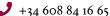
Mario Figueira Pereira

mafipe@alumni.uv.es



mariofigueirap.github.io



Work history

03/2023 - present

Predoctoral fellow, Universitat de Valéncia Estudi General.

Space-time analysis of land use at the European level, using hierarchical Bayesian models implemented with the R-INLA software. Member of the European project LAMASUS (LAnd MAnagement for SUStainability) as a young researcher.

25/10/2022 - 08/03/2023

Predoctoral fellow, Universitat de Valéncia Estudi General.

Space-time analysis of the distribution of the *Ceratitis Capitata*, implementing hierarchical space-time Bayesian models.

11/2021 - 02/2022

External Curricular Internship, Consultancy Promedio, S.L. During the internship, I have conducted space-time simulation and modeling of species distribution, Bayesian inference with INLA, and geostatistical analysis using INLA-SPDE methodologies.

Education

10/2022 – present

PhD in Statistics and Optimization, Universitat de Valéncia Estudi General.

Main research line in space-time Bayesian modeling.

09/2020 - 07/2022

Master in Biostatistics, Universitat de Valéncia Estudi General.

Master's Thesis: Methodology for Feedback between Independent Spatial Models and Preferential Models.

09/2014 - 09/2019

Degree in Physics, Universidade de Santiago de Compostela.
Undergraduate Thesis: Simulation of Multi-junction Photovoltaic Cells.

Congresses, workshops and symposia

- Participation in the XVIII Congress of Biometry CEBMADRID with a poster titled *Estimating essential habitats combining fishery-dependent and -independent data applying Bayesian learning* (Madrid, Spain, 05/2022).
- Participation in the 5th General Meeting of BIOSTATNET in Santiago de Compostela, with the presentation of a poster titled *Combining different kinds of ecological data using Bayesian feedback* (Santiago de Compostela, Spain, 19/01/2023 20/01/2023).
- International communication titled *Improving essential habitats estimation applying Bayesian feedback*, participating as an invited speaker in the *Advanced Species Distribution Modeling* workshop held at the *Universidade do Minho*. Awarded as one of the best oral presentations in the *Student Session* (Guimarães, Portugal, 23/01/2023).

- Participation in the Workshop on Bayesian Modeling for Complex Correlated Data as an invited speaker, with an oral presentation titled Improving Species Distribution Models using Bayesian feedback (Valencia, Spain, 16/05/2023-18/05/2023).
- Participation in the workshop 13th Bayesian Inference for Stochastic Processes with an oral presentation titled Improving ecological modeling using Bayesian feedback (Madrid, 22/05/2023-24/05/2023).
- Participation in the XIX Spanish Conference and VIII Ibero-American Biometrics Meeting with an oral exposition titled A Shiny App for spatial species distribution modeling (Vigo, Spain, 27/06/2023-30/06/2023).
- Participation in the XL National Congress of Statistics and Operations Research with an oral presentation titled A Shiny App for spatial species distribution modeling (Elche, Spain, 7/11/2023-10/11/2023).
- Participation in the II R Conference and XIII R Users' Meeting with an oral presentation titled BAYSPINS: A Shiny app for spatial modelling (Barcelona, Spain, 15/11/2023-17/11/2023).
- 9 International communication as an invited oral presentation at the 16th International Conference of the ERCIM WG on Computational and Methodological Statistics, with an oral presentation titled Modelling independent and preferential data jointly (Berlin, Germany, 16/12/2023-18/12/2023).

Published papers

Marta González-Warleta, José Antonio Castro-Hermida, **Mario Figueira**, Jesúa López, David Conesa, Antonio López-Quílez, Florencio M. Ubeira, Mercedes Mezo, *Bayesian hierarchical modelling of the geospatial distribution of fasciolosis in dairy cattle and the impact on production: Application to the main milk-producing region (Galicia) in Spain, Veterinary Parasitology, Volume 325, 2024, 110091, ISSN 0304-4017*, https://doi.org/10.1016/j.vetpar.2023.110091.

Papers under revision

- **Mario Figueira**, Xavier Barber, David Conesa, Antonio López-Quílez, Joaquín Martínez-Minaya, Iosu Paradinas y Maria-Grazia Pennino, *Bayesian feedback in the framework of ecological sciences*. Submitted to *Ecological Informatics*.
- **Mario Figueira**, David Conesa, Antonio López-Quílez, A Shiny R app for spatial analysis of Species Distribution Models. Submitted to Ecological Informatics.

Preprint papers

- **Mario Figueira**, Xavier Barber, David Conesa, Antonio López-Quílez, Joaquín Martínez-Minaya, Iosu Paradinas y Maria-Grazia Pennino, *Bayesian feedback in the framework of ecological sciences*.
- Mario Figueira, David Conesa, Antonio López-Quílez, et al. How to perform modeling with independent and preferential data jointly? Authorea. July 17, 2023. https://www.authorea.com/users/640234/articles/655188-how-to-perform-modeling-with-independent-and-preferential-data-jointly

Courses

1 Attendance at the course *Bayesian spatial and spatio-temporal models with R-INLA* taught by Håvard Rue and Elias T. Krainski (Pamplona, Spain, 25/01/2023-27/01/2023).

Collaborations

03/2022 - 01/2024

Collaboration in the spatial analysis of the distribution of *Fasciola hepatica* and productive variables in livestock farms in Galicia. Development of geostatistical models for the presence/absence of *Fasciola hepatica* on farms and for continuous data of productive variables.

Contributions on GitHub

- SpatialModeling ShinyApp. An application developed with Shiny that implements the **R-INLA** environment to solve geostatistical and preferential models. In addition to allowing configuration of arguments related to the operation of INLA, it also enables feedback processes.
- Transformation to sp/sf. A series of functions are developed that allow converting objects of type *inla.segment* and *inla.mesh* into spatial objects from the sp and sf packages. These functions enable obtaining spatial objects considering any arbitrary number of holes within the polygons, whether they have multiple levels of depth or a single level of depth.

Skills

Computing

R, Python, Mathematica, LabVIEW, ...

Composition of Scientific Texts

Markdown, LTFX, Beamer, Quarto, ...

Miscellanea

HTML/CSS, Hugo, TikZ, knitr, ggplot2, ...