

Curriculum Vitae

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Delicado Useros, Pedro Francisco

Departament d'Estadística i Investigació Operativa
Universitat Politècnica de Catalunya
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Birth: October 4, 1967; Albacete, Spain.

Neighborhood of home address: Poblenou, 08005 Barcelona.

Status: Married, two daughters (12 and 9 years old).

Education:

- Degree in Mathematics (1990), Universidad Complutense de Madrid).
- Ph.D. (1995) in Economics, Universidad Carlos III de Madrid, Spain.
Thesis title: "Contrastes de bondad de ajuste en el modelo de regresión con coeficientes aleatorios"
(Advisor: J. Romo).

Previous positions:

- 2000-present: Assistant Professor (TU, permanent position), Universitat Politècnica de Catalunya.
- 1995-2000: Assistant Professor (Tenure-track position), Universitat Pompeu Fabra.
- 1990-1995: Teaching Assistant (AU, Becario FPI, AEU), Universidad Carlos III de Madrid.

Administrative tasks:

- Vice dean for the undergraduate program in Statistics (Cap d'Estudis d'Estadística) at the Facultat de Matemàtiques i Estadística, Universitat Politècnica de Catalunya, March 2009 - March 2012.
- Acting Director of the Interuniversity Master Program in Statistics and Operations Research UPC-UB, September 2008 - August 2009.

Positive evaluations, accreditations, awards:

- Acreditación de Catedrático de Universidad, ANECA (01-12-2010).
- Acreditació de Recerca Avançada, AQU (01-03-2010).
- Two positive evaluations of the research activity, *Sexenios*, corresponding to years 1991-1999 and 2000-2005, by the CNEAI. At this moment I'm waiting for the resolution of my application for the 3rd *Sexenio*, corresponding to years 2006-2011.
- Three positive evaluations of the teaching activity, *Quinquenios*.
- Premio Extraordinario de Doctorado, Universidad Carlos III de Madrid.

Research activity

Main research interests: Nonparametric statistics, functional data analysis, multivariate analysis, dimensionality reduction, spatial statistics, data visualization, statistical analysis of electoral data.

Research projects financed by public funds: (last 10 years)

5. *MTM2010-14887 ESTADISTICA Y PROBABILIDAD ORIENTADA AL ANALISIS DE DATOS DISCRETO.*
Ministerio de Ciencia e Innovación. (01.01.2011 - 31.12.2013).
Grant amount (euros): 32,400.00. Number of participants: 6.
Lead resercher: Pedro Delicado.
4. *MTM2009- 13985-C02-01 Análisis de datos complejos.*
Ministerio de Ciencia e Innovación. (01.01.2010 - 31.12.2010).
Grant amount (euros): 34,300.00 Number of participants: 18.
Lead resercher: Pedro Delicado.
3. *MTM2006-09920 Análisis de datos complejos: métodos paramétricos, no paramétricos y basados en distancias.*
Ministerio de Educación y Ciencia. (01.10.2006 - 30.09.2009).
Grant amount (euros): 107,992.50 Number of participants: 12.
Lead resercher: Pedro Delicado.
2. *MTM2005-02370 Análisis Multivariante No Lineal: técnicas no paramétricas y basadas en distancias.*
Ministerio de Educación y Ciencia y FEDER. (15.10.2005 - 14.10.2006).
Grant amount (euros): 7,140.00 Number of participants: 7.
Lead resercher: Pedro Delicado.
1. *BFM-2001-2327 Medidas de información estadística y diseño de experimentos.*
Ministerio de Educación y Ciencia. (28.12.2001 - 28.12.2004).
Grant amount (euros): 42,210.00 Number of participants: 7.
Lead resercher: Josep Ginebra.

Stays in foreign research institutions: (continued stays exceeding one month).

2. Visiting Professor at the Institut de Mathématiques de Toulouse, Université Paul Sabatier, Toulouse, France (March-April 2012).
1. Visiting at the Department of Statistics, University of California at Berkeley, California, USA (April-September 2005).

Conference and Seminar organization:

6. XIII Conferencia Española y III Encuentro Iberoamericano de Biometría, Barcelona, 7-9 September 2011. Member of the scientific committee.
5. Session organizer on "Nonlinear Dimensionality Reduction" at 3rd International Conference of the ERCIM Working Group on Computing and Statistics, London, UK, 10-12 December 2010.
4. Session organizer on "Discrete Probability Distributions" at International Workshop on Applied Probability IWAP-2010, Madrid, 5-8 July 2010.
3. ALT'06 (The 17th International Conference on Algorithmic Learning Theory) and DS'06 (The 9th International Conference on Discovery Science), Barcelona, 7-10 October 2006. Member of the organizing committee.
2. Statistics and Operations Research Seminar, Dpt. Estadística i Investigació Operativa , UPC (Co-organizer, 2004-2008).
1. Statistics Seminar, Dpt. Economia i Empresa, UPF (1998-1999).

Ph.D. students:

4. Marcelo Smrekar, Universitat Politècnica de Catalunya, January 2011. Thesis title: *Dependencia no lineal entre variables aleatorias: evaluación y aplicaciones.*
3. Sonia Broner, Universitat Politècnica de Catalunya, January 2010. Thesis title: *Análisis Espacial de Datos Electorales. Aplicación al Municipio de Barcelona.*
2. Ramón Giraldo Henao, Universitat Politècnica de Catalunya, July 2009. Thesis title: *Geostatistical Analysis of Functional Data.* Co-supervised with Jorge Mateu, Universitat Jaume I de Castelló.
1. Juan Ramón González Ruiz, Universitat Politècnica de Catalunya, July 2006. Thesis title: *Inference for a general class of models for recurrent events with application to cancer data.* Co-supervised with Edsel Peña, University of South Carolina, Columbia, USA.

Publications

Papers in refereed journals with impact factor

28. Giraldo, R., Delicado, P. and Mateu, J. (2012) Hierarchical clustering of spatially correlated functional data. *Statistica Neerlandica*. Accepted for publication.
27. Comas, C., Mateu, J. and Delicado, P. (2011) On tree intensity estimation for forest inventories: some statistical issues. *Biometrical Journal*, 53, 994–1010. DOI: 10.1002/bimj.201000193.
26. Comas, C., Delicado, P. and Mateu, J. (2011) A second order approach to analyse spatial point patterns with functional marks. *TEST*. 20, 503–523. DOI: 10.1007/s11749-010-0215-1
25. Delicado, P. (2011) Dimensionality reduction when data are density functions. *Computational Statistics and Data Analysis*, 55 (1), 401–420. DOI: 10.1016/j.csda.2010.05.008
24. Giraldo, R., Delicado, P. and Mateu, J. (2011) Ordinary kriging for function-valued spatial data. *Environmental and Ecological Statistics*, 18, 411–426. DOI: 10.1007/s10651-010-0143-y
23. Amela, I., Delicado, P., Gomez, A., Bonas, S., Querol, E. and Cedano, J. (2010) DockAnalyse: an application for the analysis of protein-protein interactions. *BMC Structural Biology*, 10:37. DOI: 10.1186/1472-6807-10-37.
22. Delicado, P., Giraldo, R., Comas, C. and Mateu, J. (2010) Statistics for spatial functional data. *Environmetrics*. Volume 21, Issue 3-4, pages 224–239. DOI: 10.1002/env.1003
21. Giraldo, R., Delicado, P. and Mateu, J. (2010) Continuous Time-Varying Kriging for Spatial Prediction of Functional Data: An Environmental Application. *Journal of Agricultural, Biological, and Environmental Statistics (JABES)*. 15 (1), 66–82. DOI: 10.1007/s13253-009-0012-z
20. Boj, E., Delicado, P. and Fortiana, J. (2010) Distance-based local linear regression for functional predictors. *Computational Statistics and Data Analysis*, 54 (2) 429–437. DOI:10.1016/j.csda.2009.09.010.
19. González, J. R., Peña, E. and Delicado, P. (2010) Confidence intervals for median survival time with recurrent event data. *Computational Statistics and Data Analysis*, 54 (1) 78–89. DOI: 10.1016/j.csda.2009.07.012
18. Almansa, J. and Delicado, P. (2009) Analysing musical performance through functional data analysis: rhythmic structure in Schumann’s Träumerei. *Connection Science*, 21 (Issues 2 & 3), 207–225.
17. Delicado, P. and Smrekar, M. (2009) Measuring non-linear dependence for two random variables distributed along a curve. *Statistics and Computing*, 19 (3), 255–269. DOI: 10.1007/s11222-008-9090-y
16. Delicado, P. and Goría, M. (2008) A small sample comparison of maximum likelihood, moments and L-moments methods for the asymmetric exponential power distribution. *Computational Statistics and Data Analysis*, 52 (3) 1661–1673. DOI: 10.1016/j.csda.2007.05.021.

15. Cedano, J., Huerta, M., Estrada, I., Ballllosera, F., Conchillo, O., Delicado, P. and Querol, E. (2007) A web server for automatic analysis and extraction of relevant biological knowledge. *Computers in Biology and Medicine*, 37 (11) 1672–1675
14. Delicado, P. (2007) Functional k -sample problem when data are density functions. *Computational Statistics*, 22 (3) 391–410.
13. Delicado, P. (2006) Local likelihood density estimation based on smooth truncation. *Biometrika*, 93 (2) 472–480.
12. Udina, F. and Delicado, P. (2005) Estimating parliamentary composition through electoral polls. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 168, 387–399.
11. Delicado, P. and Romo, J. (2004) Random coefficient regressions: Parametric goodness-of-fit. *Journal of Statistical Planning and Inference*, 119 (2), 377–400.
10. Delicado, P. and del Río, M. (2003) A Generalization of Histogram Type Estimators. *Journal of Nonparametric Statistics*, 15 (1), 113–135.
9. Delicado, P. and Huerta, M. (2003) Principal Curves of Oriented Points: Theoretical and computational improvements. *Computational Statistics*, 18 (2) 293–315.
8. Castro, F., Delicado, P. and da Rocha, J.M. (2002) Desperately seeking theta's: Estimating the distribution of consumers under increasing block rates. *Journal of Regulatory Economics*, 22 (1), pp. 29–58.
7. Delicado, P. and Placencia, I. (2001) Comparing empirical distributions of p-values from simulations. *Communications in Statistics. Simulation and Computation*, 30 (2), pp. 403–422.
6. Delicado, P.(2001) Another look at principal curves and surfaces. *Journal of Multivariate Analysis*, 77, 84–116.
5. Arana, E., Delicado, P. and Martí-Bonmatí, L. (1999) Validation Procedures in Radiological Diagnostic Models. Neural Network and Logistic Regression. *Investigative Radiology*, 34, 636–642.
4. Delicado, P. and Romo, J. (1999) Goodness of fit test in random coefficient regression models. *Annals of the Institute of Statistical Mathematics*, 51, 125–148.
3. Delicado, P. and Justel, A. (1999) Forecasting with missing data: Application to coastal wave heights. *Journal of Forecasting*, 18, 285–298.
2. Delicado, P. and del Río, M. (1997) Weighted nonparametric regression. *Communications in Statistics. Theory and methods*, 26(12), 2983–2998.
1. Delicado, P. and del Río, M. (1994) Bootstrapping the general linear hypothesis tests. *Computational Statistics and Data Analysis*, 18, 305–316.

Papers in other refereed journals

1. Delicado, P. y Udina, F. (2001) ¿Cómo y cuánto fallan los sondeos electorales? *Revista Española de Investigaciones Sociológicas*, 96, pp. 123–150.

Papers in conferences proceedings with refereeing process

4. Delicado, P. (2011) Dimensionality reduction for samples of bivariate density level sets: an application to electoral results. *Recent Advances in Functional Data Analysis and Related Topics*. Springer Series: Contributions to Statistics. Ed. Ferraty, F., pp. 71–76. ISBN: 978-3-7908-2736-1
3. Delicado, P., Giraldo, R. and Mateu, J. (2008) Point-wise Kriging for spatial prediction of functional data. *Functional and Operatorial Statistics*. Springer Series: Contributions to Statistics. Eds. Dabo-Niang, S. and Ferraty, F., pp. 135–142 ISBN: 978-3-7908-2062-1
2. Boj, E., Delicado, P. and Fortiana, J (2008) Local Linear Functional Regression based on Weighted Distance-Based Regression *Functional and Operatorial Statistics*. Springer Series: Contributions to Statistics. Eds. Dabo-Niang, S. and Ferraty, F., pp. 57–63 ISBN: 978-3-7908-2062-1
1. Delicado, P. and Smrekar, M. (2007) Mixture of nonlinear models: A Bayesian fit for principal curves. *Proceedings of the International Joint Conference on Neural Networks*, Pp. 195–200. Orlando, Florida, USA. ISBN: 978-1-4244-1380-5. DOI: 10.1109/IJCNN.2007.4370954.

Chapters in books

4. Aluja, T. y Delicado, P.F. (2004) Modelización Estadística Paramétrica. *Introducción a la Minería de Datos*, Hernández-Orallo, J., Ramírez-Quintana, M.José y Ferri, Cèsar, editores. Pp. 166–212. Prentice Hall/Addison-Wesley (Madrid).
3. Delicado, P.F. y Aluja, T. (2004) Modelización Estadística No Paramétrica. *Introducción a la Minería de Datos*, Hernández-Orallo, J., Ramírez-Quintana, M.José y Ferri, Cèsar, editores. Pp. 213–236. Prentice Hall/Addison-Wesley (Madrid).
2. Delicado, P. (1999) New statistical methods for archaeological research. *New Techniques for Old Times. Computer Applications in Archaeology*, J. A. Barceló, editor. British Archaeological Reports International Series. ArchaeoPress, Oxford.
1. Mercader Prats, M. i Delicado, P. (1999) La dimensió econòmica de la pobresa a Catalunya, 1973–1990. *Les desigualtats socials a Catalunya*, Col·lecció Polítiques, 24, Editorial Mediterrània.

Research papers submitted for publication

3. Boj, E., P. Delicado, J. Fortiana, A. Esteve and A. Caballé (2012) Local Distance-Based Generalized Linear Models using the `dbstats` Package for R.
2. Delicado, P., Hernández, A. and Lugosi, G. (2012). Data-based decision rules about the convexity of the support of a distribution.
1. Giraldo, R., Delicado, P. and Mateu, J. (2012) `geofd`: An R Package for Funcion-Valued Geostatistical Prediction. (Second Revision)

Software

3. Boj, E., P. Delicado, J. Fortiana, A. Esteve and A. Caballé (2011) “dbstats R package: Distance based statistics”. Available at CRAN.
2. Giraldo, R., Delicado, P. and Mateu, J. (2010) “geofd R package: Spatial prediction for function value data”. Available at CRAN.

Selected conference presentations:

10. Delicado, P. “Dimensionality reduction for samples of bivariate density level sets: An application to electoral results”. International Workshop on Functional and Operatorial Statistics (IWFOS 2011). Santander, Spain. June 16-18, 2011.
9. Delicado, P., A. Hernandez, G. Lugosi. “A support convexity test with application to nonlinear dimensionality reduction”. 3rd International Conference of the ERCIM WG on COMPUTING & STATISTICS (ERCIM’10). London, UK. 10-12 December 2010. (Invited talk)
8. Delicado, P. “Estimación no paramétrica de funciones”. XX Simposio de Estadística, Universidad Nacional de Colombia, Santa Marta, Colombia. August 11-15, 2010. (Tutorial course).
7. Delicado, P. “Clasificación para datos funcionales con dependencia espacial”. XX Simposio de Estadística, Universidad Nacional de Colombia, Santa Marta, Colombia. August 11-15, 2010. (Invited talk)
6. Delicado, P. “Dimensionality reduction when data are density functions”. SIS-2009: Statistical Methods for the Analysis of Large Data Sets. Italian Statistical Society. Pescara, Italia. September 23-25, 2009. (Invited talk)
5. Delicado, P., Giraldo, R., Comas, C., Broner, S., Mateu, J. “Spatial statistics for functional data”. International Workshop on Spatio-Temporal Modelling (METMA4). Alghero, Cerdeña, Italia. September 24-26, 2008. (Invited talk)
4. Delicado, P. and Smrekar, M. “Mixture of nonlinear models: A Bayesian fit for principal curves”. 2007 International Joint Conference on Neural Networks, Orlando, USA. August 12-17 2007.
3. Delicado, P. “Functional ANOVA when data are a weighted sample of density functions”. Quatrièmes Journées de Statistique Fonctionnelle et Operationell STAPH’2006. Grenoble, Francia. June 15-16, 2006.
2. Delicado, P. “Remarks on local likelihood density estimation”. 6th World Congress of the Bernoulli Society for Mathematical Statistics and Probability. Barcelona, Spain. July 26-31, 2004.
1. Delicado, P., “Statistics in Archaeology”. 26th conference on Computer Applications and Quantitative Methods in Archaeology. Barcelona, Spain. March 1998. (Invited opening talk)

Research works in progress

3. With P. Vieu (Université Paul Sabatier, Toulouse, France): Optimal level sets for bivariate density representation.
2. With S. Broner (CIBER Epidemiología y Salud Pública, Barcelona): Analyzing functional data with lattice spatial dependence: A generalization of LISA map.
1. With R. Giraldo (Universidad Nacional de Colombia) and J. Mateu (Universitat Jaume I de Castelló): From Multivariable to Functional Geostatistics: Spatial Prediction of Temperature Curves.

Teaching activities

Teaching at Universitat Politècnica de Catalunya:

Undergraduate courses:

- Grade in Mathematics: Probability Theory, Mathematical Statistics.
- Grade in Statistics: Probability and Stochastic Processes, Mathematical Statistics, Nonparametric models, Data Mining.
- Grade in Computer Sciences: Probability and Statistics.

Graduate courses:

- Master in Statistics and Operation Research: Nonparametric models, Foundations of Medical Statistics.
- Erasmus Mundus Master in Data Mining and Knowledge Management: Advanced Statistical Modelling (Teaching in English).
- Ph.D. in Statistics and Operation Research: Bayesian Statistics.

Supervision of Degree Projects (PFC): Supervisor of 11 PFCs at the Degree of Statistics.

Teaching at Universitat Pompeu Fabra: Undergraduate courses on Probability, Statistics and Time Series for the Grades in Economics, Business Administration and Political Sciences.

Teaching at Universidad Carlos III de Madrid: Teaching Assistant at undergraduate courses on Mathematics, Probability, Statistics and Multivariate Analysis.

Textbooks

2. Romo, J., Cuevas, J., Delicado, P., Berrendero, J. R. (2001) *Euler. Matemáticas Aplicadas a las Ciencias Sociales 2*. Editorial SM. ISBN: 84-348-7448-2.
1. Romo, J., Cuevas, J., Delicado, P. (2000) *Euler. Matemáticas Aplicadas a las Ciencias Sociales 1*. Editorial SM. ISBN: 84-348-6918-7.

Additional information

Reviewing for journals: Communications in Statistics. Theory and Methods, Computational Statistics and Data Analysis, Computational Statistics, ESTADISTICA: Journal of the Inter-American Statistical Institute, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE. Information Theory, Journal of Multivariate Analysis, Journal of Nonparametric Statistics, Journal of Statistical Planning and Inference, Neural Computing and Applications, Psycometrika, Sankhya, Statistics and Computing, Statistics and Probability Letters, Stoch. Environ. Res. Risk. Assess. (SERRA), TEST: A journal of the Spanish Statistical Society, The Annals of Statistics.

Reviewing for science foundations:

- Agencia Nacional de Evaluación y Prospectiva (ANEP), Spain.
- Social Sciences and Humanities Research Council of Canada.
- Romanian National Council for Development and Innovation.

Ph.D. committees: Universidad Carlos III de Madrid (three times), Universitat De Barcelona (twice), Universtiat Pompeu Fabra.

Invited talks at universities: Université Paul Sabatier (Toulouse, France), Universidad Autónoma de Barcelona, Universidad Carlos III de Madrid, Universidad Complutense de Madrid, Universidad de Bilbao, Universidad de Burgos, Universidad de Girona, Universidad de Vigo, Universidad Pompeu Fabra, Universidad Rey Juan Carlos.