Curriculum Vitae

José Enrique Chacón

December 2013

Curriculum vitae

A) Personal Data

Name: José Enrique Chacón Durán (ISI Web of Knowledge: J.E. Chacon)
Date and place of birth: February 16, 1977; Badajoz (Spain)
Address: Department of Mathematics, University of Extremadura, E-06006 Badajoz (Spain).
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B) Academic Merits

Education

- Degree in Mathematics. Faculty of Sciences, University of Extremadura. Mean mark: 9.333/10. July 2000.

- Degree in Statistics. Faculty of Sciences, University of Extremadura. Mean mark: 8.985/10. March 2002.

- Advanced Studies Diploma. Faculty of Sciences, University of Extremadura. January 2003.

- Ph. D. in Mathematics. Faculty of Science, University of Extremadura. December 2004. Dissertation: "Density estimation: some exact and asymptotic results" (in Spanish).

Honours and awards

- Outstanding Student Diploma in Mathematics. Faculty of Sciences, University of Extremadura. January 2001.

- Outstanding Student Diploma in Statistics. Faculty of Sciences, University of Extremadura. January 2003.

- Extraordinary Degree Award in Statistics. Faculty of Sciences, University of Extremadura. January 2004.

C) Work Experience

Pre-doctoral grants

- Collaboration grant awarded by the Spanish Ministry of Education and Culture. Department of Mathematics, University of Extremadura. Academic year 1999 – 2000.

- University Professor Training Grant awarded by the Spanish Ministry of Education and Culture. Department of Mathematics, University of Extremadura. April 2001 – September 2003.

Positions held

- Assistant Professor. Department of Statistics and Operational Research, University of Valladolid. October 2003 – September 2005.

- Lecturer. Department of Mathematics, University of Extremadura. October 2005 – November 2011.

- Associate Professor. Department of Mathematics, University of Extremadura. Since December 2011.

D) Research Activity

Refereed Publications in Statistics Journals

1. J.E. Chacón, J. Montanero, A.G. Nogales and P. Pérez (2004). Two statistical experiments for bootstrapping. *Far East Journal of Theoretical Statistics*, **12**, 191–200.

2. J.E. Chacón and A. Rodríguez-Casal (2005). On the L_1 consistency of wavelet density estimates. *Canadian Journal of Statistics*, **33**, 489–496.

3. J.E. Chacón, J. Montanero, A.G. Nogales and P. Pérez (2006). A note on minimal sufficiency. *Statistica Sinica*, **16**, 7–14.

4. J.E. Chacón, J. Montanero and A.G. Nogales (2007). A note on kernel density estimation at a parametric rate. *Journal of Nonparametric Statistics*, **19**, 13–21.

5. J.E. Chacón, J. Montanero, A.G. Nogales and P. Pérez (2007). On the existence and limit behavior of the optimal bandwidth for kernel density estimation. *Statistica Sinica*, **17**, 289–300.

6. J.E. Chacón, J. Montanero, A.G. Nogales and P. Pérez (2007). Stability under products of sufficient, minimal sufficient and complete σ-fields in the Bayesian case. *Statistics and Probability Letters*, **77**, 710–716.

7. J.E. Chacón, J. Montanero, A.G. Nogales and P. Pérez (2007). On the use of the Bayes factor in frequentist testing of a precise hypothesis. *Communications in Statistics: Theory and Methods*, **36**, 2251–2261.

8. J.E. Chacón, J. Montanero and A.G. Nogales (2008). Bootstrap bandwidth selection using an h-dependent pilot bandwidth. *Scandinavian Journal of Statistics*, **35**, 139–157.

9. J.E. Chacón, J. Montanero and A.G. Nogales (2009). Is it possible to test is a power of the density is integrable? *Far East Journal of Theoretical Statistics*, **27**, 73–79.

10. J.E. Chacón (2009). Data-driven choice of the smoothing parametrization for kernel density estimators. *The Canadian Journal of Statistics*, **37**, 249–265.

11. J.E. Chacón, J. Montanero, A.G. Nogales and P. Pérez (2009). Partial sufficiency and density estimation. *Journal of Nonparametric Statistics*, **21**, 969–975.

12. J.E. Chacón and T. Duong (2010). Multivariate plug-in bandwidth selection with unconstrained pilot bandwidth matrices. *Test*, **19**, 375–398.

13. J.E. Chacón and A. Rodríguez-Casal (2010). A note on the universal consistency of the kernel distribution function estimator. *Statistics and Probability Letters*, **80**, 1414–1419.

14. J.E. Chacón, T. Duong and M.P. Wand (2011). Asymptotics for general multivariate kernel density derivative estimators. *Statistica Sinica*, **21**, 807–840.

15. J.E. Chacón, J.A. Martín-Fernández and G. Mateu-Figueras (2011). Gaussian kernels for density estimation with compositional data. *Computers & Geosciences*, **37**, 702–711.

16. J.E. Chacón and T. Duong (2011). Unconstrained pilot selectors for smoothed cross validation. *Australian and New Zealand Journal of Statistics*, **53**, 331–351.

17. J.E. Chacón and C. Tenreiro (2012). On the equivalence of exact and asymptotically optimal bandwidths for kernel estimation of density functionals. *Methodology and Computing in Applied Probability*, **14**, 523–548.

18. J.E. Chacón and C. Tenreiro (2013). Data-based choice of the number of pilot stages for plug-in bandwidth selection. *Communications in Statistics, Theory and Methods*, **42**, 2200–2214.

19. J.E. Chacón and T. Duong (2013). Data-driven density derivative estimation, with applications to nonparametric clustering and bump hunting. *Electronic Journal of Statistics*, **7**, 499–532.

20. J.E. Chacón, P. Monfort and C. Tenreiro (2014) Fourier methods for smooth distribution function estimation.*Statistics and Probability Letters*, **84**, 223–230.

Preprints and working papers

- J.E. Chacón (2012) Clusters and water flows: a novel approach to modal clustering through Morse theory. *arXiv preprint 1212.1384*

- J.E. Chacón and T. Duong (2013) Efficient recursive algorithms for functionals based on higher order derivatives of the multivariate Gaussian density. *arXiv preprint 1310:2559*

- J.E. Chacón and P. Monfort (2013) A comparison of bandwidth selectors for mean shift clustering. *arXiv preprint 1310.7855*

Contributed discussions

- J.E. Chacón (2010). Discussion of *Maximum Likelihood estimator of a multidimensional log-concave density* by M. Cule, R. Samworth and M. Stewart. *Journal of the Royal Statistical Society, Series B*, **72**, 590.

- J.E. Chacón and J. Montanero (2012). Discussion of *Statistical methods for healthcare regulation: rating, screening and surveillance* by Spiegelhalter et al. *Journal of the Royal Statistical Society, Series A*, **175**, 33–34.

- J.E. Chacón and J. Montanero (2012). Discussion of *Vignettes and health systems responsiveness in cross-country comparative analyses* by N. Rice, S. Robone and P.C. Smith. *Journal of the Royal Statistical Society, Series A*, **175**, 364.

- J.E. Chacón (2012). Discussion of *Quantifying the weight of evidence from a forensic fingerprint comparison: a new paradigm* by C. Neumann, I.W. Evett and J. Skerrett. *Journal of the Royal Statistical Society, Series A*, **175**, 401.

Research awards

- Ramiro Melendreras Award to the best communication submitted by a young statistician. XXX meeting of the Spanish Society of Statistics and Operations Research, Valladolid (Spain), September 2007.

Participation in Research Projects

1. Research associate, *Suficiencia, invarianza y estimación funcional* (*Sufficiency, invariance and functional estimation*). Project awarded by the Spanish Ministry of Science and Technology, key BFM2002-01217. Principal investigator: Agustín García Nogales (University of Extremadura). October 2002 – September 2005.

2. Research associate, *Suficiencia y estimación de densidades* (*Sufficiency and density estimation*). Project awarded by the Spanish Ministry of Science and Technology, key MTM2005-06348. Principal investigator: Agustín García Nogales (University of Extremadura). January 2006 – December 2006.

3. Research associate, *Suficiencia, estimación de densidades y factor Bayes* (*Sufficiency, density estimation and Bayes factor*). Project awarded by the Spanish Ministry of Science and Technology, key MTM2006-06172. Principal investigator: Agustín García Nogales (University of Extremadura). January 2007 – December 2009.

4. Research associate, *Estimación de densidades, Suficiencia e Invarianza y Modelización de Datos Lineales y Direccionales* (*Density estimation*). Project awarded by the Autonomous Government of Extremadura, key PRI08A094. Principal investigator: Agustín García Nogales (University of Extremadura). October 2008 – September 2011.

5. Research associate, *Suficiencia e invarianza, estimación de densidades y modelización de datos lineales y direccionales* (*Sufficiency and invariance, density estimation and modeling of linear and directional data*). Project awarded by the Spanish Ministry of Science and Innovation, key MTM2009-07302. Principal investigator: Agustín García Nogales (University of Extremadura). January 2010 – December 2010.

6. Principal investigator, *Metodología estadística no paramétrica y algunas aplicaciones en biología y geología* (*Nonparametric statistical methodology and some applications to biology and geology*). Project awarded by the Spanish Ministry of Science and Innovation, key MTM2010-16660. Principal investigator: José Enrique Chacón (University of Extremadura). January 2011 – December 2013.

Stays in research centers

- Universidad Autónoma de Madrid, Madrid (Spain). Under the supervision of Prof. Antonio Cuevas. March 2002 – May 2002.

- Universidad de Extremadura, Badajoz (Spain). For collaboration with Prof. Agustín García Nogales. July 2005 – September 2005.

- Universidad de la República, Montevideo (Uruguay). For collaboration with Prof. Ricardo Fraiman. September 2006.
- Institut Pasteur, Paris (France). For collaboration with Prof. Tarn Duong. January 2008.
- Universidade de Coimbra, Coimbra (Portugal). For collaboration with Prof. Carlos Tenreiro. November 2008 – January 2009.
- Masaryk University, Brno (Czech Republic). For collaboration with Prof. Ivana Horová. November 2010.

Contributed conference presentations

1. Two statistical experiments for bootstrapping. IX CLAPEM, Punta del Este (Uruguay), March 2004.
2. Existence and limit behavior of the optimal bandwidth in kernel density estimation. IX CLAPEM, Punta del Este (Uruguay), March 2004.
3. Is it possible to test if a power of the density is integrable? Congrès Franco-Canadien de Mathématiques, Toulouse (France), July 2004.
4. A factorization criterion for Fraser's partial sufficiency. XXVIII Congreso Nacional de Estadística e Investigación Operativa, Cádiz (Spain), October 2004.
5. Some special cases on the existence of partially sufficient σ-fields. XXVIII Congreso Nacional de Estadística e Investigación Operativa, Cádiz (Spain), October 2004.
6. Local pilot bandwidth for bootstrap bandwidth selection. II Encuentros de Estadística Matemática Santander-Toulouse-Valladolid, Bonascre (France), February 2005.
7. A cross-validation method for choosing the pilot bandwidth in kernel density estimation. ISNI 2005, La Coruña (Spain), July 2005.
8. Some remarks about Bayesian sufficiency and minimal sufficiency. 25^{th} European Meeting of Statisticians, Oslo (Norway), July 2005.

9. Some new properties of the cross-validation bandwidth selector for kernel density estimation. 25$^{\text{th}}$ European Meeting of Statisticians, Oslo (Norway), July 2005.

10. Kernel characteristic function estimation with applications. III Encuentros de Estadística Matemática Santander-Toulouse-Valladolid, Castro Urdiales (Spain), May 2006.

11. A cross-validation method for choosing the pilot bandwidth in kernel density estimation. COMPSTAT 2006, Roma (Italy), August 2006.

12. Updating on kernel density estimation for compositional data. COMPSTAT 2006, Roma (Italy), August 2006.

13. Bootstrap bandwidth selection using an h-dependent pilot bandwidth. Advances on Semiparametric Methods and Applications Conference, Lisboa (Portugal), August 2007.

14. Data-driven choice of the smoothing parametrization for multivariate kernel density estimators. XXX SEIO meeting, Valladolid (Spain), September 2007.

15. Data-driven choice of the smoothing parametrization for multivariate kernel density estimators. VIII SGAPEIO meeting, Santiago de Compostela (Spain), November 2007.

16. Multivariate plug-in bandwidth selection with unconstrained pilot bandwidth matrices. IV Encuentros de Estadística Matemática Santander-Toulouse-Valladolid, Castro Urdiales (Spain), January 2008.

17. A comparison of the alr and ilr transformations for kernel density estimation of compositional data. 3rd Compositional Data Analysis Workshop, Girona (Spain), May 2008.

18. Multivariate plug-in bandwidth selection with unconstrained pilot bandwidth matrices. Workshop on Nonparametric Inference 2008, Coimbra (Portugal), June 2008.

19. A data-based method for choosing the number of pilot stages for plug-in bandwidth selection. II Iberian Mathematical Meeting, Badajoz (Spain), October 2008.

20. Partial sufficiency and density estimation. II Iberian Mathematical Meeting, Badajoz (Spain), October 2008.

21. Multivariate plug-in bandwidth selection with unconstrained pilot bandwidth matrices. International Seminar on Nonparametric Inference 2008, Vigo (Spain), November 2008.

22. Multivariate kernel smoothing with unconstrained bandwidth matrices. Conference on Nonparametric Statistics and Statistical Learning, Columbus, Ohio (USA), May 2010.

23. Kernel estimators of density functionals with reduced bias. International Workshop on Applied Probability, Madrid (Spain), July 2010.

24. Kernel estimation of multivariate density derivatives. Graybill Conference 2011, Fort Collins (USA), June 2011

25. A data-based method for choosing the trimming level improving on the non-stochastic optimal choice. ICORS 2011, Valladolid (Spain), June 2011.

26. Bandwidth selection for mean shift clustering. XXXIII SEIO Meeting, Madrid (España), April 2012.

27. Identifying nonstandard group shapes in mixture model clustering through the mean shift algorithm. 5th International Conference of the ERCIM Working Group on Computing & Statistics, Oviedo (Spain), December 2012.

28. Bandwidth selection for mean shift clustering. 15th Applied Stochastic Models and Data Analysis International Conference, Mataró (Spain), June 2013.

29. The population goal of modal clustering. Joint Statistical Meeting 2013, Montreal (Canada), August 2013.

Invited conference presentations

- A characterization of superkernels. EMS Statcamp, Oslo (Norway), July 2005.

- A cross-validation method for choosing the pilot bandwidth in kernel density estimation. Ninth Meeting of New Researchers in Statistics and Probability, Seattle (USA), August 2006.
- Bootstrap bandwidth selection using an h-dependent pilot bandwidth. 15th European Young Statisticians Meeting, Castro Urdiales (Spain), September 2007.
- Some matrix algebra problems arisen from recent developments in Statistics. Toric Geometry Seminar 2010, Jarandilla de la Vera (Spain), November 2010.
- Kernel estimation of multivariate density derivatives. Convegno Intermedio SIS 2011, Bolonia (Italy), June 2011.
- A data-based method for choosing the trimming level improving on the non-stochastic optimal choice. Royal Spanish Mathematical Society Meeting of Young Researchers, Soria (Spain), September 2011.

Invited seminars

- Local pilot bandwidth for bootstrap bandwidth selection in kernel density estimation. Universidade de Vigo, Vigo (Spain). February 2005.
- New perspectives in density estimation. University of Extremadura, Badajoz (Spain). April 2005.
- New perspectives in density estimation: kernel density estimators without a bandwidth. Universidad Autónoma de Madrid, Madrid (Spain). June 2005.
- Kernel characteristic function estimation with applications. Universidade de Santiago de Compostela, Santiago de Compostela (Spain). February 2006.
- Automatic bandwidth selection for kernel density estimation. Universitat de Girona, Girona (Spain). June 2007.
- Multivariate plug-in bandwidth selection with unconstrained pilot bandwidth matrices. Pasteur Institute, Paris (France). January 2008.
- Variations on multivariate kernel density estimation: derivatives and antiderivatives. University of Valladolid, Valladolid (Spain). June 2009.

- Kernel estimation of multivariate density derivatives. University Carlos III of Madrid, Getafe (Spain). October 2010.

- Multivariate kernel estimation. Masaryk University, Brno (Czech Republic). November 2010.

- An alternative approach to modal clustering. Universidad Autónoma de Madrid, Madrid (Spain). October 2012.

- Comparing population clusterings. Universidad Autónoma de Madrid, Madrid (Spain). February 2013.

Editorial and reviewing work

- Associate Editor for *Annals of the Institute of Statistical Mathematics* (2010-)

- Associate Editor for *Journal of Nonparametric Statistics* (2011-)

- Associate Editor for *Statistical Methodology* (2011-2013)

- Anonymous referee for the international journals *Annals of the Institute of Statistical Mathematics*, *Bernoulli*, *Communications in Statistics – Theory and Methods*, *Computational Statistics*, *Computational Statistics and Data Analysis*, *Journal of Applied Probability and Statistics*, *Journal of Nonparametric Statistics*, *Journal of Statistical Computation and Simulation*, *Journal of Statistical Planning and Inference*, *Marine Ecology Progress Series*, *Metrika*, *PLoS Computational Biology*, *Statistica Sinica*, *Statistical Methodology*, *Statistical Science*, *Statistics and Probability Letters* and *Test*.

- Anonymous referee for the Lecture Notes-Monograph Series of the Institute of Mathematical Statistics entitled *Nonparametric Statistics and Mixture Models: A Festschrift in Honor of Thomas P. Hettmansperger*.

- Mathematical Reviews reviewer (reviewer number 53967).

- Referee for grant proposals from the Spanish Ministry of Science and Innovation.

E) Teaching Activity

Subjects taught

University of Valladolid

- 2003-2005 *Biostatistics* for first year undergraduate students of Nursing.
- 2004-2005 *Linear Models* for second year undergraduate students of Statistics.

University of Extremadura

- 2005-2008 *Mathematical Analysis I* for first year undergraduate students of Statistics.
- 2005-2008 *Mathematical Analysis* for first year undergraduate students of Engineering in Public Works.
- 2005-2008 *Calculus* for first year undergraduate students of Engineering in Computer Science.
- 2006-2009 *Selected topics in Mathematical Statistics* for Ph.D. students of Mathematics.
- 2008-2009 *Mathematics I* for first year undergraduate students of Engineering in Topography and Engineering in Industrial Design.
- 2008-2009 *Numerical Analysis* for second year undergraduate students of Engineering in Computer Science.
- 2008-2009 *Mathematical Analysis I* for first year undergraduate students of Engineering in Telecommunications.
- 2009-2010 *Calculus* for first year undergraduate students of Engineering in Topography and Engineering in Industrial Design.
- 2009-2011 *Statistics* for second year undergraduate students of Engineering in Computer Science.

- 2009-2012 *Data Analysis* for second year undergraduate students of Engineering in Computer Science.
- 2009-2014 *Introduction to Research in Statistics Applied to Engineering* for master students of Engineering.
- 2009-2014 *Introduction to Research in Statistics and Operational Research* for master students of Mathematics.
- 2011-2014 *Statistics* for first year undergraduate students of the Degree in Computer Science and the Degree on Telematics.
- 2013-2014 *Data Mining* for fourth year undergraduate students of the Degree in Computer Science and the Degree on Telematics.

Participation in teaching innovation projects

- IV Project for the adaptation of the University of Extremadura to the European Space for Higher Education. Implied degree: Statistics. Project supervisor: Asunción Rubio de Juan.
- V Project for the adaptation of University of Extremadura to the European Space for Higher Education. Implied degree: Engineering in Computer Science. Project supervisor: Carmen Calvo Jurado.
- VI Project for the adaptation of the University of Extremadura to the European Space for Higher Education. Implied degree: Statistics. Project supervisor: Asunción Rubio de Juan.

Student supervision

- Pablo Monfort Vinuesa. Master thesis. University of Extremadura, November 2010. Thesis title: "Kernel estimation of distribution functions: existence and asymptotic properties of the optimal bandwidth" (in Spanish).
- Pablo Monfort Vinuesa. PhD thesis. University of Extremadura, defence scheduled for June 2014. Thesis title: "Theoretical and computational contributions to cluster analysis, distribution function estimation and conditional expectation calculation".

F) Administrative activity

Administrative roles

- Member of the Coordinating Committee of the Degree in Engineering in Industrial Design. University of Extremadura, February 2009 – September 2012.
- Member of the Coordinating Committee of the Degree in Computer Science. University of Extremadura, since October 2012.
- Member of the Coordinating Committee of the Degree in Telematics. University of Extremadura, since October 2012.