

# CURRICULUM VITAE

26 January 2024

## PERSONAL DETAILS

Full name: María Dolores Martínez-Miranda  
Date of birth: 17 November 1971  
Postal address: Departamento de Estadística e Investigación Operativa  
Facultad de Ciencias, Universidad de Granada  
Campus Fuentenueva s/n, 18071 Granada (Spain)  
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## PROFESSIONAL EDUCATION AND EXPERIENCE

1989-1994 “Licenciatura” (BSc+MSc) in Mathematical Sciences with award “Premio Extraordinario de Licenciatura” by the University of Granada. Date of award: 23/08/1994.  
1996-2000 PhD. in Mathematics (Statistics). Dissertation “Elección de los parámetros que intervienen en un modelo de regresión local” (*The choice of the parameters involved in a local linear regression model*) supervised by Professor Andrés González Carmona. University of Granada, Spain. Date of award: 31/10/2000.

## FACULTY POSITIONS

- Full Professor of Statistics (“Catedrática de Universidad”), University of Granada (from 10 August 2021 to date). Permanent position (full time).
- Associate Professor of Statistics, University of Granada (23 April 2004 to 9 August 2021).
- Assistant Professor of Statistics, University of Granada (1 October 1994 to 23 April 2004).
- Reader in Statistics, Cass Business School, City, University of London (1 September 2016 to 31 August 2017).
- Honorary Visiting Professor, Bayes Business School, City, University of London, UK (from 31 May 2021 to date).
- Honorary Senior Visiting Fellow, Cass Business School, City, University of London, UK (27 May 2015 to 31 August 2016, 1 June 2018 to 31 May 2021).
- Senior Research Fellow. Faculty of Actuarial Science and Insurance. Cass Business School. City, University of London (1 September 2012 to 31 August 2014).

## CURRENT RESEARCH AREAS

- Non-parametric curve estimation (regression, density and intensity/hazard).
- Bandwidth selection
- Structured models (additive, multiplicative)
- Mixed-effects models
- Survival Analysis
- Bootstrap methods
- Computational Statistics
- Statistics in Insurance

## SELECTION OF RELEVANT PUBLICATIONS

### Papers published in peer-reviewed journals indexed in ISI Web of Science

1. Borrajo-García, M.I., Martínez-Miranda, M.D. and González-Manteiga, W. (2024). "Goodness-of-fit test for point processes first-order intensity". To appear in **Computational Statistics & Data Analysis**.
2. González-Manteiga, W., Martínez-Miranda, M.D. and Van Keilegom, In. (2023). "Goodness-of-fit tests in proportional hazards models with random effects". **Biometrical Journal**, 2023, 65, 2000353. Open Access. Impact Factor: 1.715 (2021). Category: Statistics & Probability, ranking 56/125.
3. Gámiz, M.L., Mammen, E., Martínez-Miranda, M.D. and Nielsen, J.P. (2022). "Missing Link Survival Analysis with Applications to Available Pandemic Data". **Computational Statistics & Data Analysis**, 169, 107405. Impact Factor: 2.025 (2021). Category: Statistics & Probability, ranking 44/125.
4. Isakson, A., Kummaker, S., Martínez-Miranda, M.D. and Rickayzen, B. (2021). "Calendar Effect and In-Sample Forecasting Applied to Mesothelioma Mortality Data". **Mathematics** 2021, 9(18), 2260. Impact Factor: 2.592 (2021). Category: Mathematics, ranking 21/332. Open Access.
5. Mammen, E., Martínez-Miranda, M.D., Nielsen, J.P. and Vogt, M. (2021). "Calendar Effect and in-sample forecasting". **Insurance Mathematics and Economics**, 96, 31-52. Impact Factor: 2.168 (2021). Category: Statistics & Probability, ranking 40/125.
6. Hiabu, M., Mammen, E., Martínez-Miranda, M.D. and Nielsen, J.P. (2021). "Smooth Backfitting of Proportional Hazards with Multiplicative Components". **Journal of the American Statistical Association**, 116, 1983-1993. Impact Factor: 4.369 (2021). Category: Statistics & Probability, ranking 11/125.
7. Borrajo-García, M.I., Martínez-Miranda, M.D. and González-Manteiga, W. (2020). "Bootstrapping kernel intensity estimation for inhomogeneous point processes with spatial covariates". **Computational Statistics & Data Analysis**, 144. Impact Factor: 1.681 (2020). Category: Statistics & Probability, ranking 56/125.
8. Borrajo-García, M.I., Martínez-Miranda, M.D. and González-Manteiga, W. (2020). "Testing for significant differences between two spatial patterns using covariates". **Spatial Statistics**, 40 (2020) 10037. Impact Factor: 2.060 (2020). Category: Statistics & Probability, ranking 44/125.
9. Elpidorou, V., Margraf, C., Martínez-Miranda, M.D. and Nielsen, B. (2019). A Likelihood Approach to Bornhuetter–Ferguson Analysis. **Risks** 2019, 7(4), 119. Journal Citation Index: 0.61. Category: Business, Finance, ranking 116/217. Open Access.
10. Gámiz, M.L., Martínez-Miranda, M.D. and Nielsen, J.P. (2019). "Multiplicative local linear hazard estimation and best one-sided cross-validation". **Journal of Machine Learning Research**, 20, 1-19. Impact factor: 3.484 (2019). Category: Computer Science, Artificial Intelligence, ranking 41/137.
11. Gámiz, M.L., López-Montoya, A., Martínez-Miranda, M.D. and Raya-Miranda, R. (2019). "Data visualization for reliability analysis of repairable systems". **Quality and Reliability Engineering International** 35, 99-115. Impact Factor: 1.718 (2019). Category: Operations Research & Management Science, ranking 47/83.
12. Gámiz, M.L., Martínez-Miranda, M.D. and Raya-Miranda, R. (2018). "Graphical goodness-of-fit test for mortality models". **Mathematical Population Studies** 25, 123-142. Impact Factor: 0.276 (2018). Category: Statistics & Probability, ranking 122/123.
13. Borrajo-García, M.I., Martínez-Miranda, M.D. and González-Manteiga, W. (2017). "Bandwidth selection for kernel density estimation with length-biased data". **Journal of Nonparametric**

- Statistics** 29(3), 636-668. Impact Factor: 0.630 (2017). Category: Statistics & Probability, ranking 102/123.
14. Hiabu, M., Mammen, E., Martínez-Miranda, M.D. and Nielsen, J.P. (2016). "In sample forecasting with local linear survival densities". **Biometrika** 103 (4), 843-859. Impact Factor: 1.448 (2016). Category: Statistics & Probability, ranking 38/124.
  15. Martínez-Miranda, M.D., Nielsen, B. and Nielsen, J.P. (2016). "A simple benchmark for mesothelioma projection for Great Britain". **Occupational and Environmental Medicine** 73, 561-563. Impact Factor: 3.912 (2016). Category: Public, Environmental & Occupational Health, ranking 23/176.
  16. Gámiz, M.L., Mammen, E., Martínez-Miranda, M.D. and Nielsen, J.P. (2016) "Double one-sided cross-validation of local linear kernel hazards". **Journal of the Royal Statistical Society Series B** 78 (4), 755-779. Impact Factor: 4.610 (2016). Category: Statistics & Probability, ranking 2/124.
  17. González-Manteiga, W., Martínez-Miranda, M.D. and Van Keilegom, I. (2016) "Goodness-of-fit Test in Parametric Mixed-Effects Models based on the Estimation of the Error Distribution". **Biometrika** 103(1), 133-146. Impact Factor: 1.448 (2016). Category: Statistics & Probability, ranking 38/124.
  18. Hiabu, M., Margraf, C., Martínez-Miranda, M.D. and Nielsen, J.P. (2016) "Cash flow generalisations of non-life insurance expert systems estimating outstanding liabilities". To appear in **Expert Systems with Applications** 45, 400-409. Impact Factor: 3.928 (2016) Category: Operations Research & Management Science, ranking 3/83.
  19. López-Montoya, A., Gámiz, M.L. and Martínez-Miranda, M.D. (2015) "Local Linear Smoothing of Reliability Data under an Accelerated Failure Time Model". **Applied Mathematical Modelling** 39(16), 4630-4645. Impact Factor: 2.291 (2015). Category: Mathematics, Interdisciplinary Applications, ranking 13/101.
  20. Martínez-Miranda, M.D., Nielsen, B. and Nielsen, J.P. (2015) "Inference and forecasting in the age-period-cohort model with unknown exposure with an application to mesothelioma mortality". **Journal of the Royal Statistical Society Series A** 178, 29-55. Impact Factor: 1.702 (2015). Category: Statistics & Probability, ranking 24/123.
  21. Mammen, E., Martínez-Miranda, M.D. and Nielsen, J.P. (2015) "In-sample forecasting applied to reserving and mesothelioma". **Insurance: Mathematics and Economics** 61, 76-86. Impact factor: 1.378 (2015). Category: Statistics & Probability, ranking 36/123.
  22. Martínez-Miranda, M.D., Nielsen, J.P., Verrall, R. and Wüthrich, M.V. (2015). "Double Chain Ladder, Claims Development Inflation and Zero Claims", **Scandinavian Actuarial Journal** 2015(5), 383-405. Impact Factor: 1.596 (2015). Category: Statistics & Probability, ranking 27/123.
  23. Mammen, E., Martínez-Miranda, M.D., Nielsen, J.P. and Sperlich, S. (2014) "Further theoretical and practical insight to the do-validated bandwidth selector". **Journal of the Korean Statistical Society** 43, 355-365. Impact Factor: 0.440 (2014). Category: Statistics & Probability, ranking 109/122.
  24. Gámiz, M.L., Janys, L., Martínez-Miranda, M.D. and Nielsen, J.P. (2013) "Bandwidth selection in marker dependent kernel hazard estimation". **Computational Statistics & Data Analysis** 68, 155-169. Impact Factor: 1.151 (2013). Category: Statistics & Probability, ranking 43/119.
  25. Martínez-Miranda, M.D., Nielsen, J.P., Sperlich, S. and Verrall, R. (2013) "Continuous Chain Ladder: Reformulating and generalizing a classical insurance problem". **Experts Systems with Applications**, 40(14), 5588-5603. Impact Factor: 1.965 (2013). Category: Operations Research & Management Science, ranking 16/79.
  26. Gámiz, M.L., Martínez-Miranda, M.D. and Nielsen, J.P. (2013) "Smoothing survival densities in practice". **Computational Statistics & Data Analysis** 58, 368-382. Impact Factor: 1.151 (2013). Category: Statistics & Probability, ranking 43/119.

27. González-Manteiga, W., Lombardía-Cortiña, M.J., Martínez-Miranda, M.D. and Sperlich, S. (2013) "Kernel Smoothers and Bootstrapping for Semiparametric Mixed Effects Models". **Journal of Multivariate Analysis** 114, 288-302. Impact Factor: 0.943 (2013): Category: Statistics & Probability, ranking 58/119.
28. Martínez-Miranda, M.D., Nielsen, J.P. and Verrall, R. (2013) "Double Chain Ladder and Bornhuetter-Ferguson". **North American Actuarial Journal**, 17(2), 1-13. Impact factor (SJR 2013): 1.127. Journal Citation Index: 0.46. Category: Business, Finance, ranking 140/217.
29. Martínez-Miranda, M.D., Nielsen, J.P. and Wüthrich, M.V. (2012) "Statistical modelling and forecasting in Non-life insurance". **SORT-Statistics and Operations Research Transactions** 36 (2) July-December 2012, 195-218. Impact Factor (2012): 0.462. Category: Statistics & Probability, ranking: 98/117.
30. Martínez-Miranda, M.D., Nielsen, J.P. and Verrall, R. (2012) "Double Chain Ladder". **Astin Bulletin**, 42/1, 59-76. Impact Factor (2012): 0.698. Category: Statistics & Probability, ranking: 75/117.
31. Raya-Miranda, R. and Martínez-Miranda, M.D. (2011) "Data-driven local bandwidth selection for additive models with missing data". **Applied Mathematics and Computation**, 217 (24), 10328-10342. Impact Factor (2011): 1.317. Category: Applied Mathematics, ranking: 44/245.
32. Mammen, E., Martínez-Miranda, M.D., Nielsen, J.P. and Sperlich, S. (2011) "Do-validation for Kernel Density Estimation". **Journal of the American Statistical Association-Theory and Methods**, 106 (494), 651-660. Impact factor (2011): 1.992. Category: Statistics & Probability, ranking: 11 / 116.
33. Martínez-Miranda, M.D., Nielsen, B., Nielsen, J.P. and Verrall, R. (2011) "Cash flow simulation for a model of outstanding liabilities based on claim amounts and claim numbers". **Astin Bulletin**, 41(1), 107-129. Category: Statistics & Probability. Impact Factor (2011): 0.486. Ranking: 90 / 116.
34. Gámiz, M.L. and Martínez-Miranda, M.D. (2010) "Regression analysis of the structure function for reliability evaluation of continuous-state system", **Reliability Engineering and System Safety**, 95, 134-142. Impact factor (2010): 1.908. Category: Operations Research & Management Science, ranking: 16 / 74.
35. González-Manteiga, W., Martínez-Miranda, M.D. and Raya-Miranda, R. (2008) "SiZer Map for inference with additive models", **Statistics and Computing**, 18, 297-312. Impact factor (2008): 1.371. Category: Statistics & Probability, ranking: 28 / 92.
36. Martínez-Miranda, M.D., Raya Miranda, R., González-Manteiga, W. and González Carmona, A. (2008) "A bootstrap local bandwidth selector for additive models", **Journal of Computational and Graphical Statistics**, 17, 38-55. Impact factor (2008): 1.505. Category: Statistics & Probability, ranking: 22 / 92.
37. Martínez-Miranda, M.D., Rueda García, M. and Arcos Cebrián, A. (2007) "Looking for optimal auxiliary variables in sample survey quantile estimation", **Statistics**, 41 (3), 241-253. Impact factor (2007): 0.289. Category: Statistics & Probability, ranking: 79 / 91.
38. Sánchez Borrego, I., Martínez-Miranda, M.D., González Carmona, A. (2006) "Local linear kernel estimation of the discontinuous regression function", **Computational Statistics**, 21(3-4), 557-569. Impact factor (2006): 0.208. Category: Statistics & Probability, ranking: 79 / 83.
39. Arcos Cebrián, A., Rueda García, M., Martínez-Miranda, M.D., González Aguilera, S. and Román Montoya, Y. (2005) "Incorporating the auxiliary information available in variance estimation", **Applied Mathematics and Computation**, 160 (2), 387-399. Impact factor (2005): 0.688. Category: Mathematics, Applied, ranking: 63 / 151.
40. Arcos Cebrián, A., Rueda García, M., Martínez-Miranda, M.D. (2005) "Using multiparametric auxiliary information at the estimation stage", **Statistical Papers**, 46 (3), 339-358. Impact factor (2005): 0.311. Category: Statistics & Probability, ranking: 65 / 81.

41. Martínez-Miranda, M.D., Rueda García, M., Arcos Cebrián, A., Román Montoya, Y. and González Aguilera, S. (2005) "Quantile estimation under successive sampling", **Computational Statistics**, 20 (3), 385-399. Impact factor (2005): 0.286. Category: Statistics & Probability, ranking: 69 / 81.
42. Rueda García, M., Arcos Cebrián, A., González Aguilera, S., Martínez-Miranda, M.D., Román Montoya, Y. and Martínez Puertas, S. (2005) "Ratio methods to the mean estimation with known quantiles", **Applied Mathematics and Computation**, 170 (2), 1031-1044. Impact factor (2005): 0.688. Category: Mathematics, Applied, ranking: 63 / 151.
43. Rueda García, M., and Arcos Cebrián, A., Martínez-Miranda, M.D. and Román Montoya, Y. (2004) "Some improved estimators of finite population quantile using auxiliary information in sample surveys", **Computational Statistics & Data Analysis**, 45 (4), 825-848. Impact factor (2004): 1.022. Category: Statistics & Probability, ranking: 23 / 77.
44. González Manteiga, W., Martínez-Miranda, M.D. and Pérez González, A. (2004) "The choice of smoothing parameter in nonparametric regression through wild bootstrap", **Computational Statistics & Data Analysis**, 47, 487-515. Impact factor (2004): 1.022. Category: Statistics & Probability, ranking: 23 / 77.
45. Rueda García, M., Arcos Cebrián, A. and Martínez-Miranda, M.D. (2003) "Difference estimators of quantiles in finite populations", **Test**, 12 (2), 481-496. Impact factor (2003): 0.591. Category: Statistics & Probability, ranking: 39 / 75.

#### Other published papers

- Hiabu, M., Margraf, C., Martínez-Miranda, M.D. and Nielsen, J.P. (2016) "The Link Between Classical Reserving and Granular Reserving Through Double Chain Ladder and its Extensions". **British Actuarial Journal** 21(1), 97-116. [Peer-reviewed].
- Hiabu, M., Martínez-Miranda, M.D., Nielsen, J.P., Spreeuw, J., Tanggaard, C. and Villegas, A. (2015). "Global Polynomial Kernel Hazard Estimation". **Revista Colombiana de Estadística** 38(1), 399-411. Impact Factor: 0.179 (2013). Category: Statistics & Probability, ranking 119/119.
- Agbeko, T., Hiabu, M., Martínez-Miranda, M.D., Nielsen, J.P. and Verrall, R. (2014) "Validating the Double Chain Ladder Stochastic Claims Reserving Model", **Variance** 8(2), 138-160. [Peer-reviewed].
- Martínez-Miranda M.D., Thomas, M. (2013) "Don't throw baby out with the bath water". **The Actuary -The magazine of the actuarial**.
- Rueda García, M., Martínez-Miranda, M.D. and Arcos Cebrián (2005/06) "Bootstrap confidence intervals for finite population quantiles in the presence of auxiliary information", **Model Assisted Statistics and Applications** 1 (4), 279-290 [Peer-reviewed].
- Arcos Cebrián, A., Rueda García, M., Martínez-Miranda, M.D. and González Aguilera, S. (2002) "Intervalos de confianza alternativos para los cuantiles de una población finita", **Estadística Española** (ISSN: 0014-1151), 44, 69-88[Peer-reviewed].
- Rueda García, M., Arcos Cebrián, A., Martínez-Miranda, M.D. and González Aguilera, S. (2002) "Estimadores indirectos de la varianza en muestreo de poblaciones finitas", **Estadística Española** (ISSN: 0014-1151), 44, 337-350[Peer-reviewed].

#### Chapter of books

- Gámiz, M.L., López-Montoya, A., Martínez-Miranda, M.D. and Raya-Miranda, R. (2020). Data visualization in reliability of repairable systems: the SiZer Map tool. **Wiley StatsRef: Statistics Reference Online**. Wiley (ISBN: 9781118445112).
- Martínez-Miranda, M.D., Nielsen, J.P. and Sperlich, S. (2009) "One Sided Cross Validation for Density Estimation", **Operational Risk Towards Basel III: Best Practices and Issues in Modeling**,

**Management and Regulation**, ed. G.N.Gregoriou; John Wiley and Sons, Hoboken, New Jersey, 177-196.

## RESEARCH GRANTS

1. Grant I+D+i PID2020-116587GBI00, CoDyNP sponsored by the Spanish Ministerio de Ciencia e Innovación and the European Regional Development Fund (ERDF). Title: "Dinámica compleja e inferencia no paramétrica". Date: 01/09/2021-31/08/2025. Awarded €230,000.
2. Grant I+D+i B-FQM-284-UGR20 sponsored by the Spanish Agencia Andaluza del Conocimiento, Consejería de Transformación Económica, Industria y Conocimiento y Universidades. Junta de Andalucía. Title: "Machine Learning en estudios de mortalidad y longevidad vía el algoritmo FEST (Fast Efficient Stable Training and Learning)". Date: 01/07/2021-30/06/2023. Awarded €18,500.
3. Grant I+D+i MTM2016-76969-P sponsored by Ministry of Economy and Competitiveness (Spain) and European Regional Development Fund (ERDF). Title: "Nonparametric modelling of dynamics and dependencies in complex systems". Date: 01/01/2017-31/08/2021. Awarded €157,400.
4. Grant I+D+i MTM2013-41383-P sponsored by Ministry of Economy and Competitiveness (Spain) and European Regional Development Fund (ERDF). Title: "Inferencia no paramétrica: modelización, estimación, contrastes y aplicaciones". Date: 01/01/2014-31/12/2016. Awarded €119,743.75.
5. Marie Curie Actions "Intra-European Fellowships for Career Development" FP7-PEOPLE-2011-IEF. Title: "Stochastic reserving based upon mathematical statistics". Starting date 01/09/2012, duration 24 months. Awarded €278,000.
6. Grant sponsored by Institute of Actuaries UK (Non-profit). Title: "Adding prior knowledge to double chain ladder". Grant date: 25/11/2011, duration 12 months. Awarded £11,500.
7. Grant I+D MTM2008-03010 sponsored by Ministerio de Ciencia e Innovación (Spain). Title: "Metodología y aplicaciones en Estadística Semiparamétrica, Funcional y Espacio Temporal". Date: 01/01/2009-31/12/2013. Awarded €335,049.
8. Grant I+D BFM2001-3190 sponsored by the Spanish Ministerio de Educación y Ciencia. Title: "El uso de la información auxiliar en la estimación de cuantiles en poblaciones finitas. Date: 28/12/2001 - 30/11/2004. Awarded: €11,611.56.

## SELECTED TEACHING EXPERIENCE

Undergraduate degree in Mathematics (Spain)

Modules: Computational Statistics, Mathematical Statistics and Probability

Undergraduate degree in Statistics (Spain)

Modules: Computational Statistics, Survey Sampling, Linear Models, Regression Analysis

Master course of Applied Statistics (Spain)

Modules: Computational Statistics

Master course of Actuarial Science (UK)

Modules: Probability and Statistics, Modelling and Data Analysis

Undergraduate degree in Mathematical Science (UK)

Module: Applications of Probability and Statistics

## PHD SUPERVISION

- Title: Nonparametric inference on point processes with covariates.  
Author: M.I. Borrajo-García.  
PhD in Statistics, University of Santiago de Compostela (Spain).  
Completed (February 2018). Joint supervision with Prof. W. González Manteiga.

- Title: Aportaciones en el Análisis de Fiabilidad mediante técnicas no paramétricas.  
Author: A.J. López-Montoya.  
PhD in Mathematics and Statistics, University of Granada (Spain)  
Completed (April 2017). Joint supervision with Dr. M.L. Gámiz.
- Title: In-sample forecasting: Structured models and Reserving.  
Author: M. Hiabu  
PhD in Actuarial Science, Cass Business School, City, University of London (UK).  
Completed (December 2016). Second supervisor.
- Title: Aportaciones a la estimación no paramétrica de modelos de regresión aditivos.  
Author: R. Raya-Miranda  
PhD in Statistics, University of Granada (Spain)  
Completed (March 2003). Joint supervision with Prof. A. González-Carmona.

#### EDITORIAL BOARDS AND REFEREEING FOR JOURNALS

- Associate editor of: *Computational Statistics and Data Analysis*, *Journal of Nonparametric Statistics*, *Econometrics and Statistics*.
- Reviewer for: *Biometrika*; *Computational Statistics and Data Analysis*; *Test*; *Journal of Nonparametric Statistics*; *Statistics & Probability Letters*; *Computational Statistics*; *Journal of Computational and Graphical Statistics*; *Methodology and Computing in Applied Probability*; *Communications in Statistics – Simulation and Computation*; *International Journal of Computer Mathematics*; *Computational and Mathematical Methods*; *Model Assisted Statistics and Applications*; *Statistica Neerlandica*; *Scandinavian Actuarial Journal*; *Variance*; *Astin Bulletin*; *North American Actuarial Journal*; *Econometrics*; *Reliability Engineering & System Safety*; *Operations Research*; *European Actuarial Journal*; *Risks*.

#### DEVELOPED FREE SOFTWARE

- **DCL package for R** (version 0.1.2, 2022-05-05): Claims Reserving under the Double Chain Ladder Model.  
Authors: Martínez-Miranda, M.D., Nielsen, J.P. and Verrall, R.  
Maintainer: Martínez-Miranda, M.D.
- **DOvalidation package for R** (version 1.1.0, 2017-10-20): Kernel Hazard Estimation with Best One-Sided and Double One-Sided Cross-Validation.  
Authors: Gámiz, M.L., Mammen, E., Martínez-Miranda, M.D. and Nielsen, J.P.  
Maintainer: Martínez-Miranda, M.D.

#### EVALUATION OF RESEARCH AND TEACHING (Spanish)

- 4 sexenios de investigación (1999-2004; 2005-2010; 2011-2016; 2017-2022).
- 5 quinquenios docentes (1994-2019).
- 5 tramos autonómicos (1999-2019).