



Anderson A.C. Alves

ASSISTANT PROFESSOR (PRECISION LIVESTOCK SCIENCE)

Department of Animal and Dairy Science, University of Georgia, 425 River Rd, Athens, GA, USA, 30602

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I work on the development and application of efficient statistical learning methods and computational tools for the analysis of large livestock data. My research agenda center on combining on-farm sensor data and artificial intelligence (AI) techniques to create decision-making tools, supporting efficient and sustainable livestock farming

EDUCATION

Ph.D., Animal Breeding and Genetics

SAO PAULO STATE UNIVERSITY (UNESP)

- Dissertation: Applying machine learning for genomic analysis of reproductive traits in Nelore cattle.
- Advisor: Dr. Lucia Galvão de Albuquerque

Jaboticabal, Brazil

Mar. 2016 - Nov. 2019

M.S., Animal Science

FEDERAL UNIVERSITY OF CEARA (UFC)

- Thesis: Quantitative genetic study of Santa Inês breed sheep performance in agricultural exhibitions. [In Portuguese].
- Advisor: Dr. Raimundo Lobo

Fortaleza, Brazil

Feb. 2014 - Dec. 2015

B.S., Animal Science

STATE UNIVERSITY VALE DO ACARAU

Sobral, Brazil

Aug. 2009 - Dec. 2013

PROFESSIONAL EXPERIENCE

Assistant Professor (Precision Livestock Science)

DEPARTMENT OF ANIMAL AND DAIRY SCIENCE, UNIVERSITY OF GEORGIA-ATHENS

- FTE: 70% Research & 30% Teaching

Athens, GA, USA

Jan 2024 - Present

Postdoctoral Research Associate

DEPARTMENT OF ANIMAL AND DAIRY SCIENCES, UNIVERSITY OF WISCONSIN-MADISON

- Main Responsibilities: Investigating the genetic and genomic basis of novel feed efficiency and feeding behavior traits in commercial broilers. Development and application of efficient statistical learning methods for data-driven supported decisions such as the classification of mortality in broilers and genome-assisted prediction of complex traits.
- Additional responsibilities: Linux server manager, monthly meetings with industry partners, writing manuscripts, R developer, assisting graduate student academic activities and research, and presenting seminars and lectures.

Madison, WI, USA

Mar 2021 - Dec 2021

Lecturer of Basic, Technical, and Technological Education

FEDERAL INSTITUTE OF EDUCATION, SCIENCE, AND TECHNOLOGY OF MARANHÃO.

- Teaching experience –Teaching at the undergraduate level in the following courses: Animal Breeding I, Basic Statistics (B.S. Animal Science), Genetics (B.S. Biology), and Experimental Statistics (B.S. Agronomy).
- Additional activities: mentoring B.S. research projects, administrative duties, member of the inclusion committee for people with disabilities

S.R. Mangabeiras, MA, Brazil

Dec 2018 - Feb 2018

Graduate Research Assistant

SAO PAULO STATE UNIVERSITY (UNESP)

- Research Activities - Development and application of statistical methods for genomic-based analysis in beef cattle. Meat quality data collecting in Beef cattle.
- Teaching experience - Teaching assistant (B.S. Biology, course: Biostatistics).

Jaboticabal, SP, Brazil

Mar 2016 - Dec 2017

PUBLICATIONS

PEER-REVIEWED PAPERS

First author: 7 , Co-author: 5 , Corresponding author: 0 , Total: 12

1. Alves, A. A. C., Fernandes, A. F. A., Lopes, F. B., Breen, V., Hawken, R., Gianola, D., & Rosa, G. J. M. (2023). (Quasi) multitask support vector regression with heuristic hyperparameter optimization for whole-genome prediction of complex traits: a case study with carcass traits in broilers. *G3 Genes|Genomes|Genetics*, 13(8), jkad109. <https://doi.org/10.1093/g3journal1/jkad109>

2. Freitas, L. A., Savegnago, R. P., Alves, A. A. C., Costa, R. L. D., Munari, D. P., Stafuzza, N. B., Rosa, G. J. M., & Paz, C. C. P. (2023). Classification performance of machine learning methods for identifying resistance, resilience, and susceptibility to *haemonchus contortus* infections in sheep. *Animals*, 13(3). <https://doi.org/10.3390/ani13030374>
3. Pinto, D. L., Selli, A., Tulpan, D., Andrietta, L. T., Garbossa, P. L. M., Voort, G. V., Munro, J., McMorris, M., Alves, A. A. C., Carvalho, R., Poleti, M. D., Carvalho Balieiro, J. C. de, & Ventura, R. V. (2023). Image feature extraction via local binary patterns for marbling score classification in beef cattle using tree-based algorithms. *Livestock Science*, 267, 105152. <https://doi.org/https://doi.org/10.1016/j.livsci.2022.105152>
4. Alves, A. A. C., Costa, R. M. da, Fonseca, L. F. S., Carvalho, R., Ventura, R. V., Rosa, G. J. de M., & Albuquerque, L. G. (2022). A random forest-based genome-wide scan reveals fertility-related candidate genes and potential inter-chromosomal epistatic regions associated with age at first calving in nellore cattle. *Frontiers in Genetics*, 13, 834724. <https://doi.org/10.3389/fgene.2022.834724>
5. Bresolin, T., Passafaro, T. L., Braz, C. U., Alves, A. A. C., Carvalho, R., Chardulo, L. A. L., de Magalhães Rosa, G. J., & de Albuquerque, L. G. (2022). Investigating potential causal relationships among carcass and meat quality traits using structural equation model in nellore cattle. *Meat Science*, 187, 108771. <https://doi.org/https://doi.org/10.1016/j.meatsci.2022.108771>
6. Alves, A. A. C., Andrietta, L. T., Lopes, R. Z., Bussiman, F. O., Silva, F. F. e, Carvalho, R., Brito, L. F., Balieiro, J. C. de C., Albuquerque, L. G., & Ventura, R. V. (2021). Integrating audio signal processing and deep learning algorithms for gait pattern classification in brazilian gaited horses. *Frontiers in Animal Science*, 2. <https://doi.org/10.3389/fanim.2021.681557>
7. Alves, A. A. C., Espigolan, R., Bresolin, T., Costa, R. M., Fernandes Júnior, G. A., Ventura, R. V., Carvalho, R., & Albuquerque, L. G. (2021). Genome-enabled prediction of reproductive traits in nellore cattle using parametric models and machine learning methods. *Animal Genetics*, 52(1), 32–46. <https://doi.org/https://doi.org/10.1111/age.13021>
8. Alves, A. A. C., Costa, R. M. da, Bresolin, T., Fernandes Júnior, G. A., Espigolan, R., Ribeiro, A. M. F., Carvalho, R., & Albuquerque, L. G. de. (2020). Genome-wide prediction for complex traits under the presence of dominance effects in simulated populations using GBLUP and machine learning methods. *Journal of Animal Science*, 98(6), skaa179. <https://doi.org/10.1093/jas/skaa179>
9. Cardoso, D. F., Fernandes Júnior, G. A., Scaletz, D. C. B., Alves, A. A. C., Magalhães, A. F. B., Bresolin, T., Ventura, R. V., Li, C., Sena Oliveira, M. C. de, Porto-Neto, L. R., Carvalho, R., Oliveira, H. N. de, Tonhati, H., & Albuquerque, L. G. (2020). Uncovering sub-structure and genomic profiles in across-countries subpopulations of angus cattle. *Scientific Reports*, 10(1), 8770. <https://doi.org/10.1038/s41598-020-65565-1>
10. Alves, A. A. C., Chaparro Pinzon, A., Costa, R. M. da, Silva, M. S. da, Vieira, E. H. M., Mendonça, I. B. de, Sena Sales Viana, V. de, & Lôbo, R. N. B. (2019). Multiple regression and machine learning based methods for carcass traits and saleable meat cuts prediction using non-invasive in vivo measurements in commercial lambs. *Small Ruminant Research*, 171, 49–56. <https://doi.org/https://doi.org/10.1016/j.smallrumres.2018.12.008>
11. Lôbo, A. M. B. O., Lôbo, R. N. B., Facó, O., Souza, V., Alves, A. A. C., Costa, A. C., & Albuquerque, M. A. M. (2017). Characterization of milk production and composition of four exotic goat breeds in brazil. *Small Ruminant Research*, 153, 9–16. <https://doi.org/https://doi.org/10.1016/j.smallrumres.2017.05.005>
12. Alves, A. A. C., Lôbo, A. M. B. O., Facó, O., Silva, L. P. da, & Lôbo, R. N. B. (2016). Genetic parameters for rank of the santa inês sheep in agricultural fairs using bayesian procedures. *Italian Journal of Animal Science*, 15(4), 604–609. <https://doi.org/10.1080/1828051X.2016.1248866>

FORTHCOMING PUBLICATIONS

1. Freitas, L. A., Savegnago, R. P., Alves, A. A. C., Stafuzza, N. B., Pedrosa, V. B., Rocha, R. A., Rosa, G. J. de M., & Paz, C. C. P. (2023). Genome-enabled prediction of indicator traits of resistance to gastrointestinal nematodes in sheep using parametric models and artificial neural networks. *Preventive Veterinary Medicine*.
2. Alves, A. A. C., Fernandes, A. F. B., Breen, V., Hawken, R., & Rosa, G. J. de M. (2023). Monitoring mortality and welfare-culling in group-housed broilers using machine learning algorithms trained with feeding behavior time-series data. *Computers and Electronics in Agriculture*.
3. Alves, A. A. C., Fernandes, A. F. B., Lopes, F. B., Breen, V., Hawken, R., & Rosa, G. J. de M. (2023). Genetic parameters of feed efficiency and novel feeding behavior traits measured in group-housed broilers using a real-time radio-frequency feeding system. *Poultry Science*.

BOOK CHAPTER

First author: 0 , Co-author: 1 , Corresponding author: 0 , Total: 1

1. Lôbo, A. M. B. O., Lôbo, R. N. B., Alves, A. A. C., & Facó, O. (2019). Genetic improvement of goats. In A. B. Selaive-Villarreal & V. P. Guimarães (Eds.), *Goat production in brazil* (1st ed., pp. 279–304).

PAPERS PUBLISHED IN PROCEEDINGS

First author: 1 , Co-author: 1 , Corresponding author: 0 , Total: 2

1. Alves, A. A. C., Fernandes, A. F. B., Breen, V., Hawken, R., & Rosa, G. J. de M. (2022). Quasi multi-task support vector regression for whole-genome prediction of carcass traits in commercial broilers. *Proceedings of the 12th World Congress on Genetics Applied to Livestock Production*.
2. Bresolin, T., Passafaro, T. L., Lopes, F. B., Alves, A. A. C., Chardulo, L. A. L., Carneiro, R., & Albuquerque, L. G. (2018). Causal relationship among growth, carcass, and meat traits using structural equation model in nelore cattle. *Proceedings of the 11th World Congress on Genetics Applied to Livestock Production*.

CONFERENCE ABSTRACTS

First author: 2 , Co-author: 7 , Corresponding author: 1 , Total: 10

1. Alves, A. A. C., Fernandes, A. F. B., Lopes, F. B., Breen, V., Hawken, R., & Rosa, G. J. de M. (2022). Prediction of culling and mortality risks in group-housed broilers using machine learning methods trained with time-series data of feeding behavior traits. *Journal of Animal Science*, 100(Supplement_3), 2. <https://doi.org/10.1093/jas/skac247.002>
2. Alves, A. A. C., Fernandes, A. F. B., Lopes, F. B., Breen, V., Hawken, R., & Rosa, G. J. de M. (2022). Genetic associations between feeding behavior and economic interest traits in group-housed broilers. *Journal of Animal Science*, 100(Supplement_3), 9–10. <https://doi.org/10.1093/jas/skac247.016>
3. Santana, T. E. Z., Veroneze, R., Alves, A. A. C., Menezes, G. R. O., & Rosa, G. J. de M. (2022). Gaussian kernel based on geographic information to model farm effects in genetic evaluation of pasture-raised beef cattle. *Journal of Animal Science*, 100(Supplement_3), 209. <https://doi.org/10.1093/jas/skac247.380>
4. Freitas, L., Savegnago, R., Alves, A. A. C., Costa, R., Rosa, G. J. de M., & Paz, C. (2022). Classification performance of multinomial logistic regression for identifying resistance, resilience, and susceptibility to gastrointestinal nematode infections in sheep. *Journal of Animal Science*, 100(Supplement_3), 220. <https://doi.org/10.1093/jas/skac247.400>
5. Ventura, R. V., Lopes, R. Z., Andrietta, L. T., Bussiman, F., Balieiro, J., Carneiro, R., Silva, F. F., Brito, L., & Alves, A. A. C. (2020). Audio information retrieval for describing gait patterns in brazilian horses. *Journal of Animal Science*, 98(Supplement_4), 27. <https://doi.org/10.1093/jas/skaa278.048>
6. Costa, R. M., Alves, A. A. C., Chud, T. C. S., Bernardes, P. A., Baldi, F., Lôbo, R. B., & Munari, D. P. (2020). Influence of the genomic information inclusion on the breeding values accuracy in nelore sires.
7. Costa, R. M., Alves, A. A. C., Watanabe, R. N., Sbardella, A. P., Chud, T. C. S., Lôbo, R. B., & Munari, D. P. (2020). Genetic parameters estimate for daily weight gain and carcass traits in nelore cattle with and without including genomic information.
8. Pinzon, A. C., Magalhães, A. F. B., Braz, C. U., Bresolin, T., Espigolan, R., Alves, A. A. C., Fernandes Júnior, G. A., Carneiro, R., & Albuquerque, L. G. (2017). Genomic selection for age at first calving in nelore cattle using haplotypes and SNPs.
9. Costa, R. M., Carvajal, A. B., Sbardella, A. P., Watanabe, R. N., Alves, A. A. C., Baldi, F., Lôbo, R. B., & Munari, D. P. (2017). Genetic parameter estimates for weight gain and age at first calving in nelore cattle.
10. Sousa, D. R., Alves, A. A. C., Pinzon, A. C., Mota, L. F. M., Costa, R. M., Silva, M. S., & Lobo, R. N. B. (2017). Relationships among carcass, non-carcass traits and commercial meat cuts in undefined breed sheep through principal component analysis.

TEACHING

Digital Technologies for Animal Monitoring

UNIVERSITY OF WISCONSIN-MADISON

- Graduate Level

Role: Invited Lecturer

Semester: 2023.1

Statistical Genetics (SISG) Module 9: Quantitative Genetics

UNIVERSITY OF WASHINGTON (UW SUMMER INSTITUTES)

- Graduate Level

Role: Teaching Assistant

Semester: 2022.2

Statistical Genetics (SISG) Module 12: Mixed Model in Quantitative Genetics

UNIVERSITY OF WASHINGTON (UW SUMMER INSTITUTES)

- Graduate Level

Role: Teaching Assistant

Semester: 2022.2

ANSCI 610 Quantitative Genetics

UNIVERSITY OF WISCONSIN-MADISON

- Graduate Level

Role: Teaching Assistant

Semester: 2021.3, 2023.3

Experimental Statistics

FEDERAL INSTITUTE OF EDUCATION, SCIENCE, AND TECHNOLOGY OF MARANHÃO (IFMA)

- Undergraduate Level

Role: Instructor

Semester: 2019.1, 2020.1

Statistics

FEDERAL INSTITUTE OF EDUCATION, SCIENCE, AND TECHNOLOGY OF MARANHÃO (IFMA)

- Undergraduate Level

Role: Instructor

Semester: 2019.2

Genetics

FEDERAL INSTITUTE OF EDUCATION, SCIENCE, AND TECHNOLOGY OF MARANHÃO (IFMA)

- Undergraduate Level

Role: Instructor

Semester: 2018.2, 2020.1

Animal Breeding I

FEDERAL INSTITUTE OF EDUCATION, SCIENCE, AND TECHNOLOGY OF MARANHÃO (IFMA)

- Undergraduate Level

Role: Instructor

Semester: 2018.1

Biostatistics

SAO PAULO STATE UNIVERSITY (UNESP)

- Undergraduate Level

Role: Teaching Assistant

Semester: 2017.1

INVITED PRESENTATIONS

Harnessing High-Throughput Phenotyping Technologies to Advance Livestock Production Systems

PURDUE UNIVERSITY (WEBINAR SERIES)

Online

September 28th, 2023

Leveraging Artificial Intelligence Techniques and Sensor Technologies to Enhance Animal Production Systems

UNIVERSITY OF GEORGIA (DEPARTMENT OF ANIMAL AND DAIRY SCIENCE)

Athens, GA, USA

May 12th, 2023

Leveraging Artificial Intelligence Techniques and Sensor Technologies to Enhance Animal Production Systems

MCGILL UNIVERSITY (DEPARTMENT OF ANIMAL SCIENCES)

Montreal, QC, Canada

May 23th, 2023

Harnessing Artificial Intelligence Techniques to Enhance Animal Production Systems

PENNSYLVANIA STATE UNIVERSITY

State College, PA, USA

July 11th, 2023

Statistical pitfalls and their implications for the research reproducibility in animal sciences

POULTRY SCIENCE ANNUAL MEETING

San Antonio, TX, USA

July 13th, 2022

Genome-enabled analysis of complex traits with machine learning methods

CGIL SEMINAR W2022, UNIVERSITY OF GUELPH

Online

April 1st, 2022

Feed Efficiency and Novel Feeding Behavior Traits in Broilers

COBB WEBINAR SERIES

Online

January 19th, 2022

Machine learning in the animal production: concepts, challenges, and perspectives [In Portuguese]

SEMANA NACIONAL DE CIÊNCIA E TECNOLOGIA (SNCT)

Online

November 12th 2020

CONFERENCE PRESENTATIONS
