Curriculum Vitae

Juan Cuesta-Albertos
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1. Education & Academic Positions

1972-1977 Bachelor degree in Mathematics, Universidad de Valladolid, Spain
15.6.79 Ph.D. in Mathematics. Supervisor: Professor Miguel Martin Diaz
10.77-10.82 Assistant Professor of Mathematics,
Colegio Universitario Burgos, Spain
10.82-7.87 Professor of Statistics, Universidad de Cantabria, Spain
since 7.87 University Professor of Statistics, Universidad de Cantabria, Spain

1.1 Visiting Positions

- Universidad de la República, Uruguay. September 2001 January 2002
- Université Paul Sabatier, Toulouse, France, 15 to 30 June, 2005
- Université Paul Sabatier, Toulouse, France, 5 to 26 March, 2010
- University of California at Riverside, USA, 5 to 29 April, 2010
- Rutgers University, USA, April 30 to May 27, 2010

2. Research interest

Optimal transportation problem, Robust Statistics, Statistical depths, Functional data analysis, Random projections in multidimensional and functional spaces, Statistical dominance, Asymptotics of bootstrap, Statistical applications

3. Publications

1. CUESTA-ALBERTOS, J. A. and MATRÁN, C. Lp-linear regression, consistency and significative regression in median. J. Stat. Planning Inference (1986) 13, 15-30.
2. CUESTA-ALBERTOS, J. A. and MATRÁN, C. Strong Laws of Large Numbers in abstract spaces via Skorohod's representation theorem. Sankhyá Ser. A (1986) 48, 98-103.
3. CUESTA-ALBERTOS, J. A. and MATRÁN, C. Asymptotic behavior of p-predictions for vector valued random variables. Proc. Amer. Math. Soc. (1987) 100, 716-720.
4. CUESTA-ALBERTOS, J. A. and MATRÁN, C. Strong convergence of weighted sums of random elements through the equivalence of sequences of distributions. J. Multiv. Anal. (1988) 25, 311-322.

5. CUESTA-ALBERTOS, J. A. and MATRÁN, C. The Strong Law of Large Numbers for k-means and best possible nets of Banach valued random variables. Probab. Theory Related Fields (1988) 78, 523-534.
6. CUESTA-ALBERTOS, J. A. and MATRÁN, C. Uniform consistency of r-means. Statist. Probab. Letters (1989) 6, 65-71.
7. CUESTA-ALBERTOS, J. A. and MATRÁN, C. Conditional bounds and best L_∞-approximations in probability spaces. J. Approx. Theo. (1989) 56, 1-12.
8. CUESTA-ALBERTOS, J. A. and MATRÁN, C. Notes on the Wasserstein metric in Hilbert spaces. Ann. Probab. (1989) 17, 1264-1276.
9. CUESTA-ALBERTOS, J. A. and MATRÁN, C. A short proof of the Law of Convergence of Types. Sankhyá, Ser. A (1990) 52, 259-260.
10. CUESTA-ALBERTOS, J. A. and MATRÁN, C. On the asymptotic behavior of sums of pairwise independent random variables. Statist. Probab. Letters (1991) 11, 201-210.
11. CUESTA-ALBERTOS, J. A. and MATRÁN, C. A review on strong convergence of weighted sums of random elements based on Wasserstein metrics. J. Statistical Planning Infer. (1992) 30, 359-370.
12. CUESTA-ALBERTOS, J.A., DOMINGUEZ, S. and MATRÁN, C. On the consistency of the Lp-isotonic regression. Theory Probab. Appl. (1992) 37, 129-132.
13. CUESTA-ALBERTOS, J. A. and TUERO, A. A characterization of the Monge-Kantorovich mass transference problem. Statist. Probab. Letters (1993) 16, 147-152.
14. CUESTA-ALBERTOS, J. A., RUSCHENDORF, L. and TUERO, A. Optimal coupling of multivariate distributions and stochastic processes. J. Multiv. Anal. (1993) 46, 335-361.
15. CUESTA-ALBERTOS, J. A. and MATRÁN, C. Stochastic convergence through Skorohod representation theorems and Wasserstein distances. Rendic. Circol. Matem. di Palermo Ser. II (1994) 35, 89-113.
16. CUESTA-ALBERTOS, J. A., DOMINGUEZ-MENCHERO, J. S. and MATRÁN, C. Some stochastic on monotone functions. J. Comput. App. Math. (1994) 55, 165-182.
17. CUESTA-ALBERTOS, J.A., DOMINGUEZ-MENCHERO, J. S. and MATRÁN, C. Consistency of Lp-best monotone approximations. J. Statist. Planning Infer. (1995) 47, 295-318.
18. ARENAL-GUTIERREZ, E., MATRÁN, C and CUESTA-ALBERTOS, J.A. On the unconditional strong law of large numbers for the bootstrap mean. Statist. Probab. Letters (1996) 27, 49-60.
19. ARENAL-GUTIERREZ, E., MATRÁN, C and CUESTA-ALBERTOS, J.A. Unconditional Glivenko-Cantelli-type theorems and weak laws of large numbers for bootstrap. Statist. Probab. Letters (1996) 26, 365-275.

20. CUESTA-ALBERTOS, J.A, MATRÁN, C and TUERO-DIAZ, A. On lower bounds for the L2-Wasserstein metric in a Hilbert space. J. Theor. Probab. (1996) 9, 263-283.
21. CUESTA-ALBERTOS, J.A, MATRÁN, C, RACHEV, S.T. and RÜSCHENDORF, L. Mass transportation problems in Probability Theory. Mathemat. Scientist, (1996) 21, 1-39.
22. CUESTA-ALBERTOS, J.A, MATRÁN, C and TUERO-DIAZ, A. Optimal transportation plans and convergence in distribution. J. Multiv. Anal. (1997) 60, 72-83.
23. CUESTA-ALBERTOS, J.A, GORDALIZA, A. and MATRÁN, C. Trimmed k-means: An attempt to robustify quantizers. Ann. Statist. (1997) 25, 553-576.
24. CUESTA-ALBERTOS, MATRÁN, C. and TUERO, A. On the monotonicity of optimal transportation plans. J Math. Anal. and Appl. (1997) 215, 86-94.
25. CUESTA-ALBERTOS, J.A, GORDALIZA, A. and MATRÁN, C. Trimmed best k-nets: A robustified version of an L_∞-based clustering method. Statist. Probab. Letters (1998) 36, 401-413.
26. CUESTA-ALBERTOS, J.A. and MATRÁN, C. The asymptotic distribution of the bootstrap sample mean of an infinitesimal array. Ann. l'Institut Henri Poincaré (1998) 34, 23-48.
27. CUESTA-ALBERTOS, J.A, GORDALIZA, A. and MATRÁN, C. On the geometric behaviour of multidimensional location measures. J. Statist. Planning Infer. (1998) 67, 191-208.
28. CUESTA-ALBERTOS, J.A. and MATRÁN, C. Extensions of consistency results related to the stochastic order. Sankhya (1999) 61, 62-71.
29. del BARRIO, E., CUESTA-ALBERTOS, J.A. and MATRÁN, C. Necessary conditions for the Bootstrap of the mean of a triangular array. Ann. l'Institut Henri Poincaré (1999) 35, 371-386.
30. del BARRIO, E., CUESTA-ALBERTOS, J.A., MATRÁN, C. and RODRÍGUEZ-RODRÍGUEZ, J.M. Tests of goodness of fit based on the L_2-Wasserstein distance. Ann. Statist. (1999) 27, 1230-1239.
31. del BARRIO, E., CUESTA-ALBERTOS, J.A. and MATRÁN, C. Contributions of empirical and quantile processes to the asymptotic theory of goodness-of-fit tests (with discussion). TEST (2000) 9, 1-96.
32. BAÍLLO, A. CUESTA-ALBERTOS, J.A. and CUEVAS, A. Convergence rates in nonparametric estimation of level sets. Statist. Probab. Letters (2001) 53, 27-35.
33. del BARRIO, E., CUESTA-ALBERTOS, J.A. and MATRÁN, C. Asymptotic stability of the bootstrap sample mean. Stoch. Proc. their Appl. (2002) 97, 289-306.
34. CUESTA-ALBERTOS, J.A, GARCÍA-ESCUDERO, L.A. and GORDALIZA, A. On the asymptotics of trimmed best k-nets. J. Multiv. Anal. (2002) 82, 486-516.

35. CUESTA-ALBERTOS, J.A., MATRÁN, C. and RODRÍGUEZ-RODRÍGUEZ, J.M. Approximation to probabilities through uniform laws on convex sets. J. Theoret. Probab. (2003) 16, 363-376.
36. CUESTA-ALBERTOS, J.A., WSCHEBOR, M. Some remarks on the condition number of a real random square matrix. J Complexity (2003) 19, 548-554
37. CUESTA-ALBERTOS, J.A., FRAIMAN, R., RANSFORD, T. Random projections and goodness-of-fit tests in infinite-dimensional spaces. Boletim Sociedade Brasileira Matematica (2006) 37, 1-25.
38. CUESTA-ALBERTOS, J.A. del BARRIO E, FRAIMAN, R., MATRÁN, C. The random projection method in goodness of fit for functional data. Comput. Statist. Data Anal. (2007) 51, 4814-4831.
39. CUESTA-ALBERTOS, J.A. and FRAIMAN, R. Impartial trimmed k-means for functional data. Comput. Statist. Data Anal. (2007) 51, 4864-4877.
40. CUESTA-ALBERTOS, J.A., FRAIMAN, R., RANSFORD, T. A sharp form of the Cramer-Wold theorem. J. Theoret. Probab. (2007) 20, 201-209.
41. CUESTA-ALBERTOS, J.A., FRAIMAN, R., GALVES, A., GARCÍA, J. and SVARC, M. Identifying rhythmic classes of languages using their sonority: a Kolmogorov-Smirnov approach. J. Appl. Statist. (2007) 34, 749-761.
42. ÁLVAREZ-ESTEBAN, P.C., BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. Trimmed comparison of distributions. JASA (2008) 103, 697-704.
43. CUESTA-ALBERTOS, J.A. and NIETO-REYES, A. The Random Tukey Depth. Comput. Statist. Data Anal (2008) 52, 4979-4988.
44. CUESTA-ALBERTOS, J.A., MATRÁN, C. and MAYO-ISCAR, A. Robust estimation in the normal mixture model based on robust clustering. J. Royal Statistical Soc. Series B (2008) 70, 779-802.
45. CUESTA-ALBERTOS, J.A., MATRÁN, C. and MAYO-ISCAR, A. Trimming and likelihood: Robust location and dispersion estimation in the elliptical model. Ann. Statist. (2008) 36, 2284-2318.
46. CUESTA-ALBERTOS, J.A. and NIETO-REYES, A. The Tukey and the Random Tukey depths characterize discrete distributions. J. Multiv. Anal. (2008) 99, 2304-2311.
47. GONZÁLEZ-DÍEZ, et al. Identification of latent faults using a radon test. Geomorphology (2009) 110, 11-19.
48. CUESTA-ALBERTOS, J.A., CUEVAS, A. and FRAIMAN, R. A test for directional uniformity with applications to high-dimensional sphericity. Statist. Computing (2009) 19, 367-380.
49. ÁLVAREZ-ESTEBAN, P.C., BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. Assessing when a sample is mostly normal. Comput. Statist. Data Anal. (2010) 54, 2914-2925.
50. CUESTA-ALBERTOS, J.A., FEBRERO, M. Multiway ANOVA for functional data. TEST (2010) 19, 537-557.

51. ÁLVAREZ-ESTEBAN, P.C., BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. Uniqueness and approximated computation of optimal incomplete transportation plans. Ann. Institut Henri Poincaré. (2011) 47, 358-375.
52. BAÍLLO, A. CUESTA-ALBERTOS, J.A. and CUEVAS, A. Supervised classification for a family of Gaussian functional models. Scandinavian J. Statist. (2011) 38, 480-498.
53. BRUSCHI, V.M., CENDRERO, A. and CUESTA ALBERTOS, J.A. A statistical approach to the validation and optimisation of geoheritage assessment procedures. Geoheritage (2011) 3, 131-149.
54. ÁLVAREZ-ESTEBAN, P.C., BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. Similarity of samples and trimming. Bernoulli (2012) 18, 606-634.
55. LI, J., CUESTA-ALBERTOS, J.A. and LIU, R. DD-Classifier: Nonparametric classification procedure based on DD-plot. JASA (2012) 107, 737-753.
56. ÁLVAREZ-ESTEBAN, P.C., BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. Searching for a common pooling pattern among several samples. Comput. Statist. Data Anal (2013) 67, 1-14.
57. CUESTA-ALBERTOS, J.A., GAMBOA, F. and NIETO-REYES, A. A random-projection based test of Gaussianity for stationary processes. Comput. Statist. Data Anal (2014) 75, 124-141.
58. AGULLÓ-ANTOLÍN, M. CUESTA-ALBERTOS, J.A., LESCORNEL, H. and LOUBES, M. A parametric registration model for warped distributions with Wasserstein's distance. J. Multiv. Anal. (2015) 135, 117-130.
59. CUESTA-ALBERTOS, J.A. and NIETO-REYES, A. Discussion on M. Hubert, P. Rousseeuw and P. Segaert: Multivariate functional outlier detection. (2015) 24, 237-243.
60. ÁLVAREZ-ESTEBAN, P.C., BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. A fixed-point approach to barycenters in Wasserstein space. J. Mathematical Anal. Appl. (2016) 441, 744-762.
61. ÁLVAREZ-ESTEBAN, P.C., BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. A contamination model for approximate stochastic order. TEST (2016) 25, 751-774.
62. CUESTA-ALBERTOS, J.A., FEBRERO-BANDE, M. and OVIEDO DE LA FUENTE, M. The DD^G-classifier in the functional setting. TEST (2017) 26, 119-142.
63. ÁLVAREZ-ESTEBAN, P.C., BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. Models for the assessment of treatment improvement: the ideal and the feasible. Statistical Science (2017) 32, 469-485.
64. ÁLVAREZ-ESTEBAN, P.C., BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. Wide consensus aggregation in the Wasserstein space. Application to location-scatter families. Bernoulli (2018) 24, 3147-3179.

65. CUESTA-ALBERTOS, J.A. GARCÍA-PORTUGUES, W., FEBRERO-BANDE, W., and GONZALEZ-MANTEIGA, W. Goodness-of-fit tests for the functional linear model based on randomly projected empirical processes. Ann. Statist. (2019) 47, 439-467.
66. BARRIO, E. del, CUESTA-ALBERTOS, J.A., MATRÁN, C. and MAYO-ÍSCAR, A. Robust clustering tools based on optimal transportation. Statist. Comput. (2019) 29, 139-160.
67. CENDRERO, A., FORTE, L.M., REMONDO, J., CUESTA-ALBERTOS, J.A. Climate change, geomorphic change, natural hazards and the Anthropocene. Earth's Future (2020) 8, https://doi.org/10.1029/2019EF001305.
68. HALLIN, M., BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. Distribution and quantile functions, ranks and signs in dimension d: a measure transportation approach. Ann Statist. (2021) 49, 1139-1165.
69. NAVARRO-ESTEBAN, P. and CUESTA-ALBERTOS, J.A. High-dimensional outlier detection using random projections. TEST (2021) 30, 908-934.
70. BARRIO, E. del, CUESTA-ALBERTOS, J.A. and MATRÁN, C. The complex behaviour of Galton rank order statistic. Bernoulli (2022) 28, 2123-2150.
71. GARCÍA-PORTUGUÉS, E., NAVARRO-ESTEBAN, P. and CUESTA-ALBERTOS, J.A. On a projection-based class of uniformity tests on the hypersphere. Bernoulli (2023) 29, 181-204
72. CUESTA-ALBERTOS, J.A. and DUTTA, S. On perfect clustering for Gaussian processes. To appear in Transactions on Machine Learning Research, https://openreview.net/revisions?id=igDOV2KBwM

The full list of publications, contributions to conference proceedings, chapter of books, preprints can be found in
https://personales.unican.es/cuestaj/publicaciones.html

4. Grants and Distinctions

- Principal investigator for 10 research projects, funded by the Spanish Research Foundation, covering the period from January 1988 to December 2022. Currently, co-investigator for two projects funded by the same foundation.
- Research grant, awarded by Spanish Ministerio de Educación, for international research to the universities Paul Sabatier in Toulouse, France, and California-Riverside and Rutgers in USA between March and June 2010.
- Grants funded by Spanish DGICYT for research visits of professors W. Härdle, University of Lovaine, 3 months, and S.T. Rachev, University of California, 6 months

4.1 Additional R&D grants

- Principal investigator, jointly with P. Álvarez-Esteban (U. de Valladolid), project funded by ATOS Worldgrid S.L. March to September 2014.
- Principal investigator, jointly with P. Álvarez-Esteban (U. de Valladolid), project funded by ATOS Worldgrid S.L. August 2015 to August 2017.
- Principal investigator, research project funded by BSH Electrodomésticos España, S.A., September 2015 to February 2016.

4.2 Distinctions

Recipients of the `Best Methodological Statistical Contribution' in 2020 and 2023 awarded by the BBVA and the Spanish Statistical Society for my publications 'Goodness-of-fit tests for the functional linear model based on randomly projected empirical processes' Ann. Stat. (2019), and 'Distribution and quantile functions, ranks and signs in dimension d: a measure transportation approach' Ann. Stat. (2021) (Thus far, I am the only researcher to have received twice this award.)

5. Ph.D. Student Supervision or Referee

Served as advisor for the following Ph.D. students:

- J.S. Domínguez Menchero. Universidad de Cantabria, Spain. 1991.
- M.A. Tuero Diaz. Universidad de Cantabria, Spain. 1991.
- P.C. Álvarez Esteban. Universidad de Valladolid, Spain. 2009
- A. Nieto Reyes. Universidad de Cantabria, Spain. 2010.
- P. Navarro Esteban, Universidad de Cantabria, Spain. 2021.
  Co-direction with A. Nieto Reyes.
  All of them achieved the maximum possible grading in the Spanish system.

Served as external reviewer for 40 PhD theses in 16 universities, including Rennes, Toulouse and Dunkerque, France; Trento, Italy; North-West University, South Africa; National University of Singapore, Singapore.

6. Professional service

6.1 Editorial and Review Boards

Served as Editor:

- TEST, the statistical Journal of the Spanish Society of Statistics and Operational Research, 2002 - 2004

Served as Associated Editor:

- TEST, 1997 – 2001
- Internat. J. Statist. Management Systems, 2005 - 2010
- J. Amer. Statist. Ass., JASA, 2017 - 2022

Served on the Spanish Commission to evaluate research projects in 2003 for the Spanish Plan of R&D.

Course instructions for around 25 universities in Europe, N. and S. America, and India.

Served as reviewers for around 50 scientific journals, 20 international institutions, and 7 books and conferences proceedings, including

- Journals: Ann. Appl. Statist., Ann. Statist., Bernoulli, JASA, J. Royal Stat. Soc. Series B, J. Theoret. Probab., Probab. Theory Related Fields
- Institutions: German and Spanish Research Foundations, Alexander von Humboldt Foundation, the Indian Statistical Institute, Nacional Security Agency (USA), University of California, Riverside

6.2 Service within my university

- Chairman, Department of Mathematics, Statistics and Computation. January 1991-February 1995
- Vice-Dean, Faculty of Science. November 1990-February 1991 and November 1995-July 1996
- Director, Languages Centre. August 1996-May 2001
- Member, University Commission of R&D. June 2004-July 2009
- Director, International Centre for Mathematical Meetings. September 2010-January 2018.

Served as members Council of Faculty of Science, President of committees, and member of university committees to

- supervise elections for representatives of Faculty of Science,
- grade students accessing to the University,
- decide in a special disciplinary problem,
- stablish guidelines for the development of the university,
- actualize the curricula of the Grade in Mathematics,
- control the general postgraduate studies, including Mathematics
- evaluate the teaching quality and effectiveness in the Faculty of Sciences,
- select the Best Science PhD Thesis of the year,
- fund research travel grants.
- Served as main organizers in nine international conferences, and as a member of the scientific committee in several others
- Served as a member of the Committee of Experimental Sciences of the Program of Complementary Payments of professors - Universities of the Basque Country, Spain, 2018-2021

6.3 Service outside my university

- Served as main organizers in nine international conferences, and as a member of the scientific committee in several others
- Served as a member of the Committee of Experimental Sciences of the Program of Complementary Payments of professors - Universities of the Basque Country, Spain, 2018-2021

7. Selected Recent Invited Talks

1. Conference on Recent Advances in Statistics and Data Science. Rutgers University, USA, 2023
2. 2022 IMS International Conference on Statistics and Data Science. Florence, Italy, 2022
3. Workshop celebrating Peter Rousseeuw's 60th birthday. University of Leuven, Belgium, 2017
4. Economic and Econometric Applications of Stochastic Dominance. Trinity College, Cambridge, 2016
5. The 4th Institute of Mathematical Statistics Asia Pacific Rim Meeting. The Chinese University of Hong Kong, Hong Kong, 2016
6. 45e Journées de Statistique, Toulouse, France, 2013
7. The second Institute of Mathematical Statistics Asia Pacific Rim Meeting. Tsukuba, Japan, 2012
8. CIMPA-UNESCO-MESR-MICINN research School 2012: New trends in Mathematical Statistics. Punta del Este, Uruguay, 2012
9. The eighth ICSA International Conference. Guanzhou University, Guanzhou, China, 2010
10. 57th ISI conference. Durban, South Africa, 2009.
11. International Conference on Robust Statistics, ICORS. 2007 & 2015
12. 9th Brazilian School of Probability. São Sebastiao,Brazil, 2005
13. VII, IX, XI and XII Latin American Congress of Probability and Mathematical Statistics, CLAPEM. 1998, 2004, 2009, 2011
14. AMS-IMS-SIAM Summer Research Conference: Distributions with fixed marginals, doubly stochastic measures and Markov operators. University of Washington, Seattle, 1993