Antonio R. Linero

Associate Professor · Department of Statistics and Data Sciences
University of Texas at Austin

✉ antonio.linero@austin.utexas.edu 🌐 theodds.github.io | *Updated:* 02 Jul 2023

Employment

University of Texas at Austin

Associate Professor, Statistics and Data Sciences   September 2023–Present

Assistant Professor, Statistics and Data Sciences   August 2019–August 2023

Florida State University

Assistant Professor, Statistics   August 2015–July 2019

Education

University of Florida, PhD Statistics   2010–2015

University of Florida, B.S. Finance   2005–2009

Dissertation

Title: *Nonparametric Bayes: Inference Under Nonignorablee Missingness and Model Selection.*

Advisors: Michael J. Daniels and Hani Doss

Professional Societies

International Society of Bayesian Analysis (ISBA): Member

American Statistical Association (ASA): Member

Research Funding

Sponsor: National Science Foundation. **Award:** DMS-2144933. **Title:** CAREER: Foundations for Bayesian Nonparametric Causal Inference. **Name/Affiliation of PI:** Antonio Linero, University of Texas at Austin. **Role:** Principal Investigator. **Funding Period:** 05/01/2022–04/30/2027. **Total Award:** $400,000.

Sponsor: National Science Foundation. **Award:** DMS-1712870. **Title:** Leveraging Structural Information in Regression Tree Ensembles. **Name/Affiliation of PI:** Antonio Linero, University of Texas at Austin. **Role:** Principal Investigator. **Funding Period:** 09/01/2017–08/01/2020. **Total Award:** $100,000

Sponsor: Florida State University. **Award:** R00002677. **Title:** The Science of Test: Advanced Test and Evaluation in Support of DoD Test and Evaluation Enterprise. **Name/Affiliation**

of PI: Antonio Linero, University of Texas at Austin. **Role:** Principal Investigator. **Funding Period:** 04/01/2020–12/01/2020. **Total Award:** $6,296. **Note:** *Subcontract of grant award to PI Eric Chicken at Florida State University, funded by the Office of the Scretary of Defense, Directorate of Operational Test and Evaluation, and the Test Resource Management Center under the Science of Test research program.*

Publications

$\star \rightarrow$ graduate student

SUBMITTED FOR PEER REVIEW

Ting, A.*, & **Linero, A. R.** (2023). Estimating Heterogeneous Causal Mediation Effects with Bayesian Decision Tree Ensembles. arXiv preprint arXiv:2303.01620. *Submitted*.

Linero, A. R. (2022). `SoftBart`: Soft Bayesian Additive Regression Trees. arXiv preprint arXiv:2210.16375. *Under Revision*.

Linero, A. R. (2022). Generalized Bayesian additive regression trees models: Beyond conditional conjugacy. arXiv preprint arXiv:2202.09924. *Major Revision, Journal of the American Statistical Association.*

Jiang, D., **Linero, A. R.**., & Zhang, X. (2022) Envelope Methods for Missing Response Data in Multivariate Linear Models. *Under Revision.*

Orlandi, V., Murray, J., **Linero, A. R.**, & Volfovsky, A. (2021). Density regression with Bayesian additive regression trees. arXiv preprint arXiv:2112.12259. *Submitted*.

Linero, A. R. (2021). In nonparametric and high-dimensional models, Bayesian ignorability is an informative prior. arXiv preprint arXiv:2111.05137. *Major Revision, Journal of the American Statistical Association*.

ACCEPTED/IN PRESS

Li., Y., **Linero, A. R.**, & Walker, S. (2023) Latent Uniform Samplers on Multivariate Binary Spaces. *Statistics and Computing**, to appear.

Linero, A.R. (2023) Prior and posterior checking of implicit causal assumptions. *Biometrics*, 00, 1–12. https://doi.org/10.1111/biom.13886.

Linero, A.R. & Du, J.* (2022) Gibbs Priors for Bayesian Nonparametric Variable Selection with Weak Learners, *Journal of Computational and Graphical Statistics*, DOI: 10.1080/10618600.2022.2142594.

Linero, A. R., & Zhang, Q. (2022). Mediation analysis using Bayesian tree ensembles. *Psychological Methods*. Advance online publication. https://doi.org/10.1037/met0000504

Li, Y.*, **Linero A. R.** & Murray, M. (2022). Adaptive Conditional Distribution Estimation with Bayesian Decision Tree Ensembles, *Journal of the American Statistical Association*, DOI: 10.1080/01621459.2022.2037431.

Rene L.*, **Linero, A. R.** & Slate E. (2023). Causal mediation and sensitivity analysis for mixed-scale data. *Statistical Methods in Medical Research* 0(0). DOI:10.1177/09622802231173491.

PUBLISHED

Um, S.*, **Linero, A. R.**, Sinha, D., & Bandyopadhyay, D. (2023). Bayesian additive regression trees for multivariate skewed responses. *Statistics in Medicine*, 42(3), 246–263.

Linero, A. R., & Antonelli, J. L. (2023). The how and why of Bayesian nonparametric causal inference. *Wiley Interdisciplinary Reviews: Computational Statistics*, 15(1), e1583.

Basak, P.*, **Linero, A.R.**, Sinha, D., & Lipsitz, S. (2022). Semiparametric analysis of clustered interval-censored survival data using soft Bayesian additive regression trees (SBART). *Biometrics*, 78(3), 880–893.

Linero, A. R., Basak, P.*, Li, Y.*, & Sinha, D. (2022). Bayesian survival tree ensembles with submodel shrinkage. *Bayesian Analysis*, 17(3), 997–1020.

Linero, A. R. (2022). Simulation-based estimators of analytically intractable causal effects. *Biometrics*, 78(3), 1001–1017.

Shamp, W.*, **Linero, A. R.**, & Chicken, E. (2022). Bayesian sequential monitoring of density estimates. *Quality and Reliability Engineering International*, 38(4), 1826-1849.

Shamp, W.*, Varbanov, R., Chicken, E., **Linero, A. R.**, & Yang, Y. (2021). Computationally efficient Bayesian sequential function monitoring. *Journal of Quality Technology*, 54(1), 1–19.

Hill, J., **Linero, A. R.**, & Murray, J. (2020). Bayesian additive regression trees: A review and look forward. *Annual Review of Statistics and Its Application*, 7, 251–278.

Linero, A. R., Sinha, D., & Lipsitz, S. R. (2020). Semiparametric mixed-scale models using shared Bayesian forests. *Biometrics*, 76(1), 131–144.

Varbanov, R.*, Chicken, E., **Linero, A. R.**, & Yang, Y. (2019). A Bayesian approach to sequential monitoring of nonlinear profiles using wavelets. *Quality and Reliability Engineering International*, 35(3), 761–775.

Linero, A. R., Bradley, J. R., & Desai, A.* (2018). Multi-rubric models for ordinal spatial data with application to online ratings data. *The Annals of Applied Statistics*, 12(4), 2054–2074.

Linero, A. R., & Yang, Y. (2018). Bayesian regression tree ensembles that adapt to smoothness and sparsity. *Journal of the Royal Statistical Society Series B: Statistical Methodology*, 80(5), 1087–1110.

Linero, A. R. (2018). Bayesian regression trees for high-dimensional prediction and variable selection. *Journal of the American Statistical Association*, 113(522), 626–636.

Linero, A. R., & Daniels, M. J. (2018). Bayesian approaches for missing not at random outcome data: the role of identifying restrictions. *Statistical Science*, 33(2), 198.

Linero, A. R. (2017). A review of tree-based Bayesian methods. *Communications for Statistical Applications and Methods*, 24, 543–559.

Linero, A. R. (2017). Bayesian nonparametric analysis of longitudinal studies in the presence of informative missingness. *Biometrika*, 104(2), 327–341.

Piekarewicz, J., **Linero, A. R.**, Giuliani, P.*, & Chicken, E. (2016). Power of two: Assessing the impact of a second measurement of the weak-charge form factor of ^{208}Pb. *Physical Review, C.*, 94(3), 034316.

Linero, A. R., & Daniels, M. J. (2015). A flexible Bayesian approach to monotone missing data in longitudinal studies with nonignorable missingness with application to an acute schizophrenia clinical trial. *Journal of the American Statistical Association*, 110(509), 45-55.

Linero, A. R., & Rosalsky, A. (2013). On the Toeplitz lemma, convergence in probability, and mean convergence. *Stochastic Analysis and Applications*, 31(4), 684-694.

PUBLISHED IN CONFERENCE PROCEEDINGS

Du, J.* & **Linero, A. R.** (2019). Incorporating Grouping Information into Bayesian Decision Tree Ensembles. *Proceedings of the 36th International Conference on Machine Learning*, in *Proceedings of Machine Learning Research* 97, 1686–1695 Available from https://proceedings.mlr.press/v97/du19d.html.

Du, J.* & **Linero, A. R.** (2019). Interaction Detection with Bayesian Decision Tree Ensembles. *Proceedings of the Twenty-Second International Conference on Artificial Intelligence and Statistics*, in *Proceedings of Machine Learning Research* 89, 108–117 Available from https://proceedings.mlr.press/v89/du19a.html.

Varbanov, R.*, Chicken, E., **Linero, A. R.**, & Yang, Y. (2017). Wavelet-based Bayesian profile monitoring. Wavelet-based Bayesian profile monitoring. In *67th Annual Conference and Expo of the Institute of Industrial Engineers 2017* (pp. 621-626). Institute of Industrial Engineers.

BOOK CHAPTERS

Linero, A. R., & Du, J.* "Variable Selection for Bayesian Decision Tree Ensembles." *Handbook of Bayesian Variable Selection.* Chapman and Hall/CRC, 2021. 415–440.

Daniels, M.J., & **Linero, A. R.** (2015). Bayesian Nonparametrics for Missing Data in Longitudinal Clinical Trials. In: Mitra, R., Müller, P. (eds) *Nonparametric Bayesian Inference in Biostatistics.* Frontiers in Probability and the Statistical Sciences. Springer, Cham. https://doi.org/10.1007/978-3-319-19518-6_21

BOOKS

Daniels, M.J., **Linero, A. R.**, & Roy, J. (2023). Bayesian Nonparametrics for Causal Inference and Missing Data (1st ed.). Chapman and Hall/CRC. https://doi.org/10.1201/9780429324222.

Awards and Honors

CLAS Dissertation Fellowship (2015), University of Florida.

Statistics Faculty Award (2014), University of Florida. (Awarded to "the best graduating PhD student" in the Department of Statistics.)

Laplace Award (2014), International Society of Bayesian Analysis. (Awarded by ISBA and SBSS for the best Bayesian student paper at the Joint Statistical Meeting.)

Service

Chair, hiring committee, 2022–2023.
Research seminar organizer, 2021—2022.
Committee member, undergraduate major curriculum committee 2020–2021.

COLLEGE

Committee member, Bioinformatics, computational biology, systems biology curriculum committee 2021-—2022.

Seminars/Lectures

CONFERENCES, COLLOQUIA, OR TALKS AT OTHER INSTITUTIONS

1. **11/2/2023**, Invited, University College London, TBD.

2. **8/6/2023**, Invited, Joint Statistical Meeting, *Generalized Bayesian Additive Regression Trees*.

3. **7/18/2023**, Invited, Mt. Sinai Biostatistics, *Flexible Modelling and Estimation Techniques for Missing Data and Causal Inference: A Bayesian Nonparametric Approach*.

4. **7/2/2023**, Invited, ICSA Conference, *In Nonparametric Problems, Bayesian Ignorability is an Informative Prior*.

5. **6/1/2023**, Invited, IISA Conference, *Bayesian Survival Tree Ensembles with Submodel Shrinkage*.

6. **2/23/2023**, Invited, University of Florida, *Estimating Heterogeneous Causal Mediation Effects with Bayesian Decision Tree Ensembles*.

7. **12/28/2022**, Invited, IISA Conference, *Generalized Bayesian Additive Regression Trees*.

8. **12/17/2022**, Invited, CM Statistics, *Avoiding Highly-Informative "Nonparametric" Priors*.

9. **8/08/2022**, Invited, Joint Statistical Meeting, *Bayesian Survival Tree Ensembles with Submodel Shrinkage*.

10. **6/29/2022**, Invited, ISBA World Meeting, *Mediation Analysis using Bayesian Decision Tree Ensembles*.

11. **1/12/2022**, Invited, ISBA Section on Biostatistics and Pharmaceutical Statistics, *Bayesian Survival Tree Ensembles with Submodel Shrinkage*.

12. **11/30/2021**, Invited, Binghamton University, *BART Methods for Fully-Nonparametric Problems*.

13. **9/17/2021**, Invited, Universidad Miguel Hernández de Elche, *BART Methods for Fully-Nonparametric Problems*.

14. **5/06/2021**, Invited, Bocconi University, *BART Methods for Fully-Nonparametric Problems*.

15. **3/15/2021**, Invited, Rice University, *BART Methods for Fully-Nonparametric Problems*.

16. **2/12/2021**, Invited, University of Louisville, *BART Methods for Fully-Nonparametric Problems*.

17. **12/15/2020**, Invited, ICSA (Online), *BART Methods for Fully-Nonparametric Problems*.

18. **3/23/2020**, Invited, ENAR (Online), *BART Methods for Fully-Nonparametric Problems*.

19. **6/04/2019**, Invited, Ohio State University, *Bayesian Nonparametric Methods for Longitudinal Outcomes Missing Not at Random*.

20. **5/24/2019**, Invited, Virginia Tech, *Finding and Leveraging Structure Using Bayesian Decision Tree Ensembles*.

21. **1/24/2019**, Invited, University of Michigan, *Theory and Practice for Bayesian Regression Tree Ensembles*.

22. **1/22/2019**, Invited, University of Minnesota, *Theory and Practice for Bayesian Regression Tree Ensembles*.

23. **1/11/2019**, Invited, Duke University, *Theory and Practice for Bayesian Regression Tree Ensembles*.

24. **1/08/2019**, Invited, University of Florida, *Theory and Practice for Bayesian Regression Tree Ensembles*.

25. **12/15/2018**, Invited, CM Statistics, *Finding and Leveraging Structure with Bayesian Decision Tree Ensembles*.

26. **7/30/2018**, Invited, JSM, *Finding and Leveraging Structure with Bayesian Decision Tree Ensembles*.

27. **6/11/2018**, Invited, ISNPS, *Bayesian Regression Tree Ensembles that Adapt to Smoothness and Sparsity*.

28. **5/19/2018**, Invited, IISA, *Bayesian Regression Tree Ensembles that Adapt to Smoothness and Sparsity*.

29. **12/17/2017**, Invited, CM Statistics, *Bayesian Regression Tree Ensembles that Adapt to Smoothness and Sparsity*.

30. **8/1/2017**, Invited, JSM, *Sensitivity Analysis for Longitudinal Clinical Trials with Nonmonotone Missingness*.

31. **7/17/2017**, Invited, EcoSta, *Bayesian regression trees for high-dimensional prediction and variable selection*.

32. **12/10/2016**, Invited, CM Statistics, *Bayesian Nonparametric Analysis of Longitudinal Studies with Informative Missingness*.

33. **9/29/2016**, Invited, University of Florida Statistics Symposium, *Bayesian Regression Trees for High Dimensional Prediction and Variable Selection*.

34. **6/12/2016**, Invited, ICSA Applied Statistics Symposium, *Bayesian Regression Trees for High Dimensional Prediction and Variable Selection*.

35. **2/11/2016**, Invited, University of California at Irvine, *Flexible Bayesian Analysis in the Presence of Nonignorable Missingness*.

36. **2/9/2015**, Invited, Texas A&M University, *Flexible Bayesian Analysis in the Presence of Nonignorable Missingness*.

37. **1/28/2015**, Invited, University of Illinois at Urbana-Champaign, *Flexible Bayesian Analysis in the Presence of Nonignorable Missingness*.

38. **1/20/2015**, Invited, Arizona State University, *Flexible Bayesian Analysis in the Presence of Nonignorable Missingness*.

39. **1/12/2015**, Invited, Florida State University, *Flexible Bayesian Analysis in the Presence of Nonignorable Missingness*.

40. **2014**, Contributed, JSM, *A Flexible Bayesian Approach to Monotone Missing Data in Longitudinal Studies with Informative Dropout with Application to a Schizophrenia Clinical Trial*.

SHORT COURSES

1. 3/19/2023, ENAR Spring Meeting, Introduction to Bayesian Nonparametric Methods for Causal Inference, with Michael J. Daniels and Jason Roy.

2. 6/26/2022, ISBA World Meeting, Bayesian Nonparametric Causal Inference, with Michael Daniels and Jason Roy.

3. 6/27/2020, ISBA World Meeting, Advanced Topics in Variable Selection and Model Averaging, with Joseph Antonelli.

Professional Services

JOURNAL EDITING AND EDITORIAL BOARDS

Associate Editor, Biometrics, 2018—Present.

CONFERENCE CHAIR POSITIONS

Chair of session Bayesian Nonparametrics in Causal Inference at ISBA, 2021.
Chair of session Bayesian Methods for Dependent Data at CM Statistics, 2016.
Chair of session Innovative Bayesian Nonparametrics in Biostatistics at JSM, 2014.

WORKSHOPS AND SPECIALIZED CONFERENCE PROGRAM COMMITTEES

ENAR 2023, member of student paper competition award selection committee.

ISBA 2021, *Advanced Topics in Variable Selection and Model Averaging*.

JOURNAL, CONFERENCE, AND BOOK REVIEWING

Referee for: American Statistician, Annals of Applied Statistics, Annals of Statistics, Bayesian Analysis, Biometrics, Biometrika, Biostatistics, Computational Statistics and Data Analysis, International Journal of Approximate Reasoning, Journal of the American Statistical Association, Journal of Applied Statistics, Journal of Computational and Graphical Statistics, Journal of Epidemiology, Journal of the Korean Statistical Society, Journal of Machine Learning Re- search, Journal of the Royal Statistical Society, Series A., Journal of the Royal Statistical Society, Series B., Journal of the Royal Statistical Society, Series C., Journal of Statistical Distributions and Applications, Journal of Statistical Software, Operations Research, Philosophical Transactions A, PLOS One, Psychological Methods, Sankhya Series A, Statistica Sinica, Statistical Methods in Medical Research, Statistical Science, Statistics and Computing, Statistics in Medicine, Technometrics.

GRANT PROPOSAL REVIEWING

Panel member for NSF-DMS Statistics Panel (2022).