



centre adscrit a:



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

Informe de Investigación

2020-2021

Magdalena Mantilla López

INTRODUCCIÓN

En este informe, se recogen las actividades de investigación llevadas a cabo de manera individual por el personal académico de EUNCET y las actividades de investigación organizadas desde la institución durante el curso académico 2020-2021.

1. ACTIVIDADES DE INVESTIGACIÓN ACADÉMICA REALIZADAS POR EL PERSONAL DOCENTE E INVESTIGADOR DE EUNCET

A lo largo de los años 2020 y 2021, el personal docente e investigador de EUNCET ha desarrollado su labor investigadora en diversos ámbitos en función de los campos de especialización de cada uno. A continuación, se exponen las actividades investigadoras desarrolladas en este período por cada uno de los investigadores (en negrita, se indican los profesores de EUNCET):

- **Cristina López-Mayan**
 - A. Publicaciones/documentos de trabajo:
 - Brandts, J., I. Busom, **C. López-Mayan** y J. Panadés (2021), “Dispelling Misconceptions in Economics”, Barcelona GSE Working Paper 1096.
 - B. Presentaciones en congresos.
 - C. Participación en proyectos de investigación.
 - D. Otros méritos de investigación.

- **Cristina Cáliz**
 - A. Publicaciones/documentos de trabajo:
 - Marciniak, R., & **Cáliz Rivera, C.** (2021). A System of Indicators for the Quality Assessment of Didactic Materials in Online Education. The International Review of Research in Open and Distributed Learning, 22(1), 180-198. <https://doi.org/10.19173/irrodl.v22i1.5069>.
 - B. Participación en proyectos de investigación.
 - C. Presentaciones en congresos.
 - D. Otros méritos de investigación.

- **Alfons Freixes**
 - A. Publicaciones/documentos de trabajo.
 - **Panadero, J., Juan, A.***, **Freixes, A.**, Grifoll, M., Serrat, C., & Dehghani, M. (2020). An agile simheuristic for the stochastic team task assignment and orienteering problem: applications to unmanned aerial vehicles. In Proceedings – Winter Simulation Conference, pp. 1324-1335 (Indexed in ISI WOS and Scopus, 2019 SJR = 0.410). ISSN:

0891-7736. <https://informs-sim.org/wsc20papers/151.pdf>.

B. Participación en proyectos de investigación.

- 2020-2021: "Sports and Health Analytics Research with a Gender Perspective". Spanish Ministry of Culture and Sports (09/UPR/20). Lead researcher: **Angel A. Juan/Alfons Freixes/Javier Panadero**.
- 2020-2023: "Efficient & Sustainable Transport Systems in Smart Cities: Internet of Things, Transport Analytics, and Agile Algorithms". Spanish Ministry of Science (PID2019-111100RB-C21/AEI/ 10.13039/501100011033). Lead researchers: **Angel A. Juan/ Fatos Xhafa/Alfons Freixes/Javier Panadero**.

C. Presentaciones en congresos.

- **Juan, A.; Freixes, A.;** Copado, P.; **Panadero, J.;** Serrat, C. (2021): "A Genetic Algorithm Simheuristic for the Multi-Unmanned Aerial Vehicle Orienteering Problem". In Proceedings of the 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.

D. Otros méritos de investigación.

- **Ángel A. Juan**

A. Publicaciones/documentos de trabajo:

- Laroque, C.; Liebau, M.; Copado, P.; Schumacher, C.; **Panadero, J.; Juan, A.A.:** "A Biased-Randomized Discrete-Event Algorithm for the Hybrid Flow Shop Problem with Time Dependencies and Priority Constraints". Algorithms. ISSN: 1999-4893.
- Seiringer, W.; Castaneda, J.; Altendorfer, K.; **Panadero, J.; Juan, A.A.:** "A simheuristic to optimize MRP planning parameters for stochastic production systems and customer demands". Algorithms. ISSN: 1999-4893.
- **Panadero, J., Juan, A.*, Freixes, A.,** Grifoll, M., Serrat, C., & Dehghani, M. (2020). An agile simheuristic for the stochastic team task assignment and orienteering problem: applications to unmanned aerial vehicles. In Proceedings – Winter Simulation Conference, pp. 1324-1335 (Indexed in ISI WOS and Scopus, 2019 SJR = 0.410). ISSN: 0891-7736. <https://informs-sim.org/wsc20papers/151.pdf>.
- Estrada, A.; Ferrer, A.; **Juan, A.; Panadero, J.;** Baghirov, A. (2020): "Solving the MultiCriteria Non-Smooth Team Orienteering Problem with Soft Constraints". Mathematics. ISSN: 2227-7390.
- Tordecilla, R.; Martins, L.; Saiz, M.; Copado, P.; **Panadero, J.; Juan, A.** (2020): "Agile Computational Intelligence for supporting Hospital Logistics during the COVID-19 Crisis". Modeling and Optimization in Science and Technologies.
- **Panadero, J.;** Ammouriova, M.; **Juan, A.;** Agustin, A.; Nogal, M.; Serrat, C. (2021): "Combining Parallel Computing and Biased Randomization for Solving the Team 5 Orienteering Problem in Real Time". Applied Sciences (indexed in ISI SCI, 2020 IF = 2.679, Q2; 2020 SJR = 0.435, Q2). ISSN: 2076-3417.
- **Mármol, M.;** Goyal, A.; Copado, P.; **Panadero, J.;** **Juan, A.** (2021): "Maximizing Customers' Lifetime Value using Limited Marketing Resources". Marketing

Intelligence and Planning. ISSN: 0263-4503.

- Tordecilla, R.; Copado, P.; **Panadero, J.**; Quintero, C.; Montoya, J.; **Juan, A.*** (2021): “Combining heuristics with simulation and fuzzy logic to solve a flexible-size location routing problem under uncertainty”. *Algorithms*, 14(2), 45 (Indexed in ESCI; 2019 SJR = 0.358, Q3). ISSN: 1999-4893.
- Kizys, R.; Doering, J.; **Juan, A.***; Polat, O.; Calvet, L.; **Panadero, J.** (2021): “A Simheuristic Algorithm for the Portfolio Optimisation Problem with Random Returns and Noisy Covariances”. *Computers & Operations Research* (indexed in ISI SCI, 2020 IF = 4.008, Q2; 2020 SJR = 1.506, Q1). ISSN: 0305-0548.
- Tordecilla, R.; Martins, L.; **Panadero, J.**; Copado, P.; Pérez, E.; **Juan, A.*** (2021): “Fuzzy Simheuristics for Optimization Problems in Transportation: dealing with stochastic and fuzzy uncertainty”. *Applied Sciences* (indexed in ISI SCI, 2020 IF = 2.679, Q2; 2020 SJR = 0.435, Q2). ISSN: 2076-3417.
- **Mármol, M.**; Goyal, A.; Copado, P.; **Panadero, J.**; **Juan, A.*** (2021): “A Biased-Randomized Algorithm for Maximizing Customers’ Lifetime Value using Limited Marketing Resources”. *Marketing Intelligence and Planning* (indexed in ISI SCI, 2020 IF = 3.491, Q3; 2020 SJR = 0.745, Q2). ISSN: 0263-4503.
- **Juan, A.***; Marti, R.; Keenan, P.; **Panadero, J.**; McGarraghy, S.; Carroll, P.; Oliva, D. (2021): “A Review of the Role of Heuristics in Stochastic Optimisation: from metaheuristics to learnheuristics”. *Annals of Operations Research* (indexed in ISI SCI, 2020 IF = 4.854, Q1; 2020 SJR = 1.068, Q1). ISSN: 0254-5330. <https://rdcu.be/cmb0f>
- Keenan, P.; **Panadero, J.**; **Juan, A.***; Marti, R.; McGarraghy, S. (2021): “A Strategic Oscillation Simheuristic for the Time Capacitated Arc Routing Problem with Stochastic Demands”. *Computers & Operations Research* (indexed in ISI SCI, 2020 IF = 4.008, Q2; 2020 SJR = 1.506, Q1). ISSN: 0305-0548.
- Oliva, D.; Copado, P.; Hinojosa, S.; Panadero, J.; Riera, D.; **Juan, A.** (2021): “Combination of simheuristics with fuzzy logic for solving optimization problems under uncertainty”. *Mathematics*. ISSN: 2227-7390.
- De la Torre, R.; Onggo, S.; Corlu, C.; Nogal, M.; **Juan, A.*** (2021): “The Role of Simulation and Serious Games in Teaching Concepts on Circular Economy and Sustainable Energy”. *Energies* (indexed in ISI SCI, 2020 IF = 3.004, Q3; 2020 SJR = 0.598, Q2). ISSN: 1996-1073.
- De la Torre, R.; Corlu, C.; Faulin, J.; Onggo, S.; **Juan, A.*** (2021): “Simulation, Optimization, and Machine Learning in Sustainable Transportation Systems: Models and Applications”. *Sustainability*, 13(3), 1–21, 1551 (indexed in ISI SCI, 2020 IF = 3.251, Q2; 2020 SJR = 0.612, Q1). ISSN: 2071-1050.
- Martins, L.; Hirsch, P.; **Juan, A.*** (2021): “Agile Optimization of a Two-Echelon Vehicle Routing Problem with Pick-up and Delivery”. *Int. Transactions in Operational Research*, 28(1): 201-221 (indexed in ISI SCI, 2020 IF = 4.193, Q2; 2020 SJR = 1.032, Q1). ISSN: 0969-6016. <https://doi.org/10.1111/itor.12796>
- Tordecilla, R.; **Juan, A.***; Montoya, J.; Quintero, C.; Panadero, J. (2021). “Simulation-Optimization Methods for Designing Resilient Supply Chain Networks under Uncertainty Scenarios: A Review”. *Simulation Modelling Practice and Theory*, 106, 102166 (indexed in ISI SCI, 2020 IF = 3.272, Q1; 2020 SJR = 0.554, Q2). ISSN: 1569-190X. <https://doi.org/10.1016/j.simpat.2020.102166>.

B. Participación en proyectos de investigación:

- 2020-2021 (8.000): “Sports and Health Analytics Research with a Gender Perspective”. Spanish Ministry of Culture and Sports (09/UPR/20). Lead researcher: **Angel A. Juan*/Javier Panadero/Alfons Freixes**.

C. Presentaciones en congresos:

- Onggo, S.; **Juan, A.; Panadero, J.**; Corlu, C.; Agustin, A. (2019): “The Risks of Not Considering Input Uncertainty in Combined Inventory-Management and VehicleRouting Problems”. 2019 Winter Simulation Conference. Maryland, USA. December 8- 11.
- **Juan, A.**; Reyes, L.; de la Torre, R.; **Panadero, J.**; Faulin, J.; Latorre, I. (2019): “Simulation-based Optimization in Transportation & Logistics: Comparing Sample Average Approximation with Simheuristics”. 2019 Winter Simulation Conference. Maryland, USA. December 8-11.
- Raba, D.; **Juan, A.; Panadero, J.**; Bayliss, C.; Estrada, A. (2019): “Combining Internet of Things with Simulation-Optimization in a Food Supply Chain”. 2019 Winter Simulation Conference. Maryland, USA. December 8-11.
- Corlu, C.; **Panadero, J.**; Onggo, B.; **Juan, A.**: “The Impact of Limited Input Data on the Quality of Solutions to the Stochastic Optimization Problems”. IISE Annual Conference & Expo. May 30 – June 2, 2020. New Orleans. USA.
- Bayliss, C.; Nieto, A.; **Juan, A.**; Serra, M.; Gandouz, M. (2020): “A Simheuristic Algorithm for Robust Asset and Liability Management”. 2020 Winter Simulation Conference. Orlando, FL, USA. December 13-16.
- Rabe, M.; Chicaiza, J.; Tordecilla, R.; **Juan, A.** (2020): “Simheuristics for Multi-Period Facility Location Problems with Forecasted and Random Demands”. 2020 Winter Simulation Conference. Orlando, FL, USA. December 13-16.
- Saiz, M.; Lostumbo, M.; **Juan, A.**; Lopez-Lopez, D. (2020): “Using Simulation-Optimization for Stochastic Project Portfolio Management with Sustainability Criteria”. 2020 Winter Simulation Conference. Orlando, FL, USA. December 13-16.
- Wolfgang, S.; **Panadero, J.**; Altendorfer, K.; Castaneda, J.; **Juan, A.** (2021): “Applying Simheuristics for Safety Stock and Planned Lead Time Optimization in a Rolling Horizon MRP System under Uncertainty”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- Xhafa, F.; Aly A.; **Juan, A.** (2021): “Optimization of Task Allocations in Cloud to Fog Environment with Applications to Transportation Systems”. In Proceedings of the 35th International Conference on Advanced Information Networking and Applications. Toronto, Canada. May 12-14, 2021.
- Shaker, H.; Xhafa, F.; **Juan, A.** (2021): “Modelling and Evaluation of Cloud to Fog (C2F) environment for Task Allocations with C-V2X Applications in Transportation Systems”. In Proceedings of the 35th International Conference on Advanced Information Networking and Applications. Toronto, Canada. May 12-14, 2021.
- Nieto, A.; **Juan, A.**; Kizys, R.; Bayliss, C. (2021): “Asset and liability management in insurance firms: a biased-randomised approach combining heuristics with Monte Carlo simulation”. 10th Simulation Workshop, UK. March 22-26, 2021.
- Lostumbo, M.; Saiz, M.; Calvet, L.; **Juan, A.**; Lopez, D. (2021): “Combining Simulation with Reliability Analysis in Supply Chain Project Management under Uncertainty: A

Case Study in Healthcare”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.

- Peyman, M.; Li, Y.; Tordecilla, R.; Copado, P.; **Juan, A.**; Xhafa, F. (2021): “Waste Collection of Medical Items under Uncertainty using Internet of Things and City Open Data Repositories: A Simheuristic Approach”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- Martins, L.; Castaneda, J.; **Juan, A.**; Barrios, B.; Calvet, L.; Tondar, A.; Sanchez, J. (2021): “Supporting Efficient Assignment of Medical Resources in Cancer Treatments with Simulation-Optimization”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- Martins, L.; Torres, M.; Perez, E.; Corlu, C.; **Juan, A.**; Faulin, J. (2021): “Solving a Urban Ridesharing Problem with Stochastic Traveling Times: a Simheuristic Approach”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- **Freixes, A.**; Copado, P.; **Panadero, J.**; Gomez, J.; Serrat, C.; **Juan, A.** (2021): “A Genetic Algorithm Simheuristic for the Multi-unmanned Aerial Vehicle Orienteering Problem”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- Rabe, M.; Tordecilla, R.; Chicaiza, J.; Martins, L.; **Juan, A.** (2021): “Supporting Hospital Logistics during the First Months of the COVID-19 Crisis: A Simheuristic for the Stochastic Team Orienteering Problem”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- Herrera, E.; Neroni, M.; **Panadero, J.**; Bartolini, M.; **Juan, A.** (2021): “Last-mile delivery of pharmaceutical items to heterogeneous healthcare centers with random travel times and unpunctuality fees”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- Peyman, M.; Copado, P.; **Panadero, J.**; **Juan, A.**; Dehghani, M. (2021): “A Tutorial on How to Connect Python with Different Simulation Software”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- Laroque, C.; Copado, P.; Leissau, M.; Schumacher, C.; **Panadero, J.**; **Juan, A.** (2021): “A Biased-Randomized Discrete-Event Heuristic for the Permutation Flow Shop Problem with Multiple Paths”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.

D. Actividades de transferencia:

E. Seminarios de investigación:

- **Juan, A.** “X-Heuristics & Agile Optimization”. Invited talk at Amazon Inc. Luxembourg. May 14, 2021.

▪ **Javier Panadero**

A. Publicaciones/documentos de trabajo:

- Laroque, C.; Liebau, M.; Copado, P.; Schumacher, C.; **Panadero, J.**; **Juan, A.A.**: “A Biased-Randomized Discrete-Event Algorithm for the Hybrid Flow Shop Problem with Time Dependencies and Priority Constraints”. Algorithms. ISSN: 1999-4893.
- Seiringer, W.; Castaneda, J.; Altendorfer, K.; **Panadero, J.**; **Juan, A.A.** : “A simheuristic to optimize MRP planning parameters for stochastic production systems and

- customer demands". Algorithms. ISSN: 1999-4893.
- Tordecilla, R.; Martins, L.; Saiz, M.; Copado, P.; **Panadero, J.; Juan, A.** (2020): "Agile Computational Intelligence for supporting Hospital Logistics during the COVID-19 Crisis". Modeling and Optimization in Science and Technologies.
 - Estrada, A.; Ferrer, A.; **Juan, A.; Panadero, J.**; Baghirov, A. (2020): "Solving the MultiCriteria Non-Smooth Team Orienteering Problem with Soft Constraints". Mathematics. ISSN: 2227-7390.
 - **Mármol, M.**; Goyal, A.; Copado, P.; **Panadero, J.; Juan, A.*** (2021): "A Biased-Randomized Algorithm for Maximizing Customers' Lifetime Value using Limited Marketing Resources". Marketing Intelligence and Planning (indexed in ISI SCI, 2020 IF = 3.491, Q3; 2020 SJR = 0.745, Q2). ISSN: 0263-4503.
 - Tordecilla, R.; Copado, P.; **Panadero, J.**; Quintero, C.; Montoya, J.; **Juan, A.** (2021): "Combining heuristics with simulation and fuzzy logic to solve a flexible-size location routing problem under uncertainty". Algorithms. ISSN: 1999-4893.
 - Keenan, P.; **Panadero, J.; Juan, A.**; Marti, R.; McGarraghy, S. (2021): "A Strategic Oscillation Simheuristic for the Time Capacitated Arc Routing Problem with Stochastic Demands". Computers & Operations Research. ISSN: 0305-0548.
 - **Juan, A.**; Marti, R.; Keenan, P.; **Panadero, J.**; McGarraghy, S.; Carroll, P.; Oliva, D. (2021): "A Review of the Role of Heuristics in Stochastic Optimisation: from metaheuristics to learnheuristics". Annals of Operations Research. ISSN: 0254-5330.
 - **Mármol, M.**; Goyal, A.; Copado, P.; **Panadero, J.; Juan, A.** (2021): "Maximizing Customers' Lifetime Value using Limited Marketing Resources". Marketing Intelligence and Planning. ISSN: 0263-4503.
 - Tordecilla, R.; Martins, L.; **Panadero, J.**; Copado, P.; Perez, E.; **Juan, A.** (2021): "Fuzzy Simheuristics for Optimization Problems in Transportation: dealing with stochastic and fuzzy uncertainty". Applied Sciences. ISSN: 2076-3417.
 - Oliva, D.; Copado, P.; Hinojosa, S.; **Panadero, J.**; Riera, D.; **Juan, A.** (2021): "Combination of simheuristics with fuzzy logic for solving optimization problems under uncertainty". Mathematics. ISSN: 2227-7390.
 - **Panadero, J.**; Selimi, M.; Calvet, L.; Marquès, J.M.; Freitag, F. (2021): "A Two-stage Multi Criteria Optimization Method for Service Placement in Decentralized Edge Clouds". Future Generation Computer Systems. Future Generation Computer Systems. ISSN: 0167-739X.
 - **Panadero, J.**; Ammouriova, M.; **Juan, A.**; Agustin, A.; Nogal, M.; Serrat, C. (2021): "Combining Parallel Computing and Biased Randomization for Solving the Team 5 Orienteering Problem in Real Time". Applied Sciences (indexed in ISI SCI, 2020 IF = 2.679, Q2; 2020 SJR = 0.435, Q2). ISSN: 2076-3417.

B. Presentaciones en congresos:

- Raba, D.; **Juan, A.; Panadero, J.**; Bayliss, C.; Estrada, A. (2019): "Combining Internet of Things with Simulation-Optimization in a Food Supply Chain". 2019 Winter Simulation Conference. Maryland, USA. December 8-11.
- **Juan, A.**; Reyes, L.; de la Torre, R.; **Panadero, J.**; Faulin, J.; Latorre, I. (2019): "Simulation-based Optimization in Transportation & Logistics: Comparing Sample Average Approximation with Simheuristics". 2019 Winter Simulation Conference. Maryland, USA. December 8-11.
- Onggo, S.; **Juan, A.; Panadero, J.**; Corlu, C.; Agustin, A. (2019): "The Risks of Not

Considering Input Uncertainty in Combined Inventory-Management and Vehicle Routing Problems”. 2019 Winter Simulation Conference. Maryland, USA. December 8- 11.

- Corlu, C.; **Panadero, J.**; Onggo, B.; **Juan, A.**: “The Impact of Limited Input Data on the Quality of Solutions to the Stochastic Optimization Problems”. IISE Annual Conference & Expo. May 30 – June 2, 2020. New Orleans. USA.
- **Freixes, A.**; Copado, P.; **Panadero, J.**; Gomez, J.; Serrat, C.; **Juan, A.** (2021): “A Genetic Algorithm Simheuristic for the Multi-unmanned Aerial Vehicle Orienteering Problem”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.19
- Herrera, E.; Neroni, M.; **Panadero, J.**; Bartolini, M.; **Juan, A.** (2021): “Last-mile delivery of pharmaceutical items to heterogeneous healthcare centers with random travel times and unpunctuality fees”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- Peyman, M.; Copado, P.; **Panadero, J.**; **Juan, A.**; Dehghani, M. (2021): “A Tutorial on How to Connect Python with Different Simulation Software”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- Laroque, C.; Copado, P.; Leissau, M.; Schumacher, C.; **Panadero, J.**; **Juan, A.** (2021): “A Biased-Randomized Discrete-Event Heuristic for the Permutation Flow Shop Problem with Multiple Paths”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.
- Wolfgang, S.; **Panadero, J.**; Altendorfer, K.; Castaneda, J.; **Juan, A.** (2021): “Applying Simheuristics for Safety Stock and Planned Lead Time Optimization in a Rolling Horizon MRP System under Uncertainty”. 2021 Winter Simulation Conference. Phoenix, AZ, USA. December 12-15.

C. Participación en proyectos de investigación:

- 2018-2021: “Industrial Doctorate: Applications of Analytics to Smart and Sustainable Cities”. AGAUR – Euncet (2017 DI 066). Lead researcher: **Angel A. Juan**.
- 2020-2021: “Sports and Health Analytics Research with a Gender Perspective”. Spanish Ministry of Culture and Sports (09/UPR/20). Lead researcher: **Angel A. Juan**.
- 2020-2022: “Allocation Methods to improve the quality of service in community-owned systems.”. Spanish Ministry of Science (PGC2018-097599-B-100). Lead Researcher: Joan Manuel Marques/**Javier Panadero**.

D. Actividades de transferencia:

- 2021-2021: “Scientific & Technical Development in Data Science and Artificial Intelligence”. Fhios Smart Knowledge. Lead researcher: **Angel A. Juan**.

▪ Mage Mármol Pérez

A. Publicaciones/documentos de trabajo.

- **Mármol, M.**; Martins, L.; Hatami, S.; **Juan, A.***; Fernandez, V. (2020): “Using Biased-Randomized Algorithms for the Multi-Period Product Display Problem with Dynamic Attractiveness”. Algorithms, 13(2), 34 (indexed in ESCI; 2019 SJR = 0.358, Q3). ISSN: 1999-4893. <https://doi.org/10.3390/a13020034>.

- **Mármol, M.**; Goyal, A.; Copado, P.; **Panadero, J.**; **Juan, A.*** (2021): "A Biased-Randomized Algorithm for Maximizing Customers' Lifetime Value using Limited Marketing Resources". Marketing Intelligence and Planning (indexed in ISI SCI, 2020 IF = 3.491, Q3; 2020 SJR = 0.745, Q2). ISSN: 0263-4503.
- **Mármol, M.**; Goyal, A.; Copado, P.; **Panadero, J.**; **Juan, A.** (2021): "Maximizing Customers' Lifetime Value using Limited Marketing Resources". Marketing Intelligence and Planning. ISSN: 0263-4503.

- B. Participación en proyectos de investigación.
- C. Presentaciones en congresos.
- D. Otros méritos de investigación.

▪ **Paola Mastrantonio**

- A. Publicaciones/documentos de trabajo:
 - **Mastrantonio, P.**, Coduras, O. (2020): Actividad Física y Calidad de Vida Percibida en usuarios de Centros Deportivos Públicos de Terrassa, Retos, 37, 427-433. Federación Española de Asociaciones de Docentes de Educación Física (FEADEF) ISSN: Edición impresa: 1579-1726. Edición Web: 1988-2041 (www.retos.org).
- B. Participación en proyectos de investigación:
 - 2020-2021: "Género y Ciencia de Datos en Deporte y Salud", Redes de investigación en Ciencias y Deporte 2021, 18 dic 2020, Milagros Sainz Ibáñez/**P. Mastrantonio**.
- C. Presentaciones en congresos:
- D. Otros méritos de investigación:

▪ **Joaquim Valls**

- A. Publicaciones/documentos de trabajo:
- B. Participación en proyectos de investigación.
- C. Presentaciones en congresos.
 - Simposio sobre "memoria y matemáticas" organizado por la Cátedra "Inteligencia ejecutiva y Educación" dirigida por el Dr. José Antonio Marina/**Joaquim Valls** de la Universidad de Nebrija (Madrid). 8 y 9 de mayo 2020
 - VIII Jornada d'abordatge interdisciplinari de la gent gran: "Combatre l'aïllament i la solitud en la vellesa", organizada por la Facultat d'Infermeria de la UIC (Universitat Internacuional de Catalunya), con la ponencia "Cal.ligrafia i estat emocional". 3/11/2021 y ponente **Valls, Joaquim**.
- D. Otros méritos de investigación: