JÉSICA DE ARMAS ADRIÁN
November 2020

Contact Information

Universitat Pompeu Fabra
Department of Economics and Business
Ramon Trias Fargas 25-27, 08005, Barcelona, Spain

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Academic Positions and Affiliations

2017-present **Department of Economics and Business. Universitat Pompeu Fabra. Spain**
Assistant Professor -Tenure Track
Barcelona School of Management. Spain
Academic Coordinator of Operations and Supply Chain Management Specialization
Barcelona Graduate School of Economics. Spain
Affiliated Professor

2016-2017 **Department of Economics and Business. Universitat Pompeu Fabra. Spain**
Visiting Professor.

2015-2016 **Department of Computer Science. Universitat Oberta de Catalunya. Spain**
Postdoc Researcher

2015-2015 **Department of Computers and Systems Engineering. Universidad de La Laguna. Spain**
Postdoc Researcher

2013-2014 **Department of Statistics, OR and Computer Science. Universidad de La Laguna. Spain**
Postdoc Researcher

2008-2012 **Department of Statistics, OR and Computer Science. Universidad de La Laguna. Spain**
Researcher (PhD Student)

Education

2012 - **PhD in Computer Science**. Universidad de La Laguna. Santa Cruz de Tenerife. Spain
2007 - **Computer Engineering**. Universidad de La Laguna. Santa Cruz de Tenerife. Spain
2005 - **Technical Computer Engineering**. Universidad de La Laguna. Santa Cruz de Tenerife. Spain

Visiting Positions

2019 - **HEC Montreal**, Montreal, Canada. 1 month
2019 - **University of Liverpool**, Liverpool, UK. 1 week.
2018 - **University of Hamburg**, Hamburg, Germany. 1 month
2017 - **University of Colorado Boulder**, Boulder, Colorado, USA. 1 month
2017 - **University of Southampton**, UK. 1 week.
2014 - **University of Nottingham**. Nottingham, UK. 1 month
2014 - **University of Calabria**. Cosenza, Italy. 1 week
2011 - **University of Edinburgh**. Edinburgh Parallel Computing Center. Edinburgh. 3 months

Research Indexes

Google Scholar: h-index 13, citations 671 (14th Nov, 2020)
Research interests: Operations Research and Artificial Intelligence (Combinatorial Optimization, Metaheuristics, Simulation, Machine Learning), Logistics and Transportation, Home Health Care Systems, Optimizations for Development

Personal Fellowships and Awards

Best Paper Award. Energies (JCR Open Access Journal). *Electric Vehicles in Logistics and Transportations: A survey on Emerging Environmental, Strategic, and Operational Challenges.* 2019
Seed Grants. Barcelona Graduate School of Economics**.** *Logistics Optimization for the Home Health and Social Care Services.* 2019

Luis Azcárraga Award. Fundación ENAIRE. Ministerio de Fomento. *A multi-start randomized heuristics for real-life crew rostering problems in airlines with work-balancing goals*. 2017
PhD Award from AEPIA. Spanish Association for Artificial Intelligence. 2014
PhD Extraordinary Award. Universidad de La Laguna. 2012
HPC-Europa2 Fellowship. European Commission Capacities Area. EPCC, University of Edinburgh. 2011
FPU Pre-doctoral Fellowship. Ministerio de Educación, Cultura y Deporte. 2008-2012
Special Award End of Computer Science Degree. Universidad de La Laguna. 2005

Participation in Funded Research Projects

Industrial PhD project, UPF-Better Care S.L. Generalitat de Catalunya. <u>Principal Researcher.</u> 55,560€. 2020-2023

Industrial PhD project, UPF-Ajuntament de Barcelona. Generalitat de Catalunya. <u>Principal Researcher</u>. 55,560€. 2020-2023

EPHoCaS: The social urgency of a growing elderly population: Building sustainable home care services. "La Caixa" Social Research. <u>Principal Researcher</u>. 100,000€. 2020-2022

OptCareServices: Logistics Optimization for the Home Health and Social Care Services. Spanish Ministry of Economy and Competitiveness. <u>Principal Researcher</u>. 35,453€. 2019-2022

Grup de Recerca Wireless Networks. Generalitat de Catalunya 2017-SGR-1739. Research team. 2017-2019

Ibero-American Intelligent Logistics Network for the Sustainable Management of Transportation in Urban Nuclei. CYTED2014-P514RT0013. Research team. 2014-2018

Network of Excellence in Transportation, Logistics, and Intelligent Production. Spanish Ministry of Economy and Competitiveness. TRA2015-71883-REDT. Research team. 2015-2017

ComputerCOOP: Computer-based decision support for Horizontal Cooperation in Transportation and Logistics. Spanish Ministry of Economy and Competitiveness. TRA2013- 48180-C3-3-P. Research team. 2015

iTRANS. Development of an Intelligent System for Planning, Eco-efficient Management and Dynamic Transport Optimization. Ministry of Industry, Tourism and Commerce. TSI- 020100-2011-298. Research team. 2012

TOP - Parallel Optimization Techniques. Hybridization of evolutionary and hyperheuristic computation. Spanish Ministry of Science and Innovation. TIN2011-25448. Research team. 2012

The two-dimensional cutting problem: algorithms and applications. Canarian Agency for Research, Innovation and the Information Society. PI2007/015. Research team. 2009-2012

Multiobjective Metaheuristics and Engineering. Spanish Ministry of Science and Innovation. TIN2008-06491-C04-02. Research team. 2009-2011

Parallel Algorithms and Languages. Vice-Rector for Research, Technological Development and Innovation. ULL. 180.221.09.04. Research team. 2009

Optimization and Network Environments. Spanish Ministry of Science and Innovation. TIN2005-08818-C04-04. Research team. 2007-2008

Participation in Industry Projects

JobAndTalent & Cabify: Development of Crew Scheduling for Taxi Drivers. 2018.

OptTek Systems, Inc.: Participation in the optimization of a complex parallel machine capacitated lotsizing and scheduling problem. 2017.

Oesia & Inditex: Participation in the optimization of the picking operations at a warehouse serving online orders. 2016

INELCAN S.L.: Development of an Intelligent Planning System, Eco-efficient Management and Dynamic Transport Optimization. Technology Transference Software for Vehicle Route Optimization. 2013.

Working Papers

Jesica de Armas. Stochastic Ambulance Routing for Disaster Response. Expert Systems with Applications. Under review.

Jesica de Armas, Eduardo Lalla, Stefan Voss. Similarity in metaheuristics: a gentle step towards a comparison methodology. Natural Computing. Under review (second round).

Jesica de Armas, Marta Reynal, Helena Ramalhinho. Public school location model for urban areas in developing countries. Socio Economic Planning Sciences. Under review (second round).

Jesica de Armas. Improving the Learning Mechanism in Local Search Algorithms. In progress.

Jesica de Armas, Lous-Martin Rousseau. The impact of syncronization in Home Health Care and Social Care Services. In progress.

Jesica de Armas, Marie-Eve Rancourt. Optimizing Integration Indexes in Refugees Resettlement. In progress.

Journal Publications

28 peer-reviewed and JCR-indexed journal publications. These include top-ranked in Operations Research and Engineering journals (**15 Q1**).

2020 - Enrique Arvelo, Jesica de Armas, Montserrat Guillem. Assessing the Demand for Elderly Care Services: A Case Study on the residents in Barcelona and the impact of COVID19. International Journal of Environmental Research and Public Health. 17(20) JCR Q1. DOI: https://doi.org/10.3390/ijerph17207486

Jessica Rodriguez-Pereira, Jesica de Armas, Lorenzo Garbujo, Helena Ramalhinho. Health Care Needs and Services for Elder and Disabled Population: Findings from a Barcelona Study. International Journal of Environmental Research and Public Health. 17(21) JCR Q1. DOI: https://doi.org/10.3390/ijerph17218071

2019 - Jesica de Armas, Manuel Laguna. Parallel machine capacitated lot-sizing and scheduling problem for pipe insulation industry. International Journal of Production Research. JCR Q1. DOI: https://doi.org/10.1080/00207543.2019.1600763

Aljoscha Gruler, Jesica de Armas, Angel A. Juan, David Golsman. Modeling human network behavior using simulation and optimization tools: the need for hybridization. SORT-Statistics and Operations Research Transactions. 43(2), 193-222. JCR Q2. DOI: https://doi.org/10.2436/20.8080.02.85

2018 - Jesica de Armas, Albert Ferrer, Angel A. Juan, Eduardo Lalla-Ruiz. Modeling and Solving the Non-Smooth Arc Routing Problem with Realistic Soft Constraints. Expert Systems with Applications. 98, 205-220. JCR Q1. DOI: https://doi.org/10.1016/j.eswa.2018.01.020

Javier Panadero, Jesica de Armas, Xavier Serra, Joan Manuel Marquès. Multi criteria biased randomized method for resource allocation in distributed systems: Application in a volunteer computing system. Future Generation Computer Systems. 82, 29-40. JCR Q1. DOI: https://doi.org/10.1016/j.future.2017.11.039

Aljoscha Gruler, Javier Panadero, Jesica de Armas, Jose A. Moreno Pérez, Angel A. Juan. Combining variable neighborhood search with simulation for the inventory routing problem with stochastic demands and stock-outs. Computers & Industrial Engineering. 123, 278-288. JCR Q1. DOI: https://doi.org/10.1016/j.cie.2018.06.036

Stephanie Alvarez Fernandez, Angel A. Juan, Jesica de Armas, Daniel Guerreiro e Silva, Daniel Riera Terrén. Metaheuristics in Telecommunication Systems: network design, routing and allocation problems. IEEE Systems Journal, 2018. JCR Q1. https://doi.org/10.1109/JSYST.2017.2788053ç

Aljoscha Gruler, Javier Panadero, Jesica de Armas, Jose A. Moreno Pérez, Angel A. Juan. A Variable Neighborhood Search Simheuristic for the Multi-Period Inventory Routing Problem with Stochastic Demands. International Transactions in Operational Research. JCR Q1. DOI: https://doi.org/10.1111/itor.12540

Jesica de Armas, Peter Keenan, Angel A. Juan, Sean McGarraghy. Solving Large-Scale Time Capacitated Arc Routing Problems: from real-time heuristics to metaheuristics. Annals of Operations Research. JCR Q2. DOI: https://doi.org/10.1007/s10479-018-2777-3

Manuel Chica, Joaquín Bautista, Jesica de Armas. Benefits of robust multiobjective optimization for flexible automotive assembly line balancing. Flexible Services and Manufacturing Journal. JCR Q2. DOI: https://doi.org/10.1007/s10696-018-9309-y

C Expósito-Izquierdo, Jesica de Armas, Eduardo Lalla-Ruiz, Belén Melián-Batista, J. Marcos Moreno-Vega. A Multi-Stage Approach for the Transshipment of Import Containers at Maritime Container Terminals. IET Intelligent Transport Systems. JCR Q3. DOI: https://doi.org/10.1049/iet-its.2018.5147

S. Alvarez Fernandez, Danielle Ferone, Angel A. Juan, Daniel G. Silva, Jesica de Armas. A Two-Stage Biased-Randomized Iterated Local Search for the Uncapacitated Single-Allocation p-Hub Median Problem. Transactions on Emerging Telecommunications Technologies. 29(9). JCR Q3. DOI: https://doi.org/10.1002/ett.3418

2017 - E. Lalla Ruiz; Jesica de Armas; Christopher Exposito Izquierdo; Belen Melian Batista; Marcos Moreno Vega. Multi-Leader Migrating Birds Optimization. International Journal of Bio-Inspired Computation. JCR Q1. DOI: https://doi.org/10.1504/IJBIC.2017.085890

Alex Grasas, Angel A. Juan, Javier Faulin, Jesica de Armas, Helena Ramalhinho. Biased Randomization of Heuristics: supporting real-time decision making in transportation, logistics, and production. Computers & Industrial Engineering. 110, 216-228, JCR Q1. DOI: https://doi.org/10.1016/j.cie.2017.06.019

Laura Calvet, Jesica de Armas, David Masip, Angel A Juan. Learnheuristics: hybridizing metaheuristics with machine learning for optimization problems with dynamic inputs. Open Mathematics. 15(1). pp. 261-280. JCR Q2. DOI: https://doi.org/10.1515/math-2017-0029

Laura Calvet, Madeleine Lopeman, Jesica de Armas, Guillermo Franco, Angel A. Juan. Statistical and machine learning approaches for the minimization of trigger errors in parametric earthquake catastrophe bonds. SORT-Statistics and Operations Research Transactions, 41 (2), 1-20. JCR Q2. DOI: https://doi.org/10.2436/20.8080.02.64

2016 – Jesica de Armas, Luis Cadarso, Angel A Juan, Javier Faulin. A multi-start randomized heuristic for real-life crew rostering problems in airlines with work-balancing goals. Annals of Operations Research, pp. 1-24. JCR Q2. DOI: https://doi.org/10.1007/s10479-016-2260-y

Angel A. Juan, Carlos A. Mendez, Javier Faulin, Jesica de Armas, Scott E. Grasman. Electric Vehicles in Logistics and Transportation: A Survey on Emerging Environmental, Strategic, and Operational Challenges. Energies, 9, 86. JCR Q2. DOI: https://doi.org/10.3390/en9020086

Jesica de Armas, Angel A. Juan, Joan M. Marquès, João Pedro Pedroso. A Simheuristic Algorithm for the Uncapacitated Facility Location Problem with Stochastic Demands. Journal of the Operational Research Society. pp.1- 16. JCR Q3. DOI: https://doi.org/10.1057/s41274-016-0155-6

2015 - C Expósito Izquierdo; Eduardo Lalla Ruiz; Jesica de Armas; Belén Melián Batista; Marcos Moreno Vega. A Heuristic Algorithm based on an Improvement Strategy to Exploit Idle Time Periods for the Stacking Problem. Computers & Industrial Engineering. 87, pp. 410 – 424. JCR Q1. DOI: https://doi.org/10.1016/j.cie.2015.05.030

Jesica de Armas; Eduardo Lalla Ruiz; C. Expósito Izquierdo; Darío Landa Silva; Belen Melian Batista. A Hybrid GRASP-VNS for Ship Routing and Scheduling Problem with Discretized Time Windows. Engineering Applications of Artificial Intelligence. 45, pp. 350-360. JCR Q1. DOI: https://doi.org/10.1016/j.engappai.2015.07.013

Jesica de Armas; Belén Melián Batista. Variable Neighborhood Search for a Dynamic Rich Vehicle Routing Problem with Time Windows. Computers & Industrial Engineering. 85, pp. 120 – 131. JCR Q1. DOI: https://doi.org/10.1016/j.cie.2015.03.006

Jesica de Armas; Belén Melián Batista; Jose A. Moreno-Pérez; Julio Brito. GVNS for a Real-World Rich Vehicle Routing Problem with Time Windows. Engineering Applications of Artificial Intelligence. 42, pp. 45 – 56. JCR Q1. DOI: https://doi.org/10.1016/j.engappai.2015.03.009

Jesica de Armas; Belén Melian Batista. Constrained Dynamic Vehicle Routing Problems with Time Windows. Soft Computing. 19 – 9, pp. 2481 – 2498. JCR Q2. DOI: https://doi.org/10.1007/s00500-014-1574-4

2012 - Jesica de Armas; Gara Miranda; Coromoto León. Improving the efficiency of a best-first bottom-up approach for the constrained 2D cutting problem. European Journal of Operational Research. 219 – 0, pp. 201 – 213. JCR Q1. DOI: https://doi.org/10.1016/j.ejor.2011.11.002

2009 - Jesica de Armas, Gara Miranda, Coromoto León, Carlos Segura. Optimisation of a multi-objective two- dimensional strip packing problem based on evolutionary algorithms. International Journal of Production Research. 48 – 7, pp. 2011 – 2028. JCR Q3. DOI: https://doi.org/10.1080/00207540902729926

2008 - Jesica de Armas; Coromoto León; Gara Miranda; Carlos Segura. Remote service to solve the two-dimensional cutting stock problem: an application to the canary islands costume. International Journal of Web and Grid Services (IJWGS). 4 - 3, pp. 342 - 351. JCR Q3. DOI: 10.1504/IJWGS.2008.021499

Book Chapters

2018- Christopher Expósito-Izquierdo, Eduardo Lalla-Ruiz, Jesica De Armas, Belén Melián-Batista, J Marcos Moreno-Vega. Maritime Container Terminal Problems. Handbook of Heuristics, 1051-1077

Conference Contributions

2019 - 30th European Conference on Operational Research (Dublin, Ireland); Verolog 2019 (Sevilla, Spain)

2018 - 29th European Conference on Operational Research (Valencia, Spain)

2017 - 12th Metaheuristics International Conference (Barcelona, Spain); Eurocast 2017 (Gran Canaria, Spain)

2016 - Winter Simulation Conference 2016 (Washington, USA) ISBN 978-1-5090-4485-6, ISBN 978-1-5090-4485-6; OR58 Annual Conference (Portsmouth, UK) ISBN 978-0-903440-60-8; Conference of the Spanish Association for Artificial Intelligence (Salamanca, Spain) ISBN 978-3-319-44635-6; International Conference on Smart Cities (Málaga, Spain) ISBN: 978-3-319-39594-4; Modeling and Simulation in Engineering, Economics and Management (Teruel, Spain) ISBN: 978-3-319-40505-6, ISBN: 978-3-319-40505-6; International Conference on Intelligent Networking and Collaborative Systems (Ostrava, Czech Republic) ISBN: 978-1-5090-4124-4

2015 - Eurocast 2015 (Canarias, Spain); MAEB 2015 (Mérida, Spain) ISBN 978-84-697-2150-6

2014 - International Conference on Metaheuristics and Nature Inspired Computing 2014 (Marrakech, Marruecos)

2013 - MAEB 2013 (Madrid, Spain) ISBN 978-84-695-8348-7; VeRoLog 2013 (Southampton, UK); International Workshop on locational Analysis and Related Problems (Málaga, Spain); 22nd International Conference on Multiple Criteria Decision Making (Málaga, Spain); International Work Conference on Artificial Neural Networks 2013 (Canarias, Spain) ISSN 0302-9743

2012 - IEEE Congress on Evolutionary Computation 2012 (Brisbane, Australia) ISBN 978-1-4673-1508-1; 9th ESICUP Meeting (Canarias, Spain); MAEB 2012 (Albacete, Spain) ISBN 978-84-615-6931-1

2011 - Genetic and Evolutionary Computation 2011 (Dublin, Ireland) ISBN 978-1-4503-0556-0; IWANN 2011: International Work Conference on Artificial Neural Networks (Málaga, Spain) ISBN 978-3-642-21497-4; IEEE Congress on Evolutionary Computation 2011 (New Orleans, LA) ISBN 978-1-4244-7833-0; 8th ESICUP Meeting (Copenhagen, Dinamarca)

2010 - MAEB 2010 (Valencia, Spain) ISBN 978-84-92812-58-5; IEEE Congress on Evolutionary Computation 2010 (Barcelona, Spain) ISBN 978-1-4244-6910-9; 24th European Conference on Operational Research (Lisboa, Portugal); 18th Euromicro International Conference on Parallel, Distributed and Network-Based Computing (Pisa, Italy) ISBN 978-0-7695-3939-3

Seminar Presentations

2019 - University of Liverpool (UK); HEC Montreal (Canada)
2018 - SALT- Salón Atlántico de la Logística y el Transporte (Spain)
2018 - University of Hamburg (Germany)
2017 - University of Southampton (UK)
2017 - University of Colorado Boulder (USA)
2016 - Universidad de La Laguna (Spain)
2014 - University of Nottigham (UK)

Advising

PhD Thesis. Artificial intelligence to support and act preventively in the care of patients under life support treatment. Francini Piccolo. Industrial PhD, Better Care - Universitat Pompeu Fabra. 2020-currently.

PhD Thesis. Logistics Optimization of the Home Social Care Services. Daniel López Badell. Industrial PhD, Ajuntament de Barcelona - Universitat Pompeu Fabra. 2020-currently.

Master Thesis. How machine learning helps to optimize and accelerate last-mile delivery. Universitat Pompeu Fabra. Jacqueline Raffel. 2020

Master Thesis. A Demographic Study on Barcelona's Home Social Care System. Universitat Pompeu Fabra. Enrique Arvelo. 2020

Master Thesis. Analyzing Home Health Care using BCN Open Data. Universitat Pompeu Fabra. Lorenzo Garbujo. 2019

PhD Thesis. Intelligent logistic planning and efficient management for sustainable liner shipping though simulation-optimization. Mahmoud Kamyabi. Universitat Oberta de Catalunya. 01/06/2019-currently.

PhD Thesis. Metaheuristics, Simheuristics and Learnheuristics for Efficient Logistics and Supply Chain Management. Román Buil. Industrial PhD, Accenture-Universitat Oberta de Catalunya. 01/01/2018-currently.

PhD Thesis. Metaheuristics and Simheuristics for Telecommunication Systems in Smart Cities. Universitat Oberta de Catalunya. Stephanie Álvarez. 22/09/2016-2019.

Master Thesis. Metaheuristic algorithms for solving the Multi-depot Arc Routing Problem. Universitat Oberta de Catalunya-Universitat Rovira Virgili. Patricio Page. 20/06/2017.

Teaching Experience

Computer Science for Business Leaders. Master Degree in Management. Universitat Pompeu Fabra. 2019-currently.

Business Analytics for Operations and Marketing. Master of Research in Economics, Finance and Management. Universitat Pompeu Fabra. 2029-currently.

Quantitative Methods for Decision Making. Degree in Business-Management. Universitat Pompeu Fabra. 2016-currently.

Distributed Systems. Degree in Computer Engineering. Universitat Oberta de Catalunya. 2015 – 2018.

Algorithms and Data Structures. Degree in Computer Engineering. Universidad de La Laguna. 2014

Basis of Software Engineering. Degree in Computer Engineering. Universidad de La Laguna. 2014

Basic Computing. Degree in Computer Engineering. Universidad de La Laguna. 2010 - 2012.

Distributed Systems Programming. Degree in Computer Engineering. Universidad de La Laguna. 2011 – 2012.

Design and Analysis of Languages. Master in Computer Science Applied to the Industry, Software Engineering, and Information Systems. Universidad de La Laguna. 2010 - 2011.

Accreditations

Six-year term research. AQU - Agència per a la Qualitat del Sistema Universitari de Catalunya. 2016
Acreditació de recerca. AQU. 2016
Assistant Professor. (*Profesor Contratado Doctor*). ANECA – Agencia Nacional de Evaluación de la Calidad y Acreditación. 2016

Editorial service

Guess Editor:
Algorithms. Special issue: Optimization Algorithms for Allocation Problems. 2020

Journal of Advance Transportation. Special issue: Operations Research for Transportation and Sustainable Development. 2019

International Journal of Data Analysis Techniques and Strategies. Special issue: applications of risk analysis and analytics in engineering and econòmics. 2017

Referee:
European Journal of Operations Research, Computers & Operations Research, Computers & Industrial Engineering, Expert Systems with Applications, Flexible Services and Manufacturing Journal, Applied Soft Computing, Operations Research Perspectives, Journal of Operations Research Society, Engineering Applications of Artificial Intelligence, International Transactions in Operational Research

Other service

Academic Coordinator of Operations and Supply Chain Management Specialization, Master of Management. Barcelona Graduate School of Economics. 2018-2019
Operations Research & Marketing Seminar Series Coordinator. Universitat Pompeu Fabra. 2019-2020
Co-organization of the 12th Metaheuristic International Conference (MIC'2017). Barcelona. 2017
Master thesis commitee. Master in Statistics and Operations Research. UPC-UB. Barcelona. 2015-2016.
Co-organization of the International Conference on Risk Analysis ICRA 6/RISK 2015. Barcelona. 2015
Co-organization of Jornadas de Paralelismo 2011. Universidad de La Laguna. 2011
Co-organization of Latest Advances in Computer Science 2011. Seminar. Universidad de La Laguna. 2011
Co-organization of Latest Advances in Computer Science 2010. Seminar. Universidad de La Laguna. 2010
Co-organization of Latest Advances in Computer Science 2009. Seminar. Universidad de La Laguna. 2009
Co-organization of Latest Advances in Computer Science 2008. Seminar. Universidad de La Laguna. 2008

Languages

English (Fluent)
Spanish (Native)