaching assistant (lab demonstrations tutor)*, MSc students of Computer Science Engineering, Politecnico di Milano.

Supervised students awards

- 2022 **CORMSIS Summer Project Prize**, *University of Southampton*, R. Anand.
- 2021 **CORMSIS Summer Project Prize**, *University of Southampton*, Q. Du.
- 2020 **CORMSIS Summer Project Prize**, *University of Southampton*, M.E. Voss, A. Inaba, X.-W. Teh.
- 2019 **CORMSIS Summer Project Prize**, *University of Southampton*, S.Y. Chin and Z. Xue.
- 2018 **CORMSIS Summer Project Prize**, *University of Southampton*, M. Orderud.
- 2017 **CORMSIS Summer Project Prize**, *University of Southampton*, C. Velez.
- 2016 **CORMSIS Summer Project Prize**, *University of Southampton*, K. Roy.

Supervision of postdoctoral researchers

- 2024–26 **G. Andreana**, *University of Bergamo*.
- 2024–25 **C. Tomasi**, *University of Bergamo*.
- 2020–22 **F. Garuba**, *University of Southampton*.
- 2020–20 **P.M. Bartmeyer**, *University of Southampton*.

Supervision of PhD students (graduated)

- 2019–2023 **M.A. Alammr**, *University of Southampton*.
(co-supervision (30%) with C. Potts and A. Martinez-Sykora)
- 2018–2023 **A.J. Dunn**, *University of Southampton*.
(co-supervision (40%) with A. Zemkoho and H. Qi)
- 2018–2022 **J.B. Badrodin**, *University of Southampton*.
(co-supervision (50%) with H. Qi)
- 2017–2022 **K.-M. Steinborn-Büsse**, *University of Southampton*.
(co-supervision (50%) with J. Fliege)
- 2016–21 **R. Walton**, *University of Southampton*.
(co-supervision (50%) with J. Fliege)

Supervision of PhD students (ongoing)

- 2022– **D. Benfield**, *University of Southampton*.
(co-supervision (33%) with A. Zemkoho and V. Phan)
- 2022– **J. Montree**, *University of Southampton*.
(co-supervision (50%) with H. Qi)

MSc/BSc student supervision (dissertations)

- 2022– **4 BSc students**, *University of Bergamo*.
(single supervisor)
- 2021–22 **5 MSc students**, *University of Southampton*, R. Anand, A. Arora, L. Main, S. Crofts, J. Rapley.
(single supervisor)
- 2020–21 **7 MSc students**, *University of Southampton*, Z. Chen, Q. Du, R. Jain, L. Moore, T. Boivert, S. Wang, T. Wu.
(single supervisor)
- 2019–20 **4 MSc students**, *University of Southampton*, M. Maliali, A. Inaba, X.-W. Teh, M.E. Voss.
(single supervisor)
- 2018–19 **1 Visiting MSc student**, *University of Southampton/University of Pavia*, L. Muffone.
(single supervisor)
- 3 MSc students**, *University of Southampton*, S.-Y. Chin, Z. Fei, Z. Xue.
(single supervisor)
- 2017–18 **3 MSc students**, *University of Southampton*, M. Orderud, Z. Luu, Q. Wu.
(single supervisor)
- 2016–17 **3 MSc students**, *University of Southampton*, C. Liu, G. Oyasor, C. Velez.
(single supervisor)
- 2015–16 **2 MSc students**, *University of Southampton*, K. Roy, C. Ma.
(single supervisor)
- 2009–16 **3 MSc students**, *Politecnico di Milano*, A. Nicotra, C. Ileri, D. Cardana.
(co-supervision with E. Amaldi)
- 2015 **1 MSc student**, *RWTH Aachen University*, J. Rosendahl.
(co-supervision with A. Koster)
- 2009–16 **3 MSc students**, *Politecnico di Milano*, A. Marchesi, S. Corti, A. Perrucci.
(co-supervision with N. Gatti)
- 2008–12 **7 BSc students**, *Politecnico di Milano*, A. Nicotra, M. Mazzoni, G. Personeni, I. Catallo, S. Celentano, F. Cardellini, E. Cereda.
(co-supervision with E. Amaldi)

Students supervision (within taught courses)

- 2020–21 **MATH6145: Presenting Reports**, *University of Southampton*.
Supervisor of 10 MSc students on researching, writing, and presenting a report on aspects of Operations Research and Machine Learning
- 2020–21 **MATH3092: Mathematics Project (MMATH)**, *University of Southampton*.
Supervisor of a 4th year BSc student (A. Rose) working on solving the hyperplane-clustering problem

- 2020–21 **MATH3092: Mathematics Project**, University of Southampton.
Supervisor of six BSc students working on modeling and solving diet problems with mathematical programming
- 2019–20 **MATH6145: Presenting Reports**, University of Southampton.
Supervisor of six MSc students on researching, writing, and presenting a report on aspects of Operations Research and Machine Learning
- 2018–19 **MATH3032: Mathematical Investigation and Communication (MIC)**, University of Southampton.
Supervisor of six BSc students working on modeling and solving diet problems with mathematical programming
- 2017–18 **MATH6145: Presenting Reports**, University of Southampton.
Supervisor of three MSc students on researching, writing, and presenting a report on aspects of Operations Research
- MATH3032: Communicating and Researching Mathematics (CRM)**, University of Southampton.
Supervisor of four BSc students working on topics of network traffic estimation
- 2016–17 **MATH6145: Presenting Reports**, University of Southampton.
Supervisor of three MSc students on researching, writing, and presenting a report on aspects of Operations Research
- MATH3032: Communicating and Researching Mathematics (CRM)**, University of Southampton.
Supervisor of three BSc students working on topics of Robust Optimization
- 2015–16 **MATH6145: Presenting Reports**, University of Southampton.
Supervisor of three MSc students on researching, writing, and presenting a report on aspects of Operations Research

MPHil/PhD students examination

- 2024–25 **PhD examination committee member**, *TU Berlin*, L. Eifler (PhD student in Mathematics).
- 2022–23 **PhD examination committee member**, *University of Milano-Bicocca*, D. Marelli, F. Adobbati, L. Guglielmo, E. Kurian, M. Saletta (PhD students in Computer Science).
- 2022–23 **External examiner for PhD thesis viva/defense**, *University of Pavia*, A. Codegoni (PhD student in Computational Mathematics and Decisions Sciences).
- 2021–22 **External examiner for PhD thesis viva/defense**, *University of Technology of Compiegne*, C. Wang (PhD student in Informatics).
- Internal examiner for MPhil thesis viva/defense**, *University of Southampton*, H. Hall (MPhil student in Operational Research).
- Independent chair for PhD thesis viva/defense**, *University of Southampton*, G. Yim (PhD student in Applied Mathematics and Theoretical Physics).
- 2020–21 **Internal examiner for PhD thesis viva/defense**, *University of Southampton*, Y. Zhang (PhD student in Operational Research).
- 2019–20 **Internal examiner for PhD thesis viva/defense**, *University of Southampton*, M. Benedek (PhD student in Operational Research).
- 2018–19 **Internal examiner for PhD thesis viva/defense**, *University of Southampton*, A. Robins (PhD student in Operational Research).
- Internal examiner of PhD thesis viva/defense**, *University of Southampton*, S. Zhou (PhD student in Operational Research).
- Independent assessor for 1st year review**, *University of Southampton*, L.-C. Dinh (PhD student in Computer Science).
- Independent assessor for 3rd year review**, *University of Southampton*, F. Ge (PhD student in Operational Research).
- 2017–18 **Internal examiner for PhD thesis viva/defense**, *University of Southampton*, C. Lamas Fernandez (PhD student in Business Analytics).
- Independent assessor for 2nd year review (MPhil to PhD upgrade)**, *University of Southampton*, Y. Zhang (PhD student in Operational Research).
- Independent assessor for 2nd year review (MPhil to PhD upgrade)**, *University of Southampton*, S. Zachariades (PhD student in Operational Research).
- Independent assessor for 2nd year review (MPhil to PhD upgrade)**, *University of Southampton*, F. Ge (PhD student in Operational Research).
- 2016–17 **Independent assessor for 2nd year review (MPhil to PhD upgrade)**, *University of Southampton*, M. Benedek (PhD student in Operational Research).
- Independent assessor for 2nd year review (MPhil to PhD upgrade)**, *University of Southampton*, S. Zhou (PhD student in Operational Research).

Independent assessor for 1st year PhD review, *University of Southampton*, Y. Zhang (PhD student in Operational Research).

Independent assessor for annual PhD review, *University of Southampton*, H. Hall (PhD student in Operational Research).

2015–16 **Independent assessor 2nd year review (MPhil to PhD upgrade)**, *University of Southampton*, A. Robins (PhD student in Operational Research).

2011–12 **Member of MSc graduation committee**, *Politecnico di Milano*, Mathematical Engineering.

Spoken languages

Italian (mother tongue), English (fluent), French (basic)

October 1, 2025

Dr. Stefano Coniglio

