

CURRICULUM VITAE: GABRIEL RODRIGUES PALMA

1 General Information

E-mail Address: gabriel.palma.2022@mumail.ie

Nationality: Brazilian

Education:

Feb/2017 – Dec/2021 University of São Paulo, Brazil, BEd in Biology

Feb/2017 – Aug/2021 University of São Paulo, Brazil, BSc in Biology

Sep/2021 – Sep/2025 Maynooth University, PhD in Data Science.

Additional courses on Statistics and Data Science listed in Section 7

Overall Grades:

Year 1 87.5%

Year 2 85.0%

Year 3 86.0%

Year 4 87.0%

Year 5 91.0%

Programming Languages and Frameworks

R, Python, tensorflow and keras Advanced statistical modelling and machine learning

SQL, HTML, PHP, JavaScript, Vue.js, Laravel and Django Website development

C++ and FORTRAN Numerical methods and mathematical modelling

Languages:

Portuguese (Native)

English (Fluent)

Spanish (Conversational)

French (Basic)

Awards:

2020 Honorable Mention Award for the work entitled "A new asymptotic confidence interval for Shannon's index and comparison with bootstrap percentile interval", University of São Paulo International Symposium of Undergraduate Research (First phase), São Paulo, Brazil

2019 Honorable Mention Award for the work entitled "Kernel density estimation for Tsallis entropy", University of São Paulo International Symposium of Undergraduate Research (Second phase), São Paulo, Brazil

2019 Honorable Mention Award for the work entitled "Kernel density estimation for Tsallis entropy", University of São Paulo International Symposium of Undergraduate Research (First phase), São Paulo, Brazil

2018 Honorable Mention Award for the work entitled "Bootstrap confidence interval for the Tsallis

entropy”, University of São Paulo International Symposium of Undergraduate Research (First phase), São Paulo, Brazil

2 Publications

Papers in Peer-Reviewed Journals

Published

1. **Palma, G.R.**, Godoy, W. A., Engel, E., Lau, D., Galvan, E., Mason, O., Markham, C., Moral, R. A. (2023). Pattern-based prediction of population outbreaks. *Ecological Informatics*, 77, 102220.
2. Moral, R.A., Chen, Z., Zhang, S., McClean, S., **Palma, G.R.**, Allan, B., Kegel, I. (2022) Profiling Television Watching Behaviour Using Bayesian Hierarchical Joint Models for Time-to-Event and Count Data. *IEEE Access*, 10, p. 113018–113027.
3. Rios, R., Nogueira, T., **Palma, G.R.**, Mello, R. Brazilian forest dataset: A new dataset to model local biodiversity, *Journal of Experimental & Theoretical Artificial Intelligence* (2021). doi:10.1080/0952813X.2021.1871972.

In progress

1. **Palma, G.R.**, Coutinho, R., Godoy, W.A.C., Cônsoli, F. Bacteriophage effect on parasitism resistance. *To be submitted to Basic and Applied Ecology*.

Submitted

1. Araripe, P.P., Lara, I.A.L., **Palma, G.R.**, Cahill, N., Moral, R. A. Diagnostics for categorical response models based on quantile residuals and distance measures
2. **Palma, G.R.**, Wiendl, J., Godoy, W.A.C., Zocchi, S. New confidence interval methods for diversity indices.

Software

1. **Palma, G.R.**, Godoy, W.A.C., Angel, E., Lau, D., Galvan, Edgar., Mason, O., Markham, C., Moral, R.A. (2022) A python package for predicting insect outbreaks based on the Pattern Based Prediction method Available in: <https://pypi.org/project/pypbp/>.
2. **Palma, G.R.**, Coutinho, R., Godoy, W.A.C., Cônsoli, F. (2022) A python package for modelling Bacteriophage effect on parasitism resistance. Available in: <https://pypi.org/project/bepr/>.
3. **Palma, G.R.**, Moral, R.A., Godoy, W.A.C., Bonilha, E. (2020) SII: System of insect outbreak identification. Available in: <https://sisp.herokuapp.com/>.
4. Savaris, M., Zucchi, R.A., **Palma, G.R.**, Bonilha, E. Wiendl, J.A. (2020) Entomology Practical Learning System. Available in: <http://taxustec.com.br/apps/siape>.

5. Savaris, M., Zucchi, R.A., **Palma, G.R.**, Bonilha, E. Wiendll, J.A. (2020) Entomological Identification System. Available in: <http://taxustec.com.br/apps/sient/>.

Dataset

Rios, R., Nogueira, T., **Palma, G.R.**, Mello, R. (2019) "Brazilian Forest Dataset", Mendeley Data, V2, doi: 10.17632/9x62992sw6.2

Proceedings

1. **Palma, G.R.**, Mello, F., Godoy, W. A., Engel, E., Lau, D., Moral, R.A. (2023) Forecasting insect abundance using time series embedding and environmental covariates. 37th International Workshop on Statistical Modelling, Dortmund, Germany
2. Lara, I.A.L., **Palma, G.R.**, Bon, V., Reigada, C., Moral, R.A. (2023) Multi-state models for double transitions associated with parasitism in biological control. 37th International Workshop on Statistical Modelling, Dortmund, Germany
3. **Palma, G.R.**, Aquino, A., Monticelli, P., Verdade, L., Markham, C., Moral, R.A. (2022) A machine vision system for avian song classification with CNN's. Proceedings of the 24th Irish Machine Vision and Image Processing Conference, Belfast.
4. **Palma, G.R.**, Markham, C., Moral, R.A. (2020) Detecting predation interaction using pre-trained CNNs. Proceedings of the 22th Irish Machine Vision and Image Processing Conference, Sligo, Ireland.
5. **Palma, G.R.**, Mello, F., Rodrigo, (2019) Artificial Neural Networks: Applications in biology. Proceedings of the XII Symposium of Graduate Students at CENA/USP, Piracicaba, Brazil.
6. **Palma, G.R.**, Godoy, W.A.C., Fernandes, D.F. (2018) Mathematical models applied to symbiont-insect-host systems. Proceedings of the XI Symposium of Graduate Students at CENA/USP, Piracicaba, Brazil.

3 Presentations

Invited Talks

2019 Artificial Neural Networks, *University of São Paulo, Brazil*, 27 August 2019

Oral Communications in Conferences

2022 A machine vision system for avian song classification with CNN's, *24th Irish Machine Vision and Image Processing Conference, Belfast*, 3 November 2020

2022 Pattern Based prediction, a new machine learning method for detecting population outbreaks, *The Young Statisticians' Section of the Irish Statistical Association webinar, Maynooth, Ireland*, March 10th, 2022

2022 Pattern Based prediction, a new machine learning method for detecting population outbreaks, *Love Data Week at Maynooth University, Maynooth, Ireland*, March, 2022

- 2022 Voulez-vous voté Avec Moi ce soir: Exploring 2017 French presidential election results, *Love Data Week at Maynooth University, Maynooth, Ireland*, March, 2022
- 2022 Voulez-vous voté Avec Moi ce soir: Exploring 2017 French presidential election results, *Winter symposium as part of the Center for Research Training in Foundations of Data Science, Maynooth, Ireland*, March, 2022
- 2020 A new asymptotic confidence interval for Shannon's index and comparison with bootstrap percentile interval, *Irish Machine Vision and Image Processing Conference, Belfast* August 31st - September 2nd 2022
- 2020 Detecting predation interaction using pre-trained CNNs, *Irish Machine Vision and Image Processing Conference, Sligo, Ireland*, 31 August 2020
- 2020 Detecting predation using image classification algorithms, *Love Data Week, Maynooth, Ireland*, 14 February 2020
- 2019 Artificial Neural Networks: Applications in biology, *XII Symposium of Graduate Students at CENA/USP, São Paulo, Brazil*, 18 September 2019
- 2019 Kernel density estimation for Tsallis entropy, *USP International Symposium of Undergraduate Research (First phase and second phase), São Paulo, Brazil*, 18 October 2019
- 2018 Mathematical models applied to symbiont-insect-host systems, *XII Symposium Graduate Students at CENA/USP, São Paulo, Brazil*, 12 September 2018
- 2018 Bootstrap confidence interval for the Tsallis entropy, *USP International Symposium of Undergraduate Research (First phase and second phase), São Paulo, Brazil*, 9 October 2018
- 2017 The comparison of nematode diversity: Before and after soybean planting, *USP International Symposium of Undergraduate Research (First phase), São Paulo, Brazil*, 9 November 2017

4 Grants & Awards

Grants Received

- 2021 Statistical Modelling and machine learning applied to automating animal monitoring systems, *Science Foundation Ireland, Grant number 18/CRT/6049*, In progress
- 2020 Predicting pest outbreaks: comparing machine learning methods and alert zone procedure, *Scientific Initiation, FAPESP proc. no. 20/06147-7*, Duration: 12 months (Nov/2020 – October/2021)
- 2020 Detecting pest outbreaks based on time-series data, *Scholarship program for international exchange, University of São Paulo Agency for innovation*, Duration: 3 months (Dec/2019 – Mar/2020)
- 2019 Alert zone implementation on pest monitoring in agricultural landscapes, *Scientific Initiation, FAPESP proc. no. 19/14805-7*, Duration: 5 months (Aug/2019 – Dec/2019; Mar/2020)
- 2017 Mathematical models applied to symbiont-insect-host systems (Sub project 1 - Oct/2017 – Aug/2018), Spatial dynamics of symbiont-host-parasitoid in agricultural landscapes (Sub project 2 - Oct/2018 – Mar/2019) , *Scientific Initiation, FAPESP proc. no. 17/19984-1*, Duration: 18 months

5 Teaching Experience

Contract Lecturer

2022 R for Statistics and Data Science, *Maynooth University, Maynooth, Ireland, September - December*

Teaching Assistance

2019 Topics in Data Analytics, *Maynooth University, Maynooth, Ireland, taught by Prof. Rafael A. Moral. (27th of February, 24th of May)*

2019 Statistical Machine Learning, *University of São Paulo, Piracicaba, Brazil, taught by Prof. Rafael A. Moral for MSc and PhD students of the Statistics programme, 5–27 of August, 60h*

2018 Introduction to R and R markdown: Theory and statistical applications, *University of São Paulo, Piracicaba, Brazil, taught by Prof. Cristian Villegas-Lobos, August, 4h*

Other Teaching Experience

2022 Voluntary Combinatorics teacher for mathematics Olympiad students, *Maynooth University, Ireland, January*

2023 Voluntary Combinatorics teacher for mathematics Olympiad students, *Maynooth University, Ireland, February*

2017 Voluntary Biology teacher, non-governmental organisation called *Ong Fênix*, Brazil, October

6 Visiting Positions

2019 Research Intern, Mathematical/Statistical Ecology research group, *Maynooth University, Ireland, December/2019 – March/2020.*

2022 Data analyst collaborator, NIBIO Norwegian Institute of Bioeconomy Research, Norway, Oct/2022.

7 Courses Attended

2022 Applied Stochastic Processes, *Academy for PhD Training in Statistics, 60h*

2022 Statistical Modelling, *Academy for PhD Training in Statistics, 60h*

2021 Statistical Computing, *Academy for PhD Training in Statistics, 60h*

2021 Statistical Inference, *Academy for PhD Training in Statistics, 60h*

2021 Statistical Computing, *Durham University, 60h*

2020 Experimental Statistics, *University of São Paulo, 60h*

2020 Statistical Learning Theory, *University of São Paulo, 60h*

- 2020 Introduction to Data Science, *University of São Paulo*, 60h
- 2020 Introduction to Bayesian hierarchical modelling using R, *Maynooth University*, 15h
- 2019 Mathematical Statistics, *University of São Paulo*, 60h
- 2019 Crop Modeling, *University of São Paulo*, 60h
- 2019 Computational Methods for inference with applications in R, *University of São Paulo*, 120h
- 2019 Generalized linear Models, *University of São Paulo*, 60h
- 2018 Biostatistics, *University of São Paulo*, 60 h
- 2018 Applied Mathematics in Population Dynamics, *University of São Paulo*, 60 h
- 2018 Introduction to Machine learning, *University of São Paulo*, 60 h
- 2018 Sampling theory and practice in Population Ecology, *Univesity of São Paulo*, 60h
- 2018 Basic Statistical Data Analysis with R, *University of São Paulo*, 60 h
- 2017 Linear Algebra, *UNIVESP*, 30h
- 2017 Calculus, *UNIVESP*, 60h
- 2017 Differential and Integral Calculus, *Univesity of São Paulo*, 60h
- 2017 Machine learning and Data Science with Python, *Udemy*, 60h
- 2017 Nonlinear dynamics and chaos, *Cornell MEA*, 60 h
- 2017 Insect Ecology, *University of São Paulo*, 60 h

8 Internships

- 2022 Data science Intern, Ericsson, Ireland, June/2022 – August/2022.
- 2019 Research Intern, Mathematical/Statistical Ecology research group, Maynooth University, Ireland, December/2019 – March/2020.
- 2017 Research Intern, Ecology and forest entomology lab, University of São Paulo, Brazil, In progress.
- 2017 Research Intern, Chemistry lab, University of São Paulo, Brazil, August/2017 – December/2018.

9 Additional mathematics training

- 2018 Spatial dynamics of symbiont-host-parasitoid in agricultural landscapes. *Grant: Mathematical models applied to symbiont-insect-host systems, Scientific Initiation, FAPESP proc. no. 17/19984-1*
- 2017 Python applied to mathematical modelling. *Grant: Mathematical models applied to symbiont-insect-host systems, Scientific Initiation, FAPESP proc. no. 17/19984-1*
- 2017 Mathematical modelling applied to biology, involving classical population dynamics models. *Grant: Mathematical models applied to symbiont-insect-host systems, Scientific Initiation, FAPESP proc. no. 17/19984-1*