

Sandra Benítez-Peña

Curriculum Vitae

Personal Information

Name Benítez-Peña, Sandra
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Nationality Spanish
Date of Birth June 26, 1993
Affiliation University of Seville
Position PhD student, supervised by Prof. Rafael Blanquero-Bravo, Prof. Emilio Carrizosa-Priego and Prof. Pepa Ramírez-Cobo.

Degrees

Oct 2015 – **Master degree in Advanced Mathematics (60 ECTS Credits)**, *University of Seville*, Seville, Spain, *GPA – 9.13*.
Jul 2016
Oct 2011 – **Bachelor of Mathematics (240 ECTS Credits)**, *University of Seville*, Seville, Spain, *GPA – 7.94*.
Jul 2015

Publications

- [1] **Feature Selection in Data Envelopment Analysis: A Mathematical Optimization approach**, *Sandra Benítez-Peña, Peter Bogetoft, Dolores Romero Morales*, Omega: The International Journal of Management Science, Volume 96, October 2020, 102068.
- [2] **On Support Vector Machines under a multiple-cost scenario**, *Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo*, Advances in Data Analysis and Classification, Volume 13, September 2019, 663-682.
- [3] **Cost-sensitive feature selection for Support Vector Machines**, *Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo*, Computers & Operations Research, Volume 106, June 2019, Pages 169-178.

Submitted Papers

- [1] **Cost-sensitive probabilistic predictions for support vector machines**, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo.
Submitted to Omega
- [2] **On Sparse Ensemble Methods: An Application to Short-Term Predictions of the Evolution of COVID-19**, Sandra Benítez-Peña, Emilio Carrizosa, Vanesa Guerrero, M. Dolores Jiménez Gamero, Belén Martín Barragán, Cristina Molero-Río, Pepa Ramírez-Cobo, Dolores Romero Morales, M. Remedios Sillero-Denamiel.
Submitted to European Journal of Operational Research

Working Papers

- [1] **Linear regression with probabilistic record linkage**, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo.
Working paper in preparation
- [2] **Clustered Feature Selection in Data Envelopment Analysis**, Sandra Benítez-Peña, Peter Bogetoft, Dolores Romero Morales.
Working paper in preparation
- [3] **A Machine Learning approach to the estimation of chlorination concentration in public sources. Application to the city of Sevilla.**, Agustín Álvarez, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Tomás Chacón, Antonio Ruiz.
Working paper in preparation

Grants, Fellowships and Collaboration Works

- Since Oct 2020 **Collaborator in the project “CORROSION”, IMESAPI.**
- Since Oct 2020 **Collaborator in the project “MODFUENTES”, IMESAPI.**
- Since Jul 2019 **Collaborator in the project “FACEPROXIM”, IMESAPI.**
- Aug 2018 – Oct 2018 **University of Seville short-term research stay Grant (Ayuda estancia breves en el extranjero para beneficiarios de Becas PIF de la US)**, Universidad de Sevilla.
- Apr 2018 **Short Term Scientific Mission (STSM) Grant**, COST Action.
- Since Mar 2018 **Collaborator in the project “FUENCOMCLO”, IMESAPI.**
- Since Oct 2017 **Collaborator in the project “RESPLANDOR”, IMESAPI.**
- Since May 2017 **University of Seville PhD Fellowship (Personal Investigador en Formación – PIF)**, Mathematical Research Institute of the University of Seville (IMUS) and Department of Statistics and Operations Research, University of Seville.

- Jan 2017 – **Project contract “Cost-sensitive classification. A mathematical optimization approach”**, *Fundación BBVA – IMUS*.
 Apr 2017
 Feb 2016 – **Project contract “Construcción de Clasificadores”**, *Universal Diagnostics, S.L.*
 Sep 2016 – *FIUS – IMUS*.
 Jul 2015 – **Collaborator with Instituto de Biomedicina de Sevilla (IBIS) in the project**
 Dec 2015 **“Magic Bullet”**, *European Union*, <http://www.magicbullet7fp.eu/>.
 Oct 2013 – **Collaborator (alumna interna)**, *Department of Geometry and Topology*, University
 Jun 2014 of Seville.

Contribution to Congresses and Talks

- Nov 2020 **Sparse Clustering in Data Envelopment Analysis**, *INFORMS Annual Meeting Conference*, Sandra Benítez-Peña, Peter Bogetoft, Dolores Romero Morales, Via Zoom app.
 Talk
 Jul 2020 **Short-Term Predictions of the Evolution of COVID-19 based on Sparse Ensemble Methods**, *NeEDS Workshop on Data and Decisions in the COVID19 times*, Sandra Benítez-Peña, Emilio Carrizosa, Vanesa Guerrero, M. Dolores Jiménez Gamero, Belén Martín-Barragan, Cristina Molero-Río, Pepa Ramírez-Cobo, Dolores Romero Morales, M. Remedios Sillero-Denamiel, , Via Zoom app.
 Talk
 Jun 2020 **Clustered Feature Selection in DEA**, *Brown Bag Seminar - Copenhagen Business School*, Sandra Benítez-Peña, Peter Bogetoft, Dolores Romero Morales, Via Zoom app.
 Talk
 Jan 2020 **DEA in Benchmarking: A sparse-clustered approach**, *V Congreso de Jóvenes Investigadores RSME*, Sandra Benítez-Peña, Peter Bogetoft, Dolores Romero Morales, Castelló, Spain.
 Talk
 Sep 2019 **Constrained SVM - A Brief Overview**, *On the Latest Advances in Machine Learning to Deal with Complex Data*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Copenhagen, Denmark.
 Talk
 Sep 2019 **Feature Selection in Data Envelopment Analysis: A Mathematical Optimization approach**, *XXXVIII Congreso Nacional de Estadística e Investigación Operativa y XII Jornadas de Estadística Pública*, Sandra Benítez-Peña, Peter Bogetoft, Dolores Romero Morales, Alcoy, Spain.
 Talk
 Sep 2019 **Feature Selection in DEA: A MILP approach**, *XXXVIII Congreso Nacional de Estadística e Investigación Operativa y XII Jornadas de Estadística Pública*, Sandra Benítez-Peña, Peter Bogetoft, Dolores Romero Morales, Alcoy, Spain.
 Talk

- Jul 2019 **Mixed Integer Nonlinear Programming for Feature Selection in DEA**, *30th European Conference on Operational Research*, Sandra Benítez-Peña, Peter Bogetoft, Dolores Romero Morales, Dublin, Ireland.
Talk
- Jun 2019 **Feature Selection in Data Envelopment Analysis**, *2019 INFORMS ALIO International Conference*, Sandra Benítez-Peña, Peter Bogetoft, Dolores Romero Morales, Cancun, Mexico.
Talk
- Jun 2019 **Cost-sensitive classification and class probability estimation for Support Vector Machines**, *2nd Spanish Young Statisticians and Operational Researchers Meeting*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, San Lorenzo de El Escorial, Madrid.
Talk
- Mar 2019 **An overview of cost-sensitive Support Vector Machines**, *Junior Faculty Seminar - Copenhagen Business School*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Copenhagen, Denmark.
Talk
- Nov 2018 **Classification for sparse cost-sensitive Support Vector Machine**, *Escuela de Invierno de la Red HEUR*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Valencia, Spain.
Talk
- Sep 2018 **Estimating Probabilities in Support Vector Machines**, *Workshop on Data Science*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Seville, Spain.
Talk
- Jul 2018 **Class probability estimation for SVM with asymmetric costs**, *29 European Conference on Operational Research*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Valencia, Spain.
Talk
- Jul 2018 **Cost-sensitive SVM**, *23rd International Symposium on Mathematical Programming*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Bordeaux, France.
Talk
- May 2018 **Bootstrap-based predictive class probabilities for cost-sensitive SVM**, *XXXVII Congreso Nacional de Estadística e Investigación Operativa y de las XI Jornadas de Estadística Pública*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Oviedo, Spain.
Talk
- Nov 2017 **Sparse Support Vector Machines with performance constraints**, *Symposium on big data in finance, retail and commerce*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Lisbon, Portugal.
Talk

- Oct 2017 **Classification via sparse cost-sensitive Support Vector Machines**, *III International Workshop on Proximity Data, Multivariate Analysis and Classification*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Valladolid, Spain.
Talk
- Oct 2017 **Supervised Classification via Support Vector Machines**, *ECAS – SFdS course “High Dimensional Statistics, theory and practice”*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Fréjus, France.
Talk
- Sep 2017 **On Support Vector Machines under a multiple-cost scenario**, *11th Scientific Meeting of the CLAssification and Data Analysis Group of the Italian Statistical Society*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Milan, Italy.
Talk
- Sep 2017 **Mathematical Optimization to select features and classify when sensitivity and specificity may not be equally important**, *XVI Conferencia Española de Biometría – CEB 2017*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Sevilla, Spain.
Talk
- Jul 2017 **Cost-sensitive support vector machines classification**, *21st conference of the International Federation of Operational Research Societies (IFORS)*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Québec, Canada.
Talk
- Jul 2017 **Support Vector Machines with performance constraints**, *Summer School on Optimization, Big data and Applications (OBA)*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Veroli, Italy.
Talk
- Jun 2017 **Cost-sensitive Feature Selection in Support Vector Machines**, *Workshop on Sparsity in Applied Mathematics and Statistics*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Brussels, Belgium.
Talk
- Apr 2017 **Support Vector Machines with asymmetric costs**, *IMA and OR Society Conference on Mathematics of Operational Research*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Birmingham, England.
Talk
- Sep 2016 **On Support Vector Machines Under a Multiple-Cost Scenario**, *XXXVI Congreso Nacional de Estadística e Investigación Operativa (SEIO)*, Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo, Toledo, Spain.
Talk
- Jul 2014 **Matemagiando con alumnos de secundaria**, *XV Congreso de Enseñanza y Aprendizaje de las Matemáticas*, Antonio Arjona Moreno, Sandra Benítez-Peña, Juan Núñez Valdés, Baeza, Jaén (Spain).
Talk

Courses and Congresses

- Nov 2020 **INFORMS Annual Meeting Conference**, *The Institute for Operations Research and the Management Sciences*, Via Zoom app.
- Jul 2020 **NeEDS Workshop on Data and Decisions in the COVID19 times**, *NeEDS project*, Via Zoom app.
- Jun 2020 **Brown Bag Seminar - Copenhagen Business School**, *Copenhagen Business School (Department of Economics)*, Via Zoom app.
- Jan 2020 **V Congreso de Jóvenes Investigadores RSME**, *Real Sociedad Matemática Española (RSME)*, Castelló, Spain.
- Sep 2019 **On the Latest Advances in Machine Learning to Deal with Complex Data**, *Copenhagen Business School*, Copenhagen, Denmark.
- Sep 2019 **XXXVIII Congreso Nacional de Estadística e Investigación Operativa y XII Jornadas de Estadística Pública**, *Spanish Society of Statistics and Operations Research (SEIO)*, Alcoy, Spain.
- Jul 2019 **30th European Conference on Operational Research**, *European Association of Operational Research Society and the Analytics Society of Ireland*, Dublin, Ireland.
- Jun 2019 **2019 INFORMS ALIO International Conference**, *The Institute for Operations Research and the Management Sciences and Association of Latin-Iberoamerican Operational Research Societies*, Cancun, Mexico.
- Jun 2019 **2nd Spanish Young Statisticians and Operational Researchers Meeting**, *Spanish Society of Statistics and Operations Research*, San Lorenzo de El Escorial, Madrid.
- Nov 2018 **Escuela de Invierno de la Red HEUR**, *Spanish Network in Metaheuristics*, Valencia, Spain.
- Sep 2018 **Workshop on Data Science**, Seville, Spain.
- Sep 2018 **D3EMO - Modeling Week on Data Driven Decision Making and Optimization**, Copenhagen, Denmark.
- Jul 2018 **29 European Conference on Operational Research**, *European Association of Operational Research Society and the Spanish Statistics and Operations Research Society*, Valencia, Spain.
- Jul 2018 **23rd International Symposium on Mathematical Programming**, *Mathematical Optimization Society (MOS)*, Bordeaux, France.
- May 2018 **XXXVII Congreso Nacional de Estadística e Investigación Operativa y de las XI Jornadas de Estadística Pública**, *Spanish Society of Statistics and Operations Research (SEIO)*, Oviedo, Spain.
- Nov 2017 **1st Spanish young statisticians and operational researchers meeting**, *Spanish Society of Statistics and Operations Research (SEIO)*, Granada, Spain.
- Nov 2017 **Symposium on big data in finance, retail and commerce**, *Institute of Financial Big Data, Universidad Carlos III de Madrid, Centro de Estatística e Aplicações, Universidade de Lisboa (CEAUL), Sociedad Española de Estadística e Investigación Operativa (SEIO) and Sociedade Portuguesa de Estatística (SPE)*, Lisbon, Portugal.

- Oct 2017 **III International Workshop on Proximity Data, Multivariate Analysis and Classification**, *Multivariate Analysis and Classification Spanish SEIO Group AMyC*, Valladolid, Spain.
- Oct 2017 **ECAS – SFdS course “High Dimensional Statistics, theory and practice”**, *Société Française de Statistique*, Vincent Rivoirard, Franck Picard and Tristan Mary-Huard, Fréjus, France.
- Sep 2017 **11th Scientific Meeting of the CLAssification and Data Analysis Group of the Italian Statistical Society**, *Data Analysis Group of the Italian Statistical Society*, Milan, Italy.
- Jul 2017 **Summer School on Optimization, Big data and Applications (OBA)**, Chih-Jen Lin, Sathiya Keerthi, Laura Palagi and Massimiliano Pontil, Veroli, Italy.
- Jun 2017 **Workshop on Sparsity in Applied Mathematics and Statistics**, Brussels, Belgium.
- May 2017 **Un algoritmo para la reposición y redistribución de inventarios**, *Mathematical Research Institute of the University of Seville (IMUS)*, Julio González Díaz, Seville, Spain.
- Apr 2017 **The complexity of simple models – a study of worst and typical hard cases of the StQP**, *Mathematical Research Institute of the University of Seville (IMUS)*, Immanuel Bomze, Seville, Spain.
- Mar 2017 **Spring School "Optimization and Data Science"**, *COST Action TD1207 on "Mathematical Optimization in Decision Support Systems for Efficient and Robust Energy Networks"*, Novi Sad, Serbia.
<http://www.optdata-springschool.com/>
- Feb 2017 **Jornadas Informativas para Alumnos de Doctorado de Nuevo Ingreso**, *Mathematical Research Institute of the University of Seville (IMUS)*, Antonio Suárez Fernández, Seville, Spain.
- Jan 2017 **Avances en problemas de logística y problemas de rutas. Modelos con uno o varios objetivos**, *Mathematical Research Institute of the University of Seville (IMUS)*, Martin Gairing, Vladimir Marianov and Daniele Vigo, Seville, Spain.
- Dec 2016 **Optimization**, *Mathematical Research Institute of the University of Seville (IMUS)*, Ángel J. Corberán Salvador, Alfredo Marin Pérez, Antonio Manuel Rodríguez Chia, Juan Francisco Monge Ivars, Victor Blanco Izquierdo and Miguel Ángel Pozo Montaña, Seville, Spain.
- Nov 2016 **Game Theoretical Models and its Applications**, *Mathematical Research Institute of the University of Seville (IMUS)*, René van den Brink, Seville, Spain.
- Oct 2016 **Técnicas estadísticas en bioinformática**, *Mathematical Research Institute of the University of Seville (IMUS)*, Sonia Tarazona Campos, Seville, Spain.
- Dec 2015 **Workshop on Mathematical Technology transfer: CTA-IMUS-Math-in**, Seville, Spain.
- Oct 2015 **Técnicas Predictivas en Estadística: Aplicaciones en Kaggle**, *Mathematical Research Institute of the University of Seville (IMUS)*, José Antonio Guerrero Durán, Seville, Spain.

Jul 2014 **XV Congreso de Enseñanza y Aprendizaje de las Matemáticas**, *Sociedad Andaluza de Educación Matemática THALES*, Baeza, Jaén (Spain).

Stays

- Sep 2019 – **Copenhagen Bussines School**, *Dolores Romero Morales*, 48 days, Copenhagen,
Oct 2019 Denmark.
- Mar 2019 **Copenhagen Bussines School**, *Dolores Romero Morales*, 17 days, Copenhagen,
Denmark.
- Aug 2018 – **Copenhagen Bussines School**, *Dolores Romero Morales*, 64 days, Copenhagen,
Oct 2018 Denmark.
- Apr 2018 **Copenhagen Bussines School**, *Dolores Romero Morales*, 32 days, Copenhagen,
Denmark.
- Sep 2017 **Copenhagen Bussines School**, *Dolores Romero Morales*, 12 days, Copenhagen,
Denmark.

Teaching Experience

- Feb 2021 – **Statistics (Estadística)**, *Bachelor of Computer Engineering (Grado en Ingeniería Informática)*, School of Advanced Computer Engineering, University of Seville.
- Mar 2021
- Oct 2020 – **Elements of Probability and Statistics (Elementos de Probabilidad y Estadística)**, *Double Bachelor of Mathematics and Computer Engineering (Doble Grado en Matemáticas e Ingeniería Informática)*, Mathematics Faculty, University of Seville.
- Jan 2021
- Oct 2020 – **Elements of Probability and Statistics (Elementos de Probabilidad y Estadística)**, *Double Bachelor of Mathematics and Statistics (Doble Grado en Matemáticas y Estadística)*, Mathematics Faculty, University of Seville.
- Jan 2021
- Oct 2020 – **Elements of Probability and Statistics (Elementos de Probabilidad y Estadística)**, *Double Bachelor of Mathematics and Physics (Doble Grado en Matemáticas y Física)*, Mathematics Faculty, University of Seville.
- Jan 2021
- Oct 2020 – **Elements of Probability and Statistics (Elementos de Probabilidad y Estadística)**, *Bachelor of Mathematics (Grado en Matemáticas)*, Mathematics Faculty, University of Seville.
- Jan 2021
- Oct 2020 – **Statistics Applied to Biology (Estadística aplicada a la biología)**, *Bachelor of Biology (Grado en Biología)*, Biology Faculty, University of Seville.
- Jan 2021
- Feb 2020 – **Statistics (Estadística)**, *Bachelor of Computer Engineering (Grado en Ingeniería Informática)*, School of Advanced Computer Engineering, University of Seville.
- Jun 2020
- Feb 2020 – **Statistics (Estadística)**, *Bachelor of Physical Activity and Sports Sciences (Grado en Ciencias de la Actividad Física y del Deporte)*, Education Faculty, University of Seville.
- Jun 2020
- Oct 2019 – **Statistics Applied to Biochemistry (Estadística aplicada a la bioquímica)**, *Bachelor of Biochemistry (Grado en Bioquímica)*, Biology Faculty, University of Seville.
- Jan 2020
- Feb 2018 – **Statistics (Estadística)**, *Bachelor of Computer Engineering (Grado en Ingeniería Informática)*, School of Advanced Computer Engineering, University of Seville.
- Jun 2019

- Oct 2017 – **Statistics Applied to Biology (Estadística aplicada a la biología)**, *Bachelor of Biology (Grado en Biología)*, Biology Faculty, University of Seville.
 Jan 2018
 Dec 2017 – **Statistics (Estadística)**, *Bachelor of Human Resources and Labour Relations (Grado en Recursos Humanos y Relaciones Laborales)*, Labour Sciences Faculty, University of Seville.
 Jan 2018

Organization of activities or research, progress and innovation

- Oct 2019 – Member of the Organizing Committee of “Seminario PHD”, IMUS - University of Seville, Seville (Spain)
 Sep 2020

Research Services

- Oct 2020 – Referee for *European Journal of Operational Research (EJOR)*
 Nov 2020
 Oct 2020 – Referee for *Omega: The International Journal of Management Science*
 Nov 2020
 Jan 2020 – Referee for *TOP* journal (journal of the Spanish Society of Statistics and Operations Research)
 Mar 2020
 Jul 2018 – Referee for *Computers & Operations Research* journal
 Sep 2018

Other Merits

- Since Jan 2020 Participation as researcher in the *Plan Estatal 2017-2020 Retos* Project
 Since Jan 2020 Participation as researcher in the *Data Science: from mathematical modelling to mathematical optimization* Project (funded by Junta de Andalucía (Consejería de Economía y Conocimiento)), led by Dr. Emilio Carrizosa Priego and Rafael Blanquero Bravo
 Since Oct 2020 Participation as researcher in the Project “CORROSION” (IMESAPI)
 Since Oct 2020 Participation as researcher in the Project “MODFUENTES” (IMESAPI)
 Since Aug 2019 Participation as researcher in the *Benchmarking-based incentives and regulatory applications* Project (funded by the Danish Research Council), led by Prof. Bogetoft, Copenhagen Business School. 4,582,832 DKK.
 Since Jul 2019 Participation as researcher in the Project “FACEPROXIM” (IMESAPI)
 Feb 2019 Participation as volunteer in the organization of the “1ª Olimpiada Matemática de Andalucía”. Huelva, Spain
 Since Jan 2019 Participation as researcher in the NeEDS (Network of European Data Scientists) Project (funded by the European Union’s Horizon 2020 research and innovation programme under a Marie Skłodowska-Curie grant)

- Since Mar 2018 Participation as researcher in the Project “FUENCOMCLO” (IMESAPI)
- Since Oct 2017 Participation as researcher in the Project “RESPLANDOR” (IMESAPI)
- Jan 2017 – Apr 2017 Participation as researcher in the Project contract “Cost-sensitive classification. A mathematical optimization approach” (Fundación BBVA - IMUS)
- Feb 2016 – Sep 2016 Participation as researcher in the Project contract “Construcción de clasificadores” (Universal Diagnostics, S.L. - FIUS - IMUS)
- Jan 2016 – Dec 2019 Participation as researcher in the Project *Mathematical Optimization for Data Visualization and Decision Making*
- Since Nov 2015 Member of the Red Española Matemática–Industria (Math–In)
- Since Jul 2015 Member of the research group FQM - 329 of the University of Seville
- Jul 2015 – Dec 2015 Technician in the Project “Modelos y Métodos de Programación Matemática y Sus Aplicaciones” (IBIS - IMUS)
- Jul 2015 – Dec 2015 Member of the Research Project of the Spanish Ministry of Economy and Competitiveness MTM2012-36163-C06-03. Main Researcher: Emilio Carrizosa Priego
- Mar 2011 Bronze medal in the “XLVII Olimpiada Matemática Española” (National phase)

Languages

- Spanish Native
- English B2 level. Certificate by Instituto de Idiomas de la Universidad de Sevilla. July 2017
- Japanese A1.2 level. Certificate by Instituto de Idiomas de la Universidad de Sevilla. June 2019

Computational Skills

- Python
- LaTeX
- Matlab
- FreeFem++
- Scilab
- Mathematica
- Cinderella
- Office Package
- R/R-Studio
- Sage
- JavaScript
- Maple
- SPSS
- Haskell
- Monolix