DANIELA RODRIGUEZ

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EDUCATION

PhD in Mathematics. University of Buenos Aires, Argentina. Advisor: Graciela Boente. Thesis: Robust estimation in generalized partially linear models. March 2008. (Outstanding with the honour of the jury).

Licenciada en Ciencias Matematicas. University of Buenos Aires, Argentina. September 2003.

CURRENT POSITIONS

Independent Researcher at CONICET [1]. From 2011.

Full Professor of Statistics at the Instituto de Cálculo, School of Sciences, University of Buenos Aires. From 2013.

Chair of the Instituto de Cálculo, School of Sciences, University of Buenos Aires. From 2022. The Instituto de Cálculo is a research center whose main interest focus on Statistics and Applied Mathematics. The aim is to give support to Institutions and Companies seeking expertise in these area.

Member of the Scientific Comittee of Union of Mathematical in Latin America and the Caribbean (UMALCA). From 2021.

Member of the Mathematical Advising Committee of the CONICET. From 2021. [2]

Chair of the Academic Committee of Center of High Performance Computing, School of Sciences, University of Buenos Aires.(CECAR). From 2018.

Member of Academic Comitte of the Master in Mathematical Statistics, School of Sciences, University of Buenos Aires. From 2015.

TEACHING

Data visualization and dimension reduction. Elemental seminar of statistics with R. Statistical foundations in data science. Geostatistics. Linear models. Statistics for the Mathematics Program. Probability and statistics for the Mathematics Program. Theoretical statistics. Statistics for Chemistry. Probability and statistics for Computer Science. Nonparametric methods. Methods for categorical data.

PUBLICATIONS

1. *"Linear regression beyond a threshold: a penalized-based approach"*. F. Leonardi, D.Rodriguez and M. Sued. (Submited).

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[1] The CONICET is the National Research Council of Argentina that supports through supplementary salary and grants the work of Argentinian scientists. Admission to the CONICET is decided by a search committee of distinguished scientists. At admission, according to their age and performance, researchers are classified into five possible categories, Independent being the third.

[2] The Mathematical Advising Committee of the CONICET recommends the admission of scientists in the area of Mathematics and Mathematical Statistics, their promotion to an upper category once they have been incorporated, as well as the support through grants of research projects presented by researchers belonging to the Institution. The decisions are taken based on the recommendation of external reviewers.

2. *"A penalization method to estimate the intrinsic dimensionality of data."*. L. Forzani, D.Rodriguez and M. Sued. (Submitted).

3. *"Robust estimation in partially nonlinear models "*. A. Muñoz and D. Rodriguez. (Submitted).

4. *"Forecasting daily variability discharge in the fluvial system of the Parana River. An ODPC hydrology application"*. M. Benjamin, M. Meiss, and D. Rodriguez. (Submitted).

5. *"A statistical tool for a hydrometeorological forecast in the lower La Plata Basin "*. *International Journal of River Basin Management*. In press 2022. M. Meis, M. Llano and D. Rodriguez.

6. *"Independent block identification in multivariate time series"*. *Journal of Time Series Analysis*. 19-33. (2021). F. Leonardi, M. Lopez–Rosenfeld, D. Rodriguez, M. T. F. Severino and M. Sued.

7. *"Quantifying and modelling the ENSO phenomenon and extreme discharge events relation in the La Plata Basin"*. *Hydrological Sciences Journal*. 75-89. (2020). M. Meis, M. Llano and D. Rodriguez.

8. *"The breakdown point of the median of means tournament"*. *Statistics and Probability Letters*. 108–112. (2019). D. Rodriguez and M. Valdora.

9. *"Robust estimation in partially linear regression models with monotonicity constraints"*. *Journal Communications in Statistics - Simulation and Computation*, (2019). D. Rodriguez, M. Valdora and P. Vena.

10. *"Robust estimators in a generalized partly linear regression model under monotony constraints"*. *Test*, (2019). G. Boente, D. Rodriguez and P. Vena.

11. *"Sufficient dimension reduction and prediction in regression: asymptotic results"* *Journal of Multivariate Analysis*. 339–349. (2019). L. Forzani, D. Rodriguez, E. Smucler, M. Sued. and M. Sued.

12. *"The spatial sign covariance operator: Asymptotic results and applications"*. *Journal of Multivariate Analysis*. 115–128. (2019). G. Boente, D. Rodriguez and M. Sued.

13. *"Técnicas de clasificación supervisada para la discriminación entre ecos meteorológicos y no meteorológicos usando información de radar de banda C."*. *Meteorologica*. (2018). S. Suarez, M. Sued, L. Vidal, P. Salio, D. Rodriguez, S. Nesbitt, and Y. Garcia Skabar.

14. *"On the accurate estimation of free energies using the Jarzynski equality"*. Journal of Computational Chemistry. (2018). M. Arrar, F. Boubeta, M. Szretter, D. Rodriguez, M. Sued, and L. Boechi.

15. *"Mo1040 – Serum Immunological Mediators are Associated with Anemia in Patients with Celiac Disease. A Prospective Follow-Up Assessment"*. Gastroenrerology. (2018). M, Moreno, H. Vázquez, E. Sugai, S. Niveloni, E. Smecuol, R. Mazure, A. Costa M. Temprano, D. Rodriguez, M. Sued, M, Szretter, A. Cherñasvsky, A. Gonzalez, E. Mauriño and J. Bai.

16. *"Mechanical coupling of microtubule-dependent motor teams during peroxisome transport in Drosophila S2 cells."* *Biochimica et Biophysica Acta (BBA) - General Subjects, 3178-318.* *(2017).* M. C. De Rossi, D. Wetzler, L. Benseñor, M. E. De Rossi, M. Sued, D. Rodriguez, V. Gelfandg, L. Bruno and V. Levi.

17. *"Minimum distance method for directional data and outlier detection."* *Advances in Data Analysis and Classification, 1-17. (2017).* M. Fernandez Sau and D. Rodriguez.

18. *"Testing equality between several populations covariance operators."* *Annals of the Institute of Statistical Mathematics, 1–32. (2017).* G. Boente, D. Rodriguez and M. Sued.

19. *"On the instability of two entropic dynamical models."* Chaos, Solitons and Fractals, 91, 604-609. (2016). G. Henry and D. Rodriguez.

20. *"Asymmetries in kinesin-2 and cytoplasmic dynein contributions to melanosome transport."* FEBS Letters. (2015). M. C. De Rossi, M. E. De Rossi, M. Sued, D. Rodriguez, L. Bruno and V. Levi.

21. *"Goodnes-of-Fit test for directional data."* Scandinavian Journal of Statistics, 41, 259–275. (2014). G. Boente, W. González Manteiga and D. Rodriguez.

22. *"Robust estimators in partly linear regression models on Riemannian Manifolds"*. Communications in Statistics: Theory and Methods, (2014). G. Henry and D. Rodriguez.

23. *"A note on the estimation of Holder constant"*. Comunications in Statistics- Simulation and Computation, 43, 905–912, (2013). G. Henry, D. Rodriguez and M. Sued.

24. *"Locally adaptive density estimation on Riemannian Manifolds."*. Sort: Statistics and Operation Research Transactions, 37, 2, 11–130. (2013). G. Henry, A. Muñoz and D. Rodriguez.

25. *"Threshold selection for extreme values under a semiparametric model."* Statistical Methods and Applications, 22, 4, 481–500. (2013). J.Gonzalez, D. Rodriguez and M. Sued.

26. *"Testing in generalized partially linear models: A robust approach"*. Statistics and Probability Letters, 83, 203–212. (2013). G. Boente, R. Cao, W. González Manteiga and D. Rodriguez.

27. *"Partially linear models on Riemannian Manifolds"*. Journal of Applied Statistics, 39, 1797-1809. (2012). W. González Manteiga, G. Henry and D. Rodriguez.

28. "Robust Estimates in Generalized Partially Linear Single-Index Models." *Test*, 21, 386-411.(2012). G. Boente and D. Rodriguez.

29. *"Robust inference in generalized partially linear models."* Computational Statistics and Data Analysis.Vol. 54, 2942-2966. (2010). G. Boente and D. Rodriguez.

30. *"Inference under functional proportional and common principal components models."* Journal of Multivariate Analysis Vol. 101, 464–475. (2010). G. Boente, D. Rodriguez and M. Sued.

31. *"Development of a Clinical Prediction Rule in Clinically Suspected Community-acquired Pneumonia"*. Pediatric Emergency Care. Vol. 206, 6. (2010).M. Bilkis, N. Gorgal, M. Carbone, M. Vazquez, P. Albanese, M. Branda, E. Alterman, D. Rodriguez, L. Orellana and O. Bello Pedrosa.

32. *"Robust Nonparametric Regression on Riemannian Manifolds"*. Journal of Nonparametric Statistics, 1029-0311, Vol. 21, Nro 5, 611 - 628. (2009). G. Henry and D. Rodriguez.

33. *"Kernel density estimation on Riemannian Manifolds: Asymptotic Results."* Journal of Mathematical Imaging and Vision., Vol. 34, 235-.239. (2009). G. Henry and D. Rodriguez.

34. *"Robust bandwidth selection in semiparametric partly linear regression models: An influential study."* Computational Statistics and Data Analysis, Vol. 52, 2808-2828. (2008). G. Boente and D. Rodriguez.

35. *"Robust estimators of high order derivatives of regression functions."* Statistics and Probability Letters, 1335-1344. (2006). G. Boente and D. Rodriguez.

Proceedings/others

36. *"Testing the equality of covariance operators"*. Recent Advances in functional data analysis and related topics, Springer, 49-53. G. Boente, D. Rodriguez and M. Sued. (2011).

37. *"Robust inference in generalized partially linear models"*. *Proceedings of the International Seminar on Nonparametric Inference*, 45-48. G. Boente, R. Cao, W. Gonzalez - Manteiga and D. Rodriguez. (2008).

38. *"Robust Nonparametric Regression on Riemannian Manifolds"*. *Proceedings of the International Seminar on Nonparametric Inference*, 149-152. G. Henry and D. Rodriguez. (2008).

CONFERENCE AND INVITED TALKS

Two decades of "Statistical Modeling: The Two Cultures" . FCEN, UBA. Buenos Aires, Argentina. October 2021.

Group and conquer Semana de la Matemática, FCEN, UBA. Buenos Aires, Argentina . April 2021.

"Estimation of independent points. ". UMA 2020. Reunión Anual de la Unión Matemática Argentina. September 2020.

"More data is not always better. "Ministerio de Agricultura, Ganadería y Pesca, Argentina. September 2019.

"More data is not always better."Jornada de Ciencia de datos. FCEN, UBA. Buenos Aires, Argentina. June 2019.

"Robust estimation in partially nonlinear models. "ICORS 2019, (International Conference on Robust Statistics.) Guayaquil, Ecuador. May 2019.

"Prediction based on sufficient dimension reduction "Seminario de Estadística matemática. FCEN, UBA. Buenos Aires, Argentina. May 2018.

"Prediction based on sufficient dimension reduction "Universidad Carlos III, Madrid, España. January 2018.

"The small world problem. "Semana de la Matemática, FCEN, UBA. Buenos Aires, Argentina. April 2017.

"Outliers detection for directional data. "Seminario Interface entre la matemática, computación y las ciencias naturales. Buenos Aires, Argentina. October 2016.

"Estimation on Riemannian Manifolds. "Seminario de alumnos, FCEN, UBA. Buenos Aires, Argentina. October 2015.

"Minimun distance estimates and outliers detection for directional data.". UMA 2015. Reunión Anual de la Unión Matemática Argentina. Santa Fe, Argentina. September 2015.

"The spatial sign operator. "Seminario de Estadística matemática. FCEN, UBA. Buenos Aires, Argentina. May 2015.

"On discernibility and bootstrap. "Seminario de Estadística matemática. FCEN, UBA. Buenos Aires, Argentina. May 2014.

"Scout of data. "Semana de la Matemática, FCEN, UBA. Buenos Aires, Argentina. Abril de 2013.

"Nonparametric and semiparametric estimation"(mini course) UNR, Rosario, Santa Fe. March 2012.

"Testing the equality of covariance operators. "First Latin America Workshop on Functional Data. Buenos Aires, Argentina. December 2011.

*"Goodnesss-of-fit test for directional data. "*Departamento de Estadística e Invesigación Operativa, Universidad de Santiago de Compostela, España. February 2010.

*"Nonparametric estimation on Riemannian Manifolds."*Departamento de Estadística. Instituto Superior Técnico de Lisboa, Portugal. España. January 2010.

*"Nonparametric estimation on Riemanian Manifolds. "*dictada conjuntamente con G. Henry. Departamento de Estadística e Invesigación Operativa, Universidad de Santiago de Compostela, España. November 2009.

*"Inference on generalized partial linear models. "*Instituto de Matemáica Aplicada de Santa Fe. June 2009.

"Aplications of empirical process"(mini course) "IMAL, Instituto de Mátematica Aplicada del Litoral", Santa Fe. May 2009. Notes.

"A robust proposal estimation on generalized partial linear models. ". X CLAPEM, (Congreso Latinoamericano de Probabilidad y Estadística Matemática.) Lima, Perú. February 2007.

RESEARCH PROJECTS AND GRANTS

Principal or co-principal Investigator

National Agency for Scientific and Technological Promotion, PICT 01303. 2022-2025. "Estadística: Teoría y Aplicaciones".

CONICET, 2021 - 2026. "Herramientas matemáticas y computacionales para el diseño de políticas públicas. ".

Univesity of Buenos Aires. 2018-2020. "Estadística: Teoría y Aplicaciones".

National Agency for Scientific and Technological Promotion, PICT-201-0377. 2017-2020. "Estadística: Teoría y Aplicaciones".

Univesity of Buenos Aires. 2016-2018. "Métodos estadísticos".

National Agency for Scientific and Technological Promotion, PICT-2012-1641. 2013-2015. "Estadística para datos con estructura compleja".

Univesity of Buenos Aires. 2013-2016. "Estadística para datos con estructura compleja".

CONICET. 2012-2015. "Métodos estadísticos para datos de alta complejidad y/o dimensionalidad".

Univesity of Buenos Aires. 2011-2013. "Estimación Noparamétrica y Geometría Riemanniana".

MENTORING

Research Assistant at CONICET.

Marina Valdora. (co-supervised from 2021 working in robust functional data methods)

Postdocs

Gabriel Martos Venturini (CONICET, 2017-2018). Actual Position: Assistant Professor, Department of Mathematics, Universidad Torcuato Di Tella, Buenos Aires.

PhD. Students.

Manuel Benjamín. Phd. in Mathematics. 2020. (CONICET 2015-2020) Actual Position: Data Science at Despegar.

Melanie Meis. Phd in Enviromental Science. 2019. (co-supervised). (CONICET, 2014-2019) Actual Position: Posdoctoral scholarship from CONICET. Holding also a position at the Department of Climate Science, FCEN, UBA.

Andres Muñoz. Phd in Mathematics. 2018. (UBA, 2011-2016) Actual Position: Assistant Professor, Department of Mathematics, Universidad Tecnologica, Buenos Aires.

Master's Students.

Pedro Cosatto. From 2022.

Ignacio Stivala. From 2022.

Iván Siacara. From 2021.

Natalia Estigarribia. From 2021.

Undergraduate Students (final work Licenciatura en Matematicas, roughly equivalent Master in Mathematics)

Clara Grabiero, Carlos Maldonado, Federico Choque. From 2021

Sebastian Sosa, Mariela Bisso, 2016.

Yamila Barrera (co-supervised), Manuel Benjamín, Estefania Louzai, 2014.

Andrés Mogni, 2013.

Mercedes Fernandez Sau, 2012.

Juan Gonzalez (co-supervised), Andrés Muñoz (co-supervised), 2011.

Lucas Bali (co-supervised) 2008.

CONFERENCES AND SEMINARS ORGANIZED

Organizer of the Ada Lovelace Day in five cities in Argentina. Activity to promote more girls to study STEM carriers. October 2022.

Organizer and Program Evaluation of the Session: Statistics. Encuentro de la Unión Matemática Argentina (UMA). September 2021.

Organizer of the Session: Mathematical Statistics. CLAM XX (Congreso Latinoameticano de Matemática). Montevideo Uruguay. September 2021.

Organizer and Program Evaluation of the Session: Statistics and its Aplications. Primer Encuentro Conjunto de la Real Sociedad Matemática Española (RSME) y la Unión Matemática Argentina (UMA). Argentina. 2017.

Organizer Comittee: 11vo Encuentro Regional de Probabilidad y Estadistica 2015 (11voER-PEM). Argentina. December 2015.

Organizer and Program Evaluation of the Session: Functional Data. CLAPEM XIII (Congreso Latinoameticano de Probabilidad y Estadística Matemática). Cartagena de Indias, Colombia. September 2014.

Organizer Comittee: Escuela "Luis Santaló en Estadística". Buenos Aires. 2014.

Organizer and Program Evaluation of the Session: Statistics "Reunion Anual de la Union Matemática Argentina". Santa Fe, Argentina, 2013.

Organizer Comittee: Escuela "Luis Santaló en Matemática Aplicada". Argentina. 2012.

Organizer and Program Evaluation of the Session: Robust Statistics. CLAPEM XII (Congreso Latinoameticano de Probabilidad y Estadística Matemática). Viña del Mar, Chile. 2012.

Organizer Comittee: 8vo Encuentro Regional de Probabilidad y Estadistica 2011 (8voERPEM). Argentina, 2011.

Organizer Comittee: International Conference on Robust Statistics, ICORS, 2007. Argentina.

Organizer Comittee of the Seminar of Statistics 2008 - 2013. University of Buenos Aires.

SCHOLARSHIPS

PostDoc Fellowship, CONICET, 2008 -2010.

PhD Fellowship - CONICET, 2006 - 2008.

PhD Fellowship - Fundación Antorchas, 2003 - 2006.

OTHER PROFESSIONAL ACTIVITIES

Vice director of Instituto de Cálculo, School of Sciences, University of Buenos Aires. Between 2015- 2022.

Evaluation Task

Member of the Evaluation Committee of the Technician of the Argentina Research Council (CONICET) 2021-2022.

Participation in several evaluations of Grants: Chile (FONDECYT, CONICYT) 2019 and 2021; Uruguay (CSIC-UdelaR) 2021; Argentina (UNTREF) 2021; Argentina(UBA) 2017; Argentina (Ministerio de Ciencia y Técnica) 2019.

Member of the Doctorate Committee thesis awarded Paula Spano, Ezequiel Smucler, Juan Gonzalez and Guido Guissani from UBA, Rodrigo Garcia Arancibia from UNR, Alejandra Vahnovan and Julieta Ferrario from UNLP.

Member of the Master Committee thesis awarded Jeronimo Bassa from UNL, Jemina Garcia from UBA and Lucas de Oliveira Prates from USP.

Committee that evaluates final work in Licenciatura: Florencia Statti, Romina Cornstein, Selva Figueroa, Pablo Vena, Gonzalo Cheby, Gaspard Kerner, Violeta Groisman, Nicolas Murrone, Maite Angel, Sofia Nievas, Ulises Bercovich.

Reviewer for Computational Satistics and Data Analysis,Annals of the Institute of Statistical Mathematics, Electronic Journal of Statistics, Journal of the American Statistical Association, Journal of Multivariate Analysis, Journal of NonParametric Statistics, Bernoulli, Envirometrics, Statistics, Alea and Test.

Research Stays

Universidad Carlos III de Madrid, España. 2018, 2011 (host Daniel Peña and Juan Romo).

Business, Economics, Management Inform. Systems, University of Regensburg, Germany. 2014-2015 (host Rolf Tschernig).

CIMAT, Guanajuato México. 2011. (host Daniel Hernandez Hernandez)

Universidad de Santiago de Compostela. Santiago de Compostela, España. 2009-2010, 2007, 2006. (host Wenscelao Gonzalez Manteiga)

Instituto Superior Técnico de Lisboa. Lisboa, Portugal. 2010 (host Isabel Rodriguez).

Instituto de Mátematica Aplicada del Litoral, Santa Fe. 2009. (host Liliana Forzani)

Advisor/Consultant

Radbiopharm, (Biotech Company). 2019.

Instituto Massone. (Pharmaceutical Company) 2018.

Procrearte: Red de medicina reproductiva y molecular. (Medicine Company) 2013 and 2018.

Instituto de Inmunología, Genética y Metabolismo; FFyB, Universidad de Buenos Aires. 2017.

Grupo de Dinámica y Transporte Intracelular, FCEN, Universidad de Buenos Aires. 2013

Hospital Gutierrez. 2008

Hospital Garraham. 2006.

Siderca, (Steel Company). 2005.

OSDE (Medicine Company). 2002-2003.

PERSONAL INFORMATION

Born May 1979, Buenos Aires, Argentina.

Married to Guillermo Henry.

Two daughters, Ana (born in 2012), Zoe (born in 2016).