



Lavinia Amorosi

Curriculum Vitae

Personal information

Place and date of birth Rome, 02-09-1988
Nationality Italian
E-Mail lavinia.amorosi@uniroma1.it
Position RTDA in Operational Research
Affiliation Department of Statistical Sciences, University of Rome, Sapienza, P.le Aldo Moro, 5 00185 - Rome, Italy

Education

- 2018 **PhD (Doctor Europaeus) in Operational Research**, *University of Rome, Sapienza*.
Grade: Ottimo cum laude.
Thesis title: "Bi-criteria Network Optimization: Problems and Algorithms".
- 2014 **MSc in Statistical and Decisional Sciences**, *University of Rome, Sapienza*, Grade: 110/110 cum laude.
- 2012 **BSc in Mathematics**, *University of Rome, Sapienza*, Grade: 110/110.
- 2009 **Clarinet Diploma**, *Istituto Superiore di Studi Musicali, "G.Braga", Teramo*, Grade: 9/10.
- 2007 **Scientific Diploma**, *Liceo Scientifico, "A.Meucci", Ronciglione*, Grade: 100/100.

Research Interests

Combinatorial Optimization, Multi-objective Programming, Network Optimization

Professional experience

February 2019-today Lecturer, course "Operational Research" (9 CFU), Department of Computer, Control, and Management Engineering, University of Rome, Sapienza.

- April 2018-March 2019 Post-doc on the project "Two-phase algorithms for bi-criteria network models for smart cities logistic", Department of Statistical Sciences, University of Rome, Sapienza.
- November 2017-March 2018 Researcher for the H2020 project "Superfluidity" at CNIT (Consorzio nazionale interuniversitario delle telecomunicazioni), University of Rome Tor Vergata
- November 2017-April 2018 Teaching assistant for the postgraduate master in "Data intelligence and decision making strategies", Department of Statistical Sciences, University of Rome, Sapienza.
- October 2017-February 2018 Lecturer, course "Operational Research" (6 CFU), Department of Computer, Control, and Management Engineering, University of Rome, Sapienza.

Participation in exhibitions

- February 2020 Invited seminar at IMUS, Seville, February 18, 2020.
- January 2020 Talk at "IWOLOCA2020", IMUS, Seville, 23-24 January, 2020.
- October 2019 Invited talk at NASA Ames Research Center, Mountain View (Silicon Valley, CA), October 29, 2019.
- October 2019 Talk at "INFORMS2019", Seattle 20-23 October 2019.
- June 2019 Talk at "EURO2019", 30th European Conference on Operational Research, Dublin, 23-26 June, 2019.
- May 2019 Invited lecture at the "Training Course on Railway Optimization", Roma Tre University, Rome, May 27, 2019.
- May 2019 Tutorial at the "1st EUROYoung workshop", Seville, 2-3 May, 2019.
- March 2019 Tutorial at the "1st AIROYoung PhD school", on the theme "Advanced Methods in Optimization and Data Science", Rome, 26-29 March, 2019.
- September 2018 Talk at "ODS2018", International Conference on Optimization and Decision Science, Taormina, 10-13 September, 2018.
- March 2018 Talk at "IEEE EE2018", International Conference on Environmental Engineering, Milan, 12-14 March, 2018.
- March 2018 Talk at the "2nd AIRO Young workshop", on the theme "Logistics Optimisation and Applied Operational Research", Cosenza, 1-2 March, 2018.
- February 2017 Talk at the "1st AIRO Young Workshop", on the theme "Emerging Optimization Problems on Complex Networks", Rome, 16-17 February, 2017.

Experience in academic teaching

- July 2020 Lecturer, course "La ricerca operativa incontra la statistica", PhD Program in Statistics, Department of Statistical Sciences, University of Rome, Sapienza.
- October 2019-today Lecturer, courses "Logistic Lab" (3 CFU) and "Operational Research Lab" (3 CFU), Department of Statistical Sciences, University of Rome, Sapienza.

- February 2019-February 2020 Lecturer, course "Operational Research" (9 CFU), Department of Computer, Control, and Management Engineering, University of Rome, Sapienza.
- October 2017-October 2018 Lecturer, course "Operational Research" (6 CFU), Department of Computer, Control, and Management Engineering, University of Rome, Sapienza.
- October 2015-January 2019 Teaching assistant, courses "Logistic Lab", "Decision Support Models" and "Optimization Lab", Department of Statistical Sciences, University of Rome, Sapienza.
- September 2015-September 2020 Supervisor of 1 Bachelor thesis (B. in Statistics for Management), Supervisor of 2 Bachelor thesis (B. in Computer and System Engineering), Co-supervisor of 7 Master thesis (M. in Statistical and Decisional Sciences), Co-supervisor of 3 Bachelor thesis (B. in Statistics for Management)

Other academic responsibilities

- February 2020 Member of the Organising Committee of the 4th AIROYoung Workshop on the theme "New Advances in Optimization, Machine Learning and Data Science", Bozen 5-7 February 2020.
- June 2019 Co-chair of the AIROYoung session at EURO2019 with the title "Young Researchers in CO" for the stream Combinatorial Optimization, Dublin 23-26 June 2019.
- May 2019 Member of the Organising Committee of the 1st EURO Young Workshop, Seville 2-3 May 2019.
- March 2019 Chair of the Organising Committee of the 3rd AIROYoung Workshop + 1st AIROYoung PhD school on the theme "Advanced Methods in Optimization and Data Science", Rome 26-29 March 2019.
- 2018-today Coordinator, together with Martina Fischetti, of AIROYoung
- 2018 Co-founder of EUROYoung, a group of young OR scientists from EURO member countries.
- February 2017 Workshop Organiser, together with Alberto Maria Santini (University of Bologna), of the 1st AIRO Young Workshop, on the theme "Emerging Optimization Problems on Complex Networks", Rome 16-17 February 2017.
- September 2016 Co-founder of AIROYoung, the youth chapter of the Italian Operational Research Association (AIRO).

Research Projects

- 2019-today Coordinator of the Sapienza project "Combinatorial Optimization Models for Highly Hybrid Fleet Distribution Systems", that studies a new class of combinatorial optimization problems generated by recent distribution systems based on hybrid fleets (for example truck-drones) for which classic models, based on road route graphs, are no longer adequate.

- 2018-today Member of the Sapienza project "Dynamic and Bi-Criteria Network Models for Smart City Logistics", that studies new models and algorithms for finding the complete set of efficient solutions for some fundamental bi-criteria network optimization problems underlying the planning and management operations of smart cities logistic and mobility systems.
- 2016-2019 Member of the PRIN project "Transportation and Logistics Optimization in the Era of Big and Open Data" that studies new optimization frameworks and models for transportation and logistics problems that arise from the technological advances and the data availability.
- 2016-2018 Member of the Sapienza project "Mobility and Logistic Optimization Models in the New Perspective of Big Data Paradigm", that studies new management mathematical models for mobility and logistic problems suited for big data and analytics.
- 2016-2017 Member of the DIAMETER Awards Project that studies new concepts, architectures and technologies in telecommunication networks by adopting lifetime-aware NDs.
- 2014-2015 Member of the LIFETEL Awards Project that studies the impact of energy-savings mechanisms on the lifetime of telecommunication network devices.

Scholarships and Exchange Research

- January-February 2020 Visiting research at the Institute of Mathematics of the University of Seville (IMUS), Seville (Spain), invited by Prof. Justo Puerto and co-financed by IMUS.
- 2017 3-month Fellowship for Ph.D. research project abroad granted by the University of Rome, Sapienza.
- April-June 2017 Visiting/Exchange research at the Institute of Mathematics of the University of Seville (IMUS), Seville (Spain), under the supervision of Prof. Justo Puerto.
- 2017 Fellowship for Ph.D research project with title "A new approach to determine a complete set of Pareto optimal solutions for the bi-objective Minimum Spanning Tree Problem in Telecommunication Networks", granted by the University of Rome, Sapienza.
- February-July 2016 Visiting/Exchange research Management Science Program at the Lancaster University Management School (LUMS), Lancaster (UK), under the supervision of Prof. Matthias Ehrgott.
- 2015-17 3-year Ph.D. Fellowship won by national competitive written and oral examination and granted by the Italian Ministry for University and Research (MIUR).

Courses and PhD schools

- 11-15 January 2016 NetOpt2016 PhD School on Network Optimization, Estoril.
- September 28 - October 10 2015 CO@Work PhD School on Combinatorial Optimization, Zuse Institute Berlin (ZIB), Berlin.
- June 24 - July 3 2015 EURO PhD School on Routing and Logistics, Department of Economics and Management, University of Brescia.

23-25 CINECA Course "Introduction to Parallel Computing with MPI and OpenMP",
February CINECA Rome.
2015

Computer skills

Programming C++, JAVA
languages

Softwares IBM CPLEX, GUROBI, POLYSCIP, BENSOLVE, MATLAB, SAS, R, WEKA

Operating Windows, Mac OS X, Linux
Systems

Certifications

November Certificate "SAS Certified Predictive Modeler using SAS Enterprise Miner", SAS
2014 Rome.

Bibliometric indices from Scopus (extracted on August 8, 2020)

<https://www.scopus.com/authid/detail.uri?authorId=56820075100>

Number of publications: 14, Number of citations: 50, H-index:4

Publications

Journal articles

Chiaraviglio L., Amorosi L. et al., "Minimum Cost Design of UAV-based 5G Networks for Rural Coverage: Formulation and Solutions", IEEE Transactions on Green Communications and Networking, 2019.

Amorosi L., Chiaraviglio L., Galán-Jiménez J., "Optimal Energy Management of UAV-based 5G Networks Powered by Solar Panels and Batteries: Formulation and Solutions", IEEE Access, 2019

Amorosi L., Dell'Olmo P, Giacco, G.L., "Mathematical Models for On-Line Train Calendars Generation", Computers and Operations Research, Vol.102, p.1-9, 2019 .

Chiaraviglio L., Amorosi L. et al., "Optimal Management of Reusable Functional Blocks in 5G Superfluid Networks", Wiley International Journal of Network Management, Vol.29(1), 2019.

Chiaraviglio L., Amorosi L., Dell'Olmo P., Liu W., Gutierrez J.A., Cianfrani A., Polverini M., Le Rouzic E., Listanti M., "Lifetime-Aware ISP Networks: Optimal Formulation and Solutions", Transactions on Networking, Vol.27 (3), p.1924-1937, 2017.

Chiaraviglio L., Amorosi L., Baiocchi A., Cianfrani A., Cuomo F., Dell'Olmo P., Listanti M., "LIFETEL: Managing the Energy-Lifetime Tradeoff in Telecommunication Networks", Communications Magazine, Series on Green Communications and Computing Networks, Vol.54(11), p.150-157, 2016.

Conference articles

Chiaraviglio, L., Amorosi, L., Malandrino, F., Chiasserini, C.F, Dell'Olmo, P., Casetti, C., "Optimal Throughput Management in UAV-based Networks during Disasters", IEEE International Conference on Computer Communications (INFOCOM), 2019.

Jimenez, J.G., Chiaraviglio, L., Amorosi, L., Blefari-Melazzi, N., "Multi-Period Mission Planning of UAVs for 5G Coverage in Rural Areas: A Heuristic Approach", IEEE International Conference on the Network of the Future, (NOF), 2018.

Chiaraviglio, L., Amorosi, L. et al., "Optimal Design of 5G Networks in Rural Zones with UAVs, Optical Rings, Solar Panels and Batteries", IEEE International Conference on Transparent Optical Networks (IEEE ICTON), 2018.

Amorosi, L., Chiaraviglio, L et al. "Energy-Efficient Mission Planning of UAVs for 5G Coverage in Rural Zones", IEEE International Conference on Environmental Engineering (IEEE EE), 2018.

Chiaraviglio, L., Amorosi, L., Cartolano L., Blefari-Melazzi N., Dell'Olmo P., Shojafar M., Salsano S., "Optimal Superfluid Management of 5G Networks", 3rd IEEE Conference on Network Softwarization (IEEE NetSoft), 2017.

Amorosi, L., Chiaraviglio, L., Dell'Olmo, P., Listanti, M., "Optimal Sustainable Management of Backbone Networks", ICTON 2016 International Conference , July 2016, Trento.

Amorosi, L., Chiaraviglio, L., Dell'Olmo, P., Listanti, M., "Sleep to stay alive: Optimizing Reliability in Energy-Efficient Backbone Networks, RONEXT 2015 International Workshop, July 2015, Budapest.

Amorosi, L., Dell'Olmo, P., Giacco, G.L., "A new approach for train calendar description generation", MT-ITS 2015 International Conference, June 2015, Budapest.

Amorosi, L., Dell'Olmo, P., Giacco, G.L., "A New Mixed Integer Linear Programming Formulation For A Maintenance Problem In Italian Railways", CASPT 2015 International Conference, July 2015, Rotterdam.

Technical Reports

Amorosi, L., Puerto, J., "Two-phase strategies for the bi-objective minimum spanning tree problem", Technical Report, DSS Sapienza University of Rome, 2018.

Amorosi, L., Dell'Olmo, P., Giacco, G.L., "A Mathematical Programming Approach for Calendar Generation", Technical Report, DSS Sapienza University of Rome, 2016.

Under review

Amorosi, L., Puerto, J., "Two-phase strategies for the bi-objective minimum spanning tree problem".

Amorosi, L., Crainic, T., Dell'Olmo, P., Ricciardi, N., "An integrated location-routing model for a hybrid UAV based delivery system"

Amorosi, L., Cedola, L., Dell'Olmo, P., Lucchetta, F., "A mixed integer linear programming approach for the optimal management of PV-battery energy systems"

In progress

Amorosi, L., Ehrgott, M., "A new two-phase algorithm for the bi-objective integer minimum cost flow problem".

Amorosi, L., Padellini T., "A MIO approach to Sparse Canonical Correlation".

Languages

Italian **Mother tongue**

English **B2**

August 9, 2020