



Roberto Maria Rosati

Curriculum Vitae et Studiorum

Personal Information

Name: Roberto Maria

Family Name: Rosati

Date of Birth: 8th January 1993

Citizenship: Italian

Affiliation: Institute for Supply Chain Management, Vienna University of Business and Economics and Polytechnic Department of Engineering and Architecture, University of Udine

E-mail: robertomaria.rosati@wu.ac.at, robertomaria.rosati@uniud.it,

E-mail (personal): robertomaria[dot]rosati[at]proton.me

Website: robertomariarosati.eu

Current Position: Postdoctoral Researcher at the Vienna University of Business and Economics

ORCID: 0000-0001-9560-6301

Address: Welthandelsplatz 1, Gebäude D1, Ebene 4, 1020 Wien, Austria

Brief summary

Roberto Maria Rosati is a postdoctoral researcher at the Vienna University of Business and Economics, Austria. On 11th March 2024 he was awarded his PhD degree with honors from University of Udine, where he was supervised by Prof. Andrea Schaerf.

His research interests concern the design of multi-neighborhood metaheuristics and matheuristics based on instance reduction for discrete optimization problems, and the integration of reinforcement learning into the above-mentioned search methods. He was invited as visiting student at the Artificial Intelligence Research Institute (IIIA-CSIC), in Barcelona, where he collaborated with Dr. Christian Blum, and at the Technical University of Vienna (TU Wien), where he worked with Prof. Nysret Musliu.

Prior to his PhD, he worked from 2016 to 2020 as consultant and project manager at OverIT, a software company specialized in scheduling and routing systems for field service management, and was involved mainly in projects for large international clients in Europe and South America.

Research & Work Experience

04/2024 - **Postdoctoral Fellow**, *Wirtschaftsuniversität*, Vienna, Austria

03/2025 Design of a matheuristic algorithm for real-time railway rescheduling after disruption.

- 11/2020 - **Doctoral Fellow**, *Università degli Studi di Udine*, Udine, Italy
 03/2024 Title of the thesis: “Multi-Neighborhood Search for Combinatorial Optimization”, Reviewers: Profs. Mauricio Resende and Thomas Stützle
 Supervisor: Prof. Andrea Schaerf
- 09/2021 - **Visiting Student**, *IIIA-CSIC*, Barcelona, Spain
 06/2022 Design of CMSA matheuristic for a variety of discrete optimization problems.
 Supervisor: Dr. Christian Blum
- 06/2021 - **Visiting Student**, *Technische Universität Wien*, Vienna, Austria
 08/2021 Solution of a real-world bus driver scheduling problem with complex break constraints.
 Supervisor: Prof. Nysret Musliu
- 06/2020 - **Research Fellow**, *Università degli Studi di Udine*, Udine, Italy
 10/2020 Design of a decision support system (DSS) for a vessel under flood or fire damage (SAFE research grant, POR – FESR program 2014–2020).
- 02/2016 - **IT Consultant & Project Manager**, *OverIT S.p.A.*, Udine, Italy
 04/2020 2020: Delivery of a field service management solution for a multinational manufacturer of home appliances in UK and Russia (remotely). Spoken language: English.
 2019: Delivery of augmented reality tools for maintenance and virtual collaboration in photovoltaic plants (Spain) and high voltage grids (Italy). Spoken languages: Spanish and Italian.
 2018 - 2019: Delivery of a field service management solution for clients based in Brazil operating in water distribution systems. Spoken language: Portuguese. 2018: Training, user acceptance tests, and go-live of a field auditing system for a company operating in electrical energy distribution, in Goiânia, Brazil. Spoken language: Portuguese.
 2018: Delivery of a plant maintenance scheduling solution for a company based in Sweden, operating in the automotive industry. Spoken language: English.
 2016 - 2018: Delivery of a supply chain management solution, for the branches located in Spain and Colombia of a multinational company in the energy & utilities. Spoken language: Spanish.

Education

- 2024 **PhD in Industrial and Information Engineering**, *University of Udine*, Udine, Italy
Title of the thesis: “Multi-Neighborhood Search for Combinatorial Optimization”
Reviewers: Profs. Mauricio Resende and Thomas Stützle
Supervisor: Prof. Andrea Schaerf
Grade: Excelent *cum laude*
- 2017 **Master’s degree in Management Engineering**, *University of Udine*, Udine, Italy
(*joint double degree with FH Joanneum*)
Grade: 110/110
- 2016 **Master of Science in International Industrial Management**, *FH Joanneum - University of Applied Sciences*, Graz, Austria (*joint double degree with University of Udine*)
- 09/2014 - **Universidad de Vigo**, *Vigo*, Spain
02/2015 Semester abroad thanks to an Erasmus+ grant
- 2014 **Bachelor’s degree in Management Engineering**, *University of Udine*, Udine, Italy
Grade: 110/110 *cum laude*
- 2011 **High School**, *Liceo Scientifico Niccolò Copernico*, Udine

Natural Languages

- Native Italian (mother tongue)
- Level C1 English (extensively studied and employed daily at work), Spanish (lived in Spain)
- Level B2 Portuguese (spent long times in Brazil for work)
- Level A2 German (lived in Austria), Vietnamese (Roberto’s wife is a Vietnamese citizen)
- And... inherited/basic knowledge of Neapolitan, French, Catalan/Valencian, Galician and Friulan.

Programming Languages et al.

- Languages C, C++, Java, Python, SQL, PHP, R
- Optimization CPLEX, AMPL
- AAC json2run, irace
- Others Git, SoapUI, \LaTeX , Unix Shell
- OS Linux, Windows

Awards and Grants

- ITC2021 2nd position in the International Timetabling Competition 2021 (Rosati et al., 2022b)
- ESA-SpOC 3rd position in the GECCO 2022 Space Optimization Competition (SpOC) organized
2022 by the Advanced Concepts Team (ACT) of the European Space Agency (ESA)
- TAILOR Roberto Maria Rosati was awarded a TAILOR grant, a project funded by EU Horizon
2020 research and innovation program under GA No 952215, to support his research
stay at IIIA. Value of the grant: €14940.
- PhD Roberto Maria Rosati was awarded a PhD fellowship by the Italian Ministry of
Education and Research.

Erasmus+ Roberto Maria Rosati was awarded three Erasmus+ grants in his career, to support his research stay at TU Wien and his studies at FH Joanneum and University of Vigo.

■ Certificates

- GRE Quantitative Reasoning, grade: 169/170, obtained on: 21/11/2019
- GRE Verbal Reasoning, grade: 165/170, obtained on: 21/11/2019
- TOEFL Grade: 102/120, obtained on: 03/08/2019
- Others Italian driving license B (even though he prefers cycling and public transportation)

■ Thesis supervision

Edgardo Mauroner, University of Udine. Optimization of the activities of predictive maintenance on a single ship (2021). Master's thesis.

Jacopo Ghizzo, University of Udine. Development of a greedy algorithm for scheduling problems on identical parallel machines with conflict constraints between jobs (2024). Bachelor's thesis.

■ Other academic work

Representative of the PhD Students for the PhD course of Industrial and Information Engineering, 2021-2023.

■ Volunteer work in support of the academic community

Member of program committee for LOD2024, LOD2023

■ Peer Reviews in indexed Journals and Conferences

Journal Of Scheduling (two reviews in 2022 and 2023)

Computers & Operations Research (two reviews in 2021 and 2024)

International Transactions in Operations Research (three reviews in 2022, 2023 and 2024)

The 17th Learning and Intelligent Optimization Conference LION17 (in 2023)

The 9th International Conference on Machine Learning, Optimization, and Data Science (in 2023)

■ Presentations at conferences

2024 MIC2024 (Laurient, France), ODS2024 (Badesi, Italy)

2023 LOD2023 (Grasmere, UK), ODS2023 (Ischia, Italy), IFORS2023 (Santiago, Chile)

2022 AIxIA2022 (Udine, Italy), MIC2022 (Siracusa, Italy)

2021 PATAT2021 (Leuven, Belgium, held in 2022)

■ Other talks and seminars

National Economics University, Hanoi (Vietnam), 27th January 2024

ENSTA Paris (France), 19th September 2023 (online seminar)

Phenikaa University, Hanoi (Vietnam), 6th April 2023 (online seminar)

PhD Conference, Udine, Italy, 2021, 2022 & 2023

Doctoral Consortium of the International Conference of the Italian Association for Artificial Intelligence (AIxIA2022), 2022, Udine, Italy

Publications

- Ceschia, S., Di Gaspero, L., Mancini, S., Maniezzo, V., Montemanni, R., Rosati, R.M., Schaerf, A., 2024a. Enhancing real-world applicability in home healthcare: A metaheuristic approach for advanced routing and scheduling, in: *Metaheuristics: 15th International Conference, MIC 2024, Lorient, France, June 4–7, 2024, Proceedings* (in press), Springer.
- Ceschia, S., Di Gaspero, L., Rosati, R.M., Schaerf, A., 2022. Multi-neighborhood simulated annealing for the minimum interference frequency assignment problem. *EURO Journal on Computational Optimization* 10, 100024.
- Ceschia, S., Di Gaspero, L., Rosati, R.M., Schaerf, A., 2024b. Multi-neighborhood simulated annealing for the home healthcare routing and scheduling problem. [submitted] .
- Ceschia, S., Di Gaspero, L., Rosati, R.M., Schaerf, A., 2024c. Reinforcement learning for multi-neighborhood local search in combinatorial optimization, in: *Machine Learning, Optimization, and Data Science, Springer Nature Switzerland, Cham*. pp. 206–221.
- Rosati, R.M., 2024. Urban sprawl and routing: A comparative study on 156 European cities. [submitted] .
- Rosati, R.M., Bouamama, S., Blum, C., 2023. Construct, merge, solve and adapt applied to the maximum disjoint dominating sets problem, in: *Metaheuristics: 14th International Conference, MIC 2022, Syracuse, Italy, July 11–14, 2022, Proceedings, Springer*. pp. 306–321.
- Rosati, R.M., Bouamama, S., Blum, C., 2024a. Multi-constructor CMSA for the maximum disjoint dominating sets problem. *Computers & Operations Research* 161, 106450.
- Rosati, R.M., Kletzander, L., Blum, C., Musliu, N., Schaerf, A., 2022a. Construct, merge, solve and adapt applied to a bus driver scheduling problem with complex break constraints, in: *International Conference of the Italian Association for Artificial Intelligence, Springer*. pp. 254–267.
- Rosati, R.M., Petris, M., Di Gaspero, L., Schaerf, A., 2022b. Multi-neighborhood simulated annealing for the sports timetabling competition ITC2021. *Journal of Scheduling* 25, 301–319.
- Rosati, R.M., Schaerf, A., 2024. Multi-neighborhood simulated annealing for the capacitated dispersion problem. *Expert Systems with Applications* (in press) .
- Rosati, R.M., Ta, D.Q., Hà, M.H., Schaerf, A., 2024b. Multi-neighborhood search for the makespan minimization problem on parallel identical machines with conflicting jobs, in: *Metaheuristics: 15th International Conference, MIC 2024, Lorient, France, June 4–7, 2024, Proceedings* (in press), Springer.
- Van Bulck, D., Goossens, D., Clarner, J.P., Dimitzas, A., Fonseca, G.H., Lamas-Fernandez, C., Lester, M.M., Pedersen, J., Phillips, A.E., Rosati, R.M., 2024. Which algorithm to select in sports timetabling? *European Journal of Operational Research* .

References available upon request.