

# Davide Duma

## Curriculum Vitae

Dipartimento di Informatica  
Università degli Studi di Torino  
Corso Svizzera 185, I-10149 Torino, Italy  
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### Personal data

Born 7 April 1987, Casarano (Italy)

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### Education

- 2014–present **Ph.D candidate in *Computer Science***, *Università degli Studi di Torino*, Thesis: “*Online optimization methods applied to the management of health services*”, Supervisor Roberto Aringhieri.  
Achievement of the title planned for summer 2018
- 2011–2014 **Master of *Mathematics***, *Università degli Studi di Torino*, Curriculum in *Numerical modeling*, Thesis: “*A simulation and optimization model for operating room planning*”, Supervisor Roberto Aringhieri.  
Final grade 108/110
- 2006–2011 **Bachelor of *Mathematics and Computer Science***, *Università del Salento*, Curriculum in *Computer Science & Management*, Thesis: “*Approximation algorithms for the multiway cut problem*”, Supervisor Paolo Nobili.  
Final grade 105/110

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### Summer and Spring Schools

- 2017 **Optimization, Big Data and Applications (OBA) Summer School**, *Speaker in the OBA award session*, Veroli (Italy).
- 2015 **ESI XXXII - EURO Summer Institute on Online Optimization**, *Speaker*, Szeged (Hungary).
- 2015 **Short Course in Data Mining with Applications to Healthcare**, *Attendance*, Cardiff (UK).
- 2015 **BISS 2015 - Bertinoro International Spring School**, *Attendance*, Bertinoro (Italy).
- 2014 **ESI XXXI - EURO Summer Institute on Operational Research applied to Health in a Modern World**, *Attendance*, Bard (Italy).

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### Work experience

- 2017 **Teaching assistant**, *Interdepartmental University School in Strategic Science*, Università degli Studi di Torino, Course in Operational Research.
- 2014 **Research fellow**, *Department of Computer Science*, Università degli Studi di Torino, Project: “*Clinical pathways: new organizational and management patient-centered models*”.
- 2013 **Teaching assistant**, *Department of Mathematics*, Università degli Studi di Torino, Preliminary course in Mathematics.

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### Research topics

Operations Research, Online Optimization, Simulation, Process Modeling, Health Care Management.

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## Conferences

- 2017 **3rd International Conference on Machine Learning, Optimization and Big Data (MOD 2017)**, Volterra (Italy).
- 2017 **International Conference on Decision Science (ODS 2017) / 47th Annual Meeting of AIRO**, Sorrento (Italy).
- 2017 **3rd International Conference on Health Care Systems Engineering (HCSE 2017)**, Florence (Italy).
- 2016 **L'Università di Torino verso il Futuro: Ricerca, innovazione e formazione al tempo dei Big Data**, Moncalieri (Italy).
- 2016 **46th Annual Conference Italian Operations Research Society (AIRO 2016) – Emergency advances in logistics systems**, Trieste (Italy).
- 2016 **42nd ORAHS Conference – Finding better health-care decisions in new oceans of health data**, *Session Chair: Emergency Department II*, Pamplona (Spain).
- 2016 **28th European Conference on Operational Research (EURO 2016)**, Poznań (Poland).
- 2015 **45th AIRO Conference – Optimization for Energy, Environment and Sustainability**, Pisa (Italy).
- 2015 **41st ORAHS Conference – Networking Health: Facing the Challenges in Health Services Management**, Montréal (Canada).
- 2014 **4th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH 2014)**, Vienna (Austria).

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## Publications

- 2018 **Ex post evaluation of an operating theatre**, *Roberto Aringhieri, Davide Duma and Enrico Faccio*, In: EURO/ALIO 2018 Proceedings, Accepted.
- 2018 **Mining the patient flow through an Emergency Department to deal with overcrowding**, *Davide Duma and Roberto Aringhieri*, In: Cappanera P., Li J., Matta A., Sahin E., Vandaele N., Visintin F. (eds) Health Care Systems Engineering. ICHCSE 2017. Springer Proceedings in Mathematics & Statistics (Springer, Cham), vol 210, pp 49–59.
- 2017 **Modelling the rational behaviour of individuals on an e-commerce system**, *Roberto Aringhieri, Davide Duma and Vito Fragnelli*, *Operations Research Perspectives*, vol 5, pp 22–31.
- 2017 **Evaluating the dispatching policies for a regional network of emergency departments exploiting health care big data**, *Roberto Aringhieri, Davide Dell'Anna, Davide Duma and Michele Sonnessa*, In: Nicosia G., Pardalos P., Giuffrida G., Umeton R. (eds) Machine Learning, Optimization, and Big Data. MOD 2017. Lecture Notes in Computer Science (Springer, Cham), vol 10710, pp 549–561.
- 2017 **Patient-centred objectives as an alternative to maximum utilisation: comparing surgical case solutions**, *Roberto Aringhieri and Davide Duma*, In: Sforza A., Sterle C. (eds) Optimization and Decision Science: Methodologies and Applications. ODS 2017. Springer Proceedings in Mathematics & Statistics (Springer, Cham), vol 217, pp 105–112.
- 2017 **The Real Time Management of operating rooms**, *Davide Duma and Roberto 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.
- 2017 **Simple but effective heuristics for the 2-Constraint Bin Packing Problem**, *Roberto Aringhieri, Davide Duma, Andrea Grosso and Pierre Hosteins*, *Journal of Heuristics*, pp 1–13.
- 2016 **The optimization of a surgical clinical pathway**, *Roberto Aringhieri and Davide Duma*, *Simulation and Modeling Methodologies, Technologies and Applications, Advances in Intelligent Systems and Computing* (Springer, Cham), vol 402, pp 313–331.
- 2015 **An online optimization approach for the Real Time Management of operating rooms**, *Davide Duma and Roberto Aringhieri*, *Operations Research for Health Care*, vol 7, pp 40–51.

- 2015 **Comparing disease control policies for interacting wild populations**, *Iulia Martina Bulai, Roberto Cavoretto, Bruna Chialva, Davide Duma and Ezio Venturino*, *Nonlinear Dynamics*, vol 79, pp 1881–1900.
- 2014 **A hybrid model for the analysis of a surgical pathway**, *Roberto Aringhieri and Davide Duma*, In: *Proceedings of the 4th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (HA–2014)*, pp 889–900.
- 2013 **Do niches help in controlling disease spread in ecoepidemic models?**, *Iulia Martina Bulai, Bruna Chialva, Davide Duma and Ezio Venturino*, In: *J. Vigo Aguiar (ed) Proceedings of the 13th International Conference on Computational and Mathematical Methods in Science and Engineering*, pp 320–339.

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## Submitted papers

- 2018 **The management of non–elective patients: shared vs. dedicated policies**, *Davide Duma and Roberto Aringhieri*, *Omega*, Submitted after the second minor revision (typos) on February 2018.
- 2018 **An ad hoc process mining approach to discover patient paths of an Emergency Department**, *Davide Duma and Roberto Aringhieri*, *Flexible Services and Manufacturing (FLEX)*, Submitted on February 2018.

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## Posters

- 2016 **Big Data supporting Public Health policies**, *Roberto Aringhieri, Davide Dell'Anna, Davide Duma and Michele Sonnessa*, *L'Università di Torino verso il Futuro: Ricerca, innovazione e formazione al tempo dei Big Data*, Moncalieri (Italy).

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## Awards

- 2014 **SIMULTECH Best Paper Award**, *Conference paper title: A hybrid model for the analysis of a surgical pathway*, authored by Roberto Aringhieri and Davide Duma.

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## Languages

Italian    Mothertongue  
English    Intermediate

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## Computer Skills

OS            Microsoft Windows  
Programming Languages    C, C++, Java,  $\LaTeX$   
Software    AnyLogic, CPLEX, ProM, RapidMiner, MATLAB, Maple