CURRICULUM VITAE

Osvaldo Martin
aloctavodia@gmail.com
https://aloctavodia.github.io/

Academic Background

PhD in Biology. *Chemical Shifts-Driven Monte Carlo Simulations*. National University of San Luis. 2007-2012.

Current positions

Research Fellow. Aalto University. Finland. January 2025 – present

Previews positions

Principal Data Scientist. PyMC Labs. February-December 2024.

Lecturer Bayesian Statistics. Universidad Nacional de San Martín. June-December 2024.

Investigador Independiente (Permanent position). National Scientific and Technical Research Council (CONICET). April 2022 - June 2024.

Postdoctoral Researcher. (Prof. Dr. Vehtari), Aalto University. Finland. March 2021 – April 2022
Investigador Adjunto (Permanent position). National Scientific and Technical Research Council (CONICET). 2017-2021
Investigador Asistente. National Scientific and Technical Research Council (CONICET). 2014-2017

All publications in the last 5 years (Full list at google scholar or ORCID. Google Scholar **h-index 17**)

Mikkola, P. **Martin, O.A.** Chandramoul, S. Hartmann, M. Abril-Pla, O. Thomas, O. Pesonen. Corander, J. Vehtari, Aki. Kaski S. Bürkner, PC. Klami A. *Prior knowledge elicitation: The past, present, and future*. Bayesian Analysis. 2024.

Abril-Pla O, Andreani V, Carroll C, Dong L, Fonnesbeck CJ, Kochurov M, Kumar R, Lao J, Luhmann CC, **Martin O.A.**, Osthege M, Vieira R, Wiecki T, Zinkov R. *PyMC: A modern, and comprehensive probabilistic programming framework in Python*. PeerJ Computer Science 9:e1516. 2023.

Icazatti A, *Abril-Pla O, Klami A*. **Martin O.A.** *PreliZ: A tool-box for prior elicitation. The Journal of Open Source Software*. 2023.

Niborski M.J.; **Martin, O.A.**; Murray F.; Jobbágy EG; Nosetto MD; Paez RA; Magliano PN *Modeling Rainwater Harvesting and Storage Dynamics of Rural Impoundments in Dry Chaco Rangelands*. Water. 2023.

Capretto,T. Piho, C. Kumar, R. Westfall, J. Yarkoni, Tal. **Martin O.A.** *Bambi: A simple interface for fitting Bayesian linear models in Python*. Journal of Statistical Software. 2022.

Martin O.A, ; Teste F.P. *A call for changing data analysis practices: from philosophy and comprehensive reporting to modeling approaches and back.* Plant and Soil. 2022.

Arroyuelo, A. Vila, J.A. **Martin O.A.** *Exploring the quality of protein structural models from a Bayesian perspective*. Journal of Computational Chemistry. 2021.

Preprints

Quiroga M, Garay P. G. ,Alonso J. M. , Loyola J. M., and **Martin O.A.** *Bayesian additive regression trees for probabilistic programming.* ArXiv 2022.

Books

Bayesian Analysis with Python. **Martin O.A**. Packt Publishing. Third Edition. ISBN-13: 978-1805127161. 2024.

Bayesian Modeling and Computation in Python. **Martin O.A**. Kumar R, Lao J. CRC press. ISBN 978-0367894368. 2021.

Online courses

Practical MCMC. Intuitive Bayes. Online learning platform for Bayesian statistics. (paid)

Modelado Bayesiano https://gmp.net.ar/modelado_bayesiano (free, Spanish)

Exploratory Analysis of Bayesian Models https://arviz-devs.github.io/Exploratory-Analysis-of-Bayesian-Models (free, work in progress)

Past teaching experience

Lecturer

Bayesian Modeling. UNSL. Hourly credit 60 hours. 2022, 2023

Bayesian data analysis. UNT. Second week March 2020

Bayesian data analysis. UNSL. First week December 2019

Advanced methods in statistics and data analysis UNSL October-December 2019

Postgraduate Refresher Program UNSL: Introduction to Data Science.
   • Introduction to data science. Hourly credit 60 hours. February-March 2018.
   • Bayesian data analysis. Hourly credit 60 hours. August-September 2018.

Bayesian data analysis UNSL: Postgraduate course. Hourly credit 90 hours. February 2015.

Teaching Assistant

Bayesian Data Analysis. Aalto University. 2021

Structural Bioinformatics: Elective course for the Bachelor's Degree in Molecular Biology. Hourly credit 90 hours. 2013-2016.

Algorithms in bioinformatics: Postgraduate course. Hourly credit 80 hours. February 2015.

Research projects funding as main researcher/principal investigator

Bayesian additive regression trees: automatic inference, variable selection, and interpretability. FONCYT (2023-2024)

Dashboard-assisted exploratory analysis of Bayesian models. NumFOCUS small development grants. (2023)

Jax SMC samplers for PyMC. NumFOCUS small development grants. (2022)

Fine tuning the Bayesian Additive Regression Trees implementation in PyMC. NumFOCUS small development grants. (2021)

Improving and expanding the implementation of Approximate Bayesian Computation. NumFOCUS small development grants. (2020)

Create educational material and give workshops related to exploratory analysis of Bayesian models with ArviZ. NumFOCUS small development grants. (2019)

Probabilistic programming for Structural Bioinformatics FONCYT. PICT-Joven (2017-2019)

Advisor and co-advisor

PhDs

Co-Advisor: Noa Kallioinen. Tools for choosing and analysing priors in Bayesian modelling. Aalto University. (2021-). Ongoing.

Advisor: Agustina Arroyuelo. *Structural determination of biomolecules by statistical inference.* National University of San Luis. (2017-2021). Approved.

Co-advisor: Alejandro Icazatti. *Validation and determination of the structure of nucleic acids.* National University of San Luis. (2017-2021). Approved

Co-advisor: Pablo Garay. Study of carbohydrate conformational preferences using chemical shifts. National University of San Luis. (2013-2017). Approved

Undergrads

Advisor BSc Thesis: Franco Joaquin Loyola. *Application of optimization methodologies on Bayesian Additive Regression Trees*. Computer engineering. UNSL. Ongoing.

Advisor BSc Thesis: Agustina Arroyuelo. *Development of a software application for creating, viewing and analyzing models of macromolecules*. Molecular Biology. National University of San Luis. 2016. Approved.

Advisor BSc Thesis: Pedro Ramírez. *Protein structure refinement guided by $^{13}C^a$ y $^{13}C^b$ chemical shifts.* Molecular biology. National University of San Luis. Approved December 2014.

Co-advisor BSc Thesis: Alejandro Icazatti. *Combined use of chemical shifts of 13Cα and 13Cβ in protein validation.* Molecular Biology. UNSL. Aprobado 2013.

Co-advisor BSc Thesis: Ezequiel Frigini. *Is the cell membrane, permeable to the diffusion of glyphosate?* Molecular biology. National University of San Luis. Approved December 2014.

Software development

Core developer of:

ArviZ. Exploratory analysis of Bayesian models
Bambi. Bayesian Model-Building Interface in Python.
Kulprit. Kullback-Leibler projections for Bayesian model selection
PreliZ. A tool-box for prior elicitation
PyMC. Probabilistic Programming in Python
PyMC-BART. Bayesian Additive Regression Trees for Probabilistic programming

Older projects:

CheShift: A web-server for protein-structure validation.
PyMOL Plugins: PyMOL is a molecular visualization system

Synergistic activities

Member of the PhD in Biology Committee. National University of San Luis. 2019-2021.

Head of the organizing committee of Argentinean workshop of scientific computation, San Luis, Argentina 2019.

Head of the organizing committee of PyData, San Luis, Argentina 2017. This was the first PyData in Latin-America. Member of the PyData San Luis chapter.

Co-host La Búsqueda, popular science radio-show and podcast. Radio UNSL 2008-2009. Radio Ciudad 2010