



Davide Duma
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Address
Dipartimento di
Matematica "Felice
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Davide Duma

Working experiences

Mar 2021 - Present, *Post-doc researcher*

Group of Operational Research at the Mathematics Department "Felice Casorati" of University of Pavia; holder of the courses of (i) Foundations of Data Analysis for the M.Sc. in Mathematics, and (ii) Mathematical Methods for the B.Sc. in Biomedical Engineering

Oct 2020 - Sep 2021, *Adjunct professor*

Course of Matrix Algebra and Operational Research for the B.Sc. in Computer Science of University of Turin

Nov 2017 - Dec 2020, *Research fellow*

Group of Operational Research at the Computer Science Department of University of Turin

Oct 2020 - Sep 2020, *Adjunct professor*

Two courses of Operational Research for (i) B.Sc. in Strategic Science and (ii) M.Sc. in Strategic and Military Science at the Interdepartmental University School of Strategic Sciences (SUISS) of University of Turin

Jan 2017 - May 2017, *Teaching tutor*

Course of Operational Research for the B.Sc. in Strategic Science at the Interdepartmental University School of Strategic Sciences (SUISS) of University of Turin

May 2014 - Oct 2014, *Research fellow*

Group of Operational Research at the Computer Science Department of University of Turin

Ago 2013 - Sep 2013, *Teaching tutor*

Pre-course of Mathematics for the B.Sc. in Mathematics of University of Turin

Education

2014 - 2018, *Ph.D. in Computer Science*

University of Turin. Thesis: "Online optimization methods applied to the management of health services", supervisor Roberto Aringhieri

2011 - 2014, *M.Sc. in Mathematics*

University of Turin. Thesis: "A simulation and optimisation model for the management of operating rooms", supervisor Roberto Aringhieri
Vote 108/110

2006 - 2011, *B.Sc. in Mathematics and Computer Science*

University of Salento. Thesis: "Approximation algorithms for the multiway cut problem", supervisor Paolo Nobili
Vote 105/110

Schools

Jul 2017 - *Optimization, Big Data and Applications (OBA) Summer School*

Veroli (Italy)

Jun 2015 - *ESI XXXII - EURO Summer Institute on Online Optimization*

Szeged (Hungary)



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Apr 2015 - Short Course in Data Mining with Applications to Health-care

Cardiff (United Kingdom)

Feb 2015 - BISS 2015 - Bertinoro International Spring School

Bertinoro (Italy)

Jun 2014 - ESI XXXI - EURO Summer Institute on Operational Research applied to Health in a Modern World

Bard (Italy)

Conferences

Participation to 16 national and international conferences, including:

Jul 2021 - e-ORAHS Conference

Online. Speaker: "Modelling the Regional Hospital Network using Big Data and Discrete Event Simulation"

Apr 2019 - Data Science Workshop for Public Health Residents

Turin (Italy). Invited speaker: "Mining and Optimising a patient flow through an Emergency Department"

Dec 2018 - Winter Simulation Conference – Simulation for a Noble Cause (WSC 2018)

Gothenburg (Sweden). Speaker: "A Simulation and Online Optimization Approach for the Real-time Management of Ambulances"

Jul 2016 - 28th European Conference on Operational Research (EURO 2016)

Poznań (Poland). Speaker: "Sharing operating rooms between elective and non-elective surgeries: an Online Optimization approach"

Aug 2015 - 4th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH 2014)

Wien (Austria). Speaker: "A hybrid model for the analysis of a surgical pathway". Winner of the "Best Paper Award".

Publications

Journal papers and chapters:

Combining workload balance and patient priority maximisation in operating room planning through hierarchical multi-objective optimisation

R Aringhieri, D Duma, P Landa, S Mancini. European Journal of Operational Research, In Press (2021)

An ad hoc process mining approach to discover patient paths of an Emergency Department

D Duma, R Aringhieri. Flexible Services and Manufacturing Journal 32, pp 6–34 (2020)

Online optimization methods applied to the management of health services

D Duma. 4OR - A Quarterly Journal of Operations Research 18, 125–126 (2020)

Modeling the rational behavior of individuals on an e-commerce system

R Aringhieri, D Duma, V Fragnelli. Operations Research Perspectives 5, pp 22-31 (2018)



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Simple but effective heuristics for the 2-constraint bin packing problem

R Aringhieri, D Duma, A Grosso, P Hosteins. *Journal of Heuristics* 24, 345–357 (2018)

The Real Time Management of Operating Rooms

D Duma, R Aringhieri. In: Kahraman C., Topcu Y. (eds) *Operations Research Applications in Health Care Management*. International Series in Operations Research & Management Science, vol 262, pp 55-79. Springer, Cham. (2018)

An online optimization approach for the Real Time Management of operating rooms

D Duma, R Aringhieri. *Operations Research for Health Care* 7, pp 40-51 (2015). Editors' Choice Article

The Optimization of a Surgical Clinical Pathway

R Aringhieri, D Duma. In: Obaidat M., Ören T., Kacprzyk J., Filipe J. (eds) *Simulation and Modeling Methodologies, Technologies and Applications*. Advances in Intelligent Systems and Computing, vol 402, pp 313-331. Springer, Cham. (2015). Invited Chapter

Comparing disease-control policies for interacting wild populations

I M Bulai, R Cavoretto, B Chialva, D Duma, E Venturino. *Nonlinear Dynamics* 79, 1881–1900 (2015)

Publication of 12 conference proceedings.

Computer skills

Programming

- C/C++
- AnyLogic
- Java
- CPLEX
- MATLAB

Data Analysis

- RapidMiner
- ProM
- Excel

Drafting

- \LaTeX
- Office
- Google Drive

Operating System

- Windows