

# Alberto Santini

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**Affiliations**    [Universitat Pompeu Fabra, Spain](#)  
Department of Economics and Business  
Tenure-track assistant professor and “Juan de la Cierva” professor  
  
[Barcelona Graduate School of Economics, Spain](#)  
Affiliate professor  
  
[Barcelona Graduate School of Mathematics, Spain](#)  
Affiliate professor

## Past Positions

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JAN–AUG 2017    [RWTH Aachen, Germany](#)  
Deutsche Post Chair for the Optimisation of Distribution Networks  
Postdoctoral Researcher, under Prof. Michael Schneider

## Education

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2014–16          [University of Bologna, Italy](#)  
Ph.D. in Automatic Control and Operational Research  
Supervisors: Silvano Martello, Daniele Vigo  
  
2011–13          [University of Copenhagen, Denmark](#)  
M.Sc. in Mathematics, part of the Master of Excellence programme  
Thesis advisors: Stefan Røpke and Louise Kallehauge. Mark: 12/12  
  
2008–10          [University of Catania, Italy](#)  
B.Sc. in Mathematics  
Thesis advisor: Angelo Bella. Mark: 110/110 summa cum laude  
  
2002–07          [Liceo Scientifico “A. Volta”, Caltanissetta, Italy](#)  
Scientific Diploma  
Mark: 100/100

## Publications Journal Papers (published or submitted)

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| 2019 | 1. Alberto Santini. “An Adaptive Large Neighbourhood Search algorithm for the Orienteering Problem”. In: <i>Expert Systems with Applications</i> 123 (2019), pp. 154–167. doi: 10.1016/j.eswa.2018.12.050   |
|      | 2. Denis Cornaz, Fabio Furini, Enrico Malaguti, and Alberto Santini. “A note on selective line-graphs and partition colorings”. In: <i>Operations Research Letters</i> 47 (6 2019), pp. 565–568. doi: 10.1016/j.orl.2019.08.005                       |
| 2018 | 3. Enrico Malaguti, Silvano Martello, and Alberto Santini. “The Traveling Salesman Problem with Pickups, Deliveries, and Draft Limits”. In: <i>Omega</i> 74 (2018), pp. 50–58. doi: 10.1016/j.omega.2017.01.005                                       |
|      | 4. Fabio Furini, Enrico Malaguti, and Alberto Santini. “An Exact Algorithm for the Partition Coloring Problem”. In: <i>Computers &amp; Operations Research</i> 92 (2018), pp. 170–181. doi: 10.1016/j.cor.2017.12.019                                 |
|      | 5. Alberto Santini, Stefan Ropke, and Lars Magnus Hvattum. “A comparison of acceptance criteria for the Adaptive Large Neighbourhood Search metaheuristic”. In: <i>Journal of Heuristics</i> 24 (5 2018), pp. 783–815. doi: 10.1007/s10732-018-9377-x |
| 2017 | 6. Alberto Santini, Stefan Ropke, and Christian E.M. Plum. “A branch-and-price approach to the Feeder Network Design Problem”. In: <i>European Journal of Operational Research</i> 264 (2 2017), pp. 607–622. doi:                                    |

10.1016/j.ejor.2017.06.063

7. Andrea Bettinelli, Alberto Santini, and Daniele Vigo. “A real-time conflict solution algorithm for the Train Rescheduling Problem”. In: *Transportation Research Part B* 106 (2017), pp. 237–265. doi: 10.1016/j.trb.2017.10.005
- 2015 8. Alberto Santini, Henrik Alsing Friberg, and Stefan Ropke. “A note on a model for quay crane scheduling with non-crossing constraints”. In: *Engineering Optimization* 47.6 (2015), pp. 860–865. doi: 10.1080/0305215X.2014.958731

## Publications In preparation

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- 2020 9. Alberto Santini, Michael Schneider, Thibaut Vidal, and Daniele Vigo. “Decomposition strategies for large-scale Vehicle Routing Problems”. In: *In preparation* (2020)
10. Christian Blum, Alberto Santini, Hua Jiang, Chu-Min Li, Felip Manyà, and Marko Djukanovic. “An exact algorithm for a large class of longest common subsequence problems”. In: *In preparation* (2020)
11. Alberto Santini and Stefan Ropke. “Parallel Adaptive Large Neighbourhood Search”. In: *In preparation* (2020)
12. Alberto Santini, Ana Viana, João Pedro Pedroso, and Xenia Klimentova. “The stochastic travelling salesman problem with crowdsourcing”. In: *In preparation* (2020)
13. Alberto Santini and Vinicius Greco de Lemos. “The crop growth scheduling problem in vertical farming”. In: *In preparation* (2020)

## Technical Reports

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- 2015 14. Valentina Cacchiani, Alberto Santini, and Daniele Vigo. *A study on metaheuristic approaches to the energy-efficient Train Timetabling Problem*. Tech. rep. OR-15-6. DEI, University of Bologna, 2015
- 2014 15. Valentina Cacchiani, Alberto Santini, and Daniele Vigo. *A novel modelling approach to the Train Timetabling Problem*. Tech. rep. OR-14-27. DEI, University of Bologna, 2014

## Conference Talks

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- 2018 16. Alberto Santini and Christian Blum. “Solving a class of longest subsequence problems via maximum cliques”. In: *ODS Conference*. 2018
17. Alberto Santini. “An ALNS heuristic for the Orienteering Problem”. In: *EURO Conference*. 2018
18. Alberto Santini. “A hybrid Machine Learning and ALNS approach to the Orienteering Problem”. In: *EURO/ALIO Conference*. 2018
- 2017 19. Fabio Furini, Enrico Malaguti, and Alberto Santini. “Exact and heuristic algorithms for the partition colouring problem”. In: *ODS Conference*. 2017
- 2016 20. Alberto Santini, Stefan Ropke, and Lars Magnus Hvattum. “Poster: A comparison of acceptance criteria for the ALNS metaheuristic”. In: *AIRO Conference*. 2016
21. Alberto Santini, Stefan Ropke, and Lars Magnus Hvattum. “A comparison of acceptance criteria for the Adaptive Large Neighbourhood Search metaheuristic”. In: *EURO Conference*. 2016
- 2015 22. Enrico Malaguti, Silvano Martello, and Alberto Santini. “A maritime version of the Travelling Salesman Problem”. In: *Odysseus Conference*. 2015
23. Alberto Santini, Stefan Ropke, and Christian E.M. Plum. “A rich maritime extension of the Vehicle Routing Problem”. In: *AIRO Conference*. 2015
- 2014 24. Enrico Malaguti, Silvano Martello, and Alberto Santini. “The Travelling Salesman Problem with pickup, delivery and draught limits”. In: *AIRO Conference*. 2014

## Awards

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- 2018 [Omega best paper award](#)  
Won the Best Paper Award for a paper published during 2018 in the journal Omega. The paper was “The Traveling Salesman Problem with Pickup, Deliveries, and Draft Limits”.

## Grants Personal or as P.I., competitive

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- 2018–20 [Juan de la Cierva Formación](#)  
Two-year grant from the Spanish government. Ranked 1<sup>st</sup> out of 49 participants from all areas of Mathematics, with a score of 99/100.
- 2014–16 [Ph.D. grant by the University of Bologna](#)  
Ranked 1<sup>st</sup> out of 9 qualified participants, with a score of 92/100.

## Grants As part of a group

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- 2019 [I+D+i 2019 \(Retos\)](#)  
Part of the group awarded for the project “Optimización logística para el cuidado de la salud en el hogar y los servicios sociales” by the Spanish Ministry of Science.
- 2016 [PRIN \(Research Projects of Relevant National Interest\) 2016](#)  
Part of the group awarded for the project “Transportation and Logistics Optimization in the Era of Big and Open Data”.

## Grants Other

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- 2019 [Yerun Mobility Award](#)  
To visit University Paris Dauphine, sponsored by YERUN.
- 2018 [Erasmus+ Grant](#)  
To visit the University of Bologna, through the SmartTransLog consortium.
- 2017 [COST STSM Grant](#)  
Short-Term Scientific Mission grant to conduct research at INESC-TEC under COST Action “European Network for Collaboration on Kidney Exchange Programmes”.
- 2016 [Association of European Operational Research Societies \(EURO\)](#)  
Grant to organise the “EURO Young Researchers OR Webinars”.
- 2015 [Marco Polo scholarship](#)  
Grant to conduct research abroad.

## Teaching Ph.D. level

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- 2020 [Business Analytics for Operations and Marketing](#)  
Taught in a team. Universitat Pompeu Fabra, first-year course for Ph.D. students (M.Res. in Economics, Finance and Business).
- 2018–20 [Research Seminars](#)  
Taught in a team. Universitat Pompeu Fabra, first-year course for Ph.D. students (M.Res. in Economics, Finance and Business).

## Teaching Master's level

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- 2019–20 [Practical Data Science for Management](#)  
Barcelona School of Management, Universitat Pompeu Fabra, M.Sc. in Management.
- 2019–20 [Advanced Machine Learning](#)

	RWTH Business School, M.Sc. in Data Analytics and Decision Science.
2018–19	<a href="#">Data Science Projects</a> RWTH Business School, M.Sc. in Data Analytics and Decision Science.
2018–20	<a href="#">Machine Learning</a> RWTH Business School, M.Sc. in Data Analytics and Decision Science.
2017	<a href="#">Optimisation methods for Big Data Analytics</a> RWTH Aachen, Master's in Management, Business, and Economics.
2014–18	<a href="#">Optimisation Algorithms (teaching assistant)</a> Course taught by Paolo Toth. University of Bologna, M.Eng. in Computer Engineering.

## Teaching Bachelor's level

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2020	<a href="#">Applied Optimisation Techniques</a> Universitat Pompeu Fabra, elective course for all last-year Bachelor's students of the Department of Economics.
2019	<a href="#">Revenue Management and Dynamic Pricing</a> Universitat Pompeu Fabra, elective course for all last-year Bachelor's students of the Department of Economics.
2018–20	<a href="#">Operations Management</a> Universitat Pompeu Fabra, Bachelor's in International Business Economics.
2018–19	<a href="#">Operations Management</a> Universitat Pompeu Fabra, Bachelor's in Business Management Administration.
2016–17	<a href="#">Foundations of OR (teaching assistant)</a> A-K cohort taught by Enrico Malaguti, L-Z cohort taught by Michele Monaci. University of Bologna, B.Eng. in Management Engineering.

## Academic experience Scientific Organisations

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2019–2021	<a href="#">Elected member of the Board of Directors</a> Part of the 12-persons board of directors of AIRO, the Italian Operational Research Association.
2018	<a href="#">Founder</a> Founded EUROYoung, a group of young O.R. scientists from EURO member countries, with the aim of organising training events for early-stage researchers.
2016–18	<a href="#">Coordinator</a> Coordinator of AIROYoung, the youth chapter of the Italian Operational Research Association. During my tenure as coordinator, I organised two workshops securing funding from Italian and European institutions; I created a database of young talents in O.R. and of open positions, helping matching O.R. scientists with relevant opportunities; I helped enroll new young members into AIRO, from Italy and other European countries.
2016	<a href="#">Founder</a> Founder of AIROYoung, the youth chapter of the Italian Operational Research Association.

## Academic experience Organisation of Seminars, Workshops, and Courses

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MAY 2019	<a href="#">Member of the Organising Committee</a> The 2 <sup>nd</sup> EUROYoung Workshop. Porto, Portugal, 25–26 JUNE 2020.
JUN 2019	<a href="#">Organiser of a PhD and Postdoc course</a> Organised a course for PhD and Postdocs of the Barcelona Graduate School of Mathematics, titled “An Introduction to Equilibrium Problems and their applications”. The course is taught by Mauro Passacantando.
MAY 2019	<a href="#">Member of the Organising Committee</a> The 1 <sup>st</sup> EUROYoung Workshop. Invited speakers: Ana Viana and Federico Perea. Seville, Spain, 2–3 MAY

	2019.
MAR 2019	<p><a href="#">Member of the Organising Committee</a> The 3<sup>rd</sup> AIROYoung Workshop and 1<sup>st</sup> AIROYoung PhD School. Invited speakers: Teodor Crainic and Endre Boros. Rome, Italy, 26–29 MAR 2019.</p>
2018-19	<p><a href="#">Coordinator of the “Operations and Marketing” seminar series</a> This is a series of weekly seminars at the Department of Economics and Business of Universitat Pompeu Fabra, with invited speakers from all over the world.</p>
MAR 2018	<p><a href="#">Member of the Organising Committee</a> The 2<sup>nd</sup> AIROYoung Workshop, on the theme “Logistics optimisation and applied operational research”. Invited speakers: Geir Hasle and Roberto Roberti. Cosenza, Italy, 03–05 MAR 2018.</p>
FEB 2017	<p><a href="#">Workshop Organiser</a> Organised, together with Lavinia Amorosi, the 1<sup>st</sup> AIROYoung Workshop, on the theme “Emerging Optimization Problems on Complex Networks”. Invited speakers: Justo Puerto and Maria Grazia Scutellà. Rome, Italy, 16–17 FEB 2017.</p>
2016	<p><a href="#">EURO Young Researchers OR Webinars Organiser</a> Organised a series of OR webinars by and for young researchers from all over the world, sponsored by EURO.</p>
2015	<p><a href="#">Seminars Organiser</a> Organised of a series of doctoral seminars within the Operational Research group at DEI, University of Bologna, involving local and visiting researchers.</p>

## Academic experience Conferences

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JUL 2019	<p><a href="#">Member of the Programme Committee (ECON track)</a> GECCO2019, the The Genetic and Evolutionary Computation Conference. Prague, Czech Republic.</p>
JAN 2019	<p><a href="#">Member of the Programme Committee</a> HM2019, the 11<sup>th</sup> International Workshop on Hybrid Metaheuristics. Concepción, Chile.</p>
SEP 2018	<p><a href="#">Member of the Organising Committee</a> and <a href="#">Session Chair</a> ODS 2018, Optimisation and Decision Science Conference. Chair of the “AIROYoung” session. Taormina, Italy.</p>
JUN 2018	<p><a href="#">Session Chair</a> “EURO Young” session at the EURO 2018 Conference. Valencia, Spain.</p>
JUN 2018	<p><a href="#">Session Chair</a> “AIROYoung” session at the EURO/ALIO 2018 Conference. Bologna, Italy.</p>
SEP 2017	<p><a href="#">Session Chair</a> “AIROYoung” session at the ODS 2017, Optimisation and Decision Science Conference. Sorrento, Italy.</p>
SEP 2016	<p><a href="#">Poster Session Chair</a> “Young OR Researchers Poster Session” at the AIRO 2016 Conference. Trieste, Italy.</p>
JUL 2016	<p><a href="#">Session Chair</a> “Methodological advancements in metaheuristics” session at the EURO 2016 Conference. Poznan, Poland.</p>
SEP 2015	<p><a href="#">Session Chair</a> “Exact Methods for Routing Problems” at the AIRO 2015 Conference. Pisa, Italy.</p>

## Academic experience Evaluation Committees

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2018	<p><a href="#">Grant proposal evaluator</a> “FONDECYT Initiation into Research” programme, Chilean National Science and Technology Commission.</p>
2018–19	<p><a href="#">Member of the M.Sc. Thesis Defence Committee</a> Master’s in Statistics and Operational Research, Polytechnic University of Catalunya, Spain.</p>

## Academic experience Visiting Positions

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DEC 2018	<a href="#">University of Bologna, Italy</a> Visiting Paolo Toth and Daniele Vigo under an Erasmus+ grant from the SmartTransLog consortium.
NOV 2017	<a href="#">INSEC-TEC, Portugal</a> Visiting as part of a Short-Term Scientific Mission for COST Action “European Network for Collaboration on Kidney Exchange Programmes”. Working with Ana Viana, João Pedro Pedroso, and Xenia Klimentova.
JUL-OCT 2016	<a href="#">Amazon Inc.</a> Visiting Research Scientist in Seattle, USA. Working with Mauricio Resende and Andrew Goldberg.
FEB 2016	<a href="#">Vrije Universiteit Amsterdam</a> Visiting Ph.D. Student at the Department of Information, Logistics and Innovation. Working with Wout Dullaert.
NOV 2015	<a href="#">University of Calabria</a> Visiting Ph.D. Student at the Department of Mechanical, Energy and Management Engineering. Working with Demetrio Laganà.
MAR-MAY 2015	<a href="#">Danish Technical University (DTU)</a> Visiting Ph.D. Student at the Department of Management Engineering. Working with Stefan Røpke.

## Invited talks

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2016	<a href="#">“A real-time conflict resolution algorithm for the train rescheduling problem.”</a> Invited to present at: Vrije Universiteit, Amsterdam (Feb 2016); Danish Technical University (DTU), Kongens Lyngby (Oct 2016); DSB Training Centre, Nyborg (Oct 2016).
2015	<a href="#">“TSP with pickups, deliveries, and draught limits.”</a> University of Bologna. Part of a series of seminars held by Ph.D. students and young researchers.
2014	<a href="#">“Recent trends in Operational Research and practical business applications.”</a> American University of Armenia; series of two seminars at the College of Science and Engineering.
2014	<a href="#">“Data Enevelopment Analysis and OR applications in measuring efficiency.”</a> University of Bologna. Part of the course “Resource Optimization”, M.Eng. in Management Engineering.

## Supervised projects and theses

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SEP-NOV 2019	<a href="#">Erasmus+ Internship, incoming from the University of Twente</a> Supervisor, “Production planning and optimisation of vertical farms”, Vinicius Greco de Lemos.
JAN-JUL 2019	<a href="#">Master’s Thesis, M.Sc. in Management, Barcelona School of Management, Universitat Pompeu Fabra</a> Supervisor, “Demand forecasting model in food delivery, a heuristic approach to data science using Python and geoanalysis”, Marc Herrera.
APR-SEP 2017	<a href="#">Project, M.Sc. in Management, Business, and Economics, RWTH Aachen</a> Supervisor, “Improving document-level machine translation with word2vec”, Sean Eulenberg.
APR-SEP 2017	<a href="#">Master’s Thesis, M.Sc. in Management, Business, and Economics, RWTH Aachen</a> Co-supervisor, “A heuristic algorithm for the electric pickup and delivery problem”, Lutz Venhofen.
SEP-DEC 2016	<a href="#">Master’s Thesis, M.Eng. in Management Engineering, University of Bologna</a> Co-supervisor, “Embedding robustness in train rescheduling algorithms”, Alessandro Morandi.
FEB-APR 2016	<a href="#">Project, M.Eng. in Computer Engineering, University of Bologna</a> Co-supervisor, “A genetic algorithm for real-time energy optimisation of train timetables”, Francesco Di Lella.
SEP-DEC 2015	<a href="#">Master’s Thesis, M.Eng. in Management Engineering, University of Bologna</a> Co-supervisor, “Metaheuristic algorithms for energy optimisation in train timetabling and rescheduling”, Hang Xu.

- MAR-JUN 2015    [Project, M.Eng. in Computer Engineering, University of Bologna](#)  
Co-supervisor, “A constructive heuristic for the dispatching problem on multi-track territories”, Giacomo Dall’Olio and Simone Laierno.
- AUG-NOV 2014    [Master’s Thesis, M.Eng. in Management Engineering, University of Bologna](#)  
Co-supervisor, “Valutazione della Performance di un caso di Customer Contact Desk attraverso l’applicazione della metodologia Data Envelopment Analysis”, Martina Carli.

## Work experience

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- 2016            [Amazon](#)  
Research Scientist Intern. Seattle, USA.
- 2012–13        [Procter & Gamble](#)  
Strategic Sourcing Intern. Bruxelles, Belgium.
- 2012            [WISON Offshore & Marine](#)  
Procurement Trainee. Shanghai, China.
- 2011–12        [Amiiko](#)  
Ruby on Rails Developer. Copenhagen, Denmark.

## Other

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- LANGUAGES    Italian: mothertongue  
                    English: fluent  
                    French: very good  
                    Spanish: very good  
                    Catalan: very good
- VOLUNTEERING    Italian Red Cross  
                          Danish Red Cross  
                          Big Brother / Big Sister Project Kongelunden, Copenhagen, Denmark