Sabrina T. Amorim **September 2024**

CONTACT INFORMATION

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Oklahoma State University
Stillwater, Oklahoma 74074 USA

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RESEARCH INTERESTS

I'm an Animal Scientist with an MSc in Genetics and Animal Breeding and a Ph.D. in Animal Sciences (Quantitative Genetics). My research interests include quantitative genetics and precision livestock farming technologies for high-throughput phenotyping. My overarching research interest is understanding the genotype-phenotype map in livestock species using bioinformatics and statistical genetics. I'm interested in better understanding the genetic architecture of economically important traits and applying and developing statistical methods for prediction in the multi-omics era.

EDUCATION

Virginia Tech, Blacksburg, Virginia USA

Ph.D., Animal Sciences, August 2024

- Dissertation: "Genetic Heterogeneity of Residual Variance for Production and Functional Traits in American Angus Cattle."
- Advisor: Prof. Dr. Gota Morota
- Committee: Drs. James Chen, Jason Holliday, Johan Osorio

Universidade Estadual Paulista, Jaboticabal, São Paulo Brazil

M.S., Animal Breeding and Genetics, October 2020

- Thesis: "Epistatic interactions associated with fatty acid profile of beef from Nellore cattle."
- Advisor: Prof. Dr. Fernando Sebástian Baldi Rey
- Committee: Drs. Danísio Prado Munari, Henrique Nunes de Oliveira and Júlio César de Carvalho Balieiro

Universidade Federal de Santa Catarina, Florianópolis, Santa Catarina Brazil

B.S., Animal Sciences, December 2017

- Thesis: "Application of PCR-RFLP in the Exon 6 region of the IGF-I gene in Crioula Lageana breed animals."
- Advisor: Prof. Dr. André Luís Ferreira Lima

PROFESSIONAL POSITIONS

Department of Animal and Food Sciences
Oklahoma State University, Stillwater, Oklahoma USA

Assistant Professor of Quantitative Genetics and Genomics **08/2024 - Present**
Principal Investigator
FTE: 70% Research & 30% Teaching

Visiting & Temporary Positions

Laboratory of Quantitative Genetics (Morota Lab)
Department of Animal and Poultry Sciences
Virginia Tech, Blacksburg, Virginia, USA
Masters FAPESP fellowship (BEPE-MS) **05/2019 - 11/2019**
Host: Dr. Gota Morota

Work Experience

Department of Animal Sciences
Virginia Tech, Blacksburg, Virginia USA
Graduate Research Assistant **08/2021 - 08/2024**

Beef Product Development Group
Genus - ABS Global, Deforest, Wisconsin USA
Beef Genetic Data Analyst (student internship) **05/2023 - 08/2023**

College of Agriculture and Life Sciences
Virginia Tech, Blacksburg, Virginia USA
Graduate Teaching Scholar **08/2022 - 08/2024**

Departamento de Aquicultura
Universidade Federal de Santa Catarina, Florianópolis, Santa Catarina Brazil
Administrative Assitant (student intern) **09/2017 - 12/2017**

Departamento de Zootecnia e Desenvolvimento Rural
Universidade Federal de Santa Catarina, Florianópolis, Santa Catarina Brazil
Undergraduate Research Intern **01/2016 - 07/2017**

Khan Academy Brazil Project
Bonita Produções, São Paulo, São Paulo Brazil
Translator, Instructor and Producer **02/2014 - 02/2018**

Professional society memberships

- American Society of Animal Science. 2024 - Present

Awards and Recognition

2024

- Graduate Student Teaching Award. NACTA, USA.
- CAIA Big Event Poster Award (Graduate Student Competition) ($250). Virginia Tech, USA.
- CAIA Graduate Travel Award ($1,000). CAIA, Virginia Tech, USA.

2023

- Dwight Williams Scholarship Award ($1,000). Genus/ABS, USA.
- Reviewer Recognition. Journal of Animal Science, USA.

2022

- Modern Programming in Genome to Phenome Course Scholarship ($1,500). University of California (Davis), USA.

2018

- Young Scientist Registration Scholarship ($1,200). World Congress on Genetics Applied to Livestock Production, Auckland, New Zealand.

Editorial Activities

Ad Hoc Reviewer

- Number of manuscripts reviewed per journal (revised versions are not counted): Archives Animal Breeding (1), BMC Genomics (1), Journal of Animal Science (3), Mammalian Genome (1).
- Number of manuscripts reviewed per year (revised versions are not counted): 2024 (1), 2023 (3), 2022 (2).

Publications

	First/Corresponding author	Co-Author	Total
Peer-reviewed research journal articles	4	13	17
Peer-reviewed conference proceedings	1	1	2
Outreach publications	0	0	0
Total	4	23	30

Table 1: Summary of my publications

Peer-reviewed research journal articles

2024

17. Cardona-Cifuentes D, Neira JDR, Albuquerque LG, Espigolan R, Gonzalez-Herrera LG, **Amorim ST**, Lopez-Correa RD, Aguilar I, Baldi F. Influence of variance component estimates on genomic predictions for growth and reproductive-related traits in Nellore cattle. Journal of Animal Breeding and Genetics, 2024. In Press.

16. Temp LB, Brunes LC, Pereira LS, **Amorim ST**, Magnabosco CU, Lobo RB, Brito OC, Viacava R, Baldi F. Effect of genetic and sex effect on genomic prediction for horn development in Nellore cattle. Livestock Science, 2024. DOI.

15. Soares BB, Brunes LC, Baldi FS, Carmo AS, Pereira LS, Carvalho RA, Narciso MG, **Amorim ST**, Sainz RD, Magnabosco CU. Genetic parameters for visual scores, growth and carcass traits in Nellore Cattle. Anais da Academia Brasileira de Ciências, 2024. DOI.

14. Negreiros MP, **Amorim ST**, Lôbo RB, Brunes LC, Magnabosco CU, Bergmann JAG, Espigolan R, Pereira ASC, Baldi F. Genetic correlation estimates between calving ease in primiparous cows and economically important traits in Nellore Cattle. Journal of Animal Breeding and Genetics, 2024. DOI.

2023

13. Silva Neto JB, Mota LFM, **Amorim ST**, Peripolli E, Brito LF, Magnabosco CU, Baldi F. Genotype-by-environment interactions for feed efficiency traits in Nellore cattle based on bi-trait reaction norm models. Genetics Selection Evolution, 2023. DOI.

2022

12. Kadlec R, Indest S, Castro K, Waqar S, Campos LM, **Amorim ST**, Bi Y, Haningan MD, Morota G. Automated acquisition of top-view dairy cow depth image data using an RGB-D sensor camera. Translational Animal Science, 2022. DOI.

11. **Amorim ST**, Tsuyuzaki K, Nikaido I, Morota G. Improved MeSH analysis software tools for farm animals. Animal Genetics, 2022. DOI.

2021

10. Tonussi RL, Londoño-Gil M, De Oliveira Silva RM, Magalhães AFB, **Amorim ST**, Kluska S, Espigolan R, Peripolli E, Pereira ASC, Lôbo RB, Aguilar I, Lourenço DAL, Baldi F. Accuracy of genomic breeding values and predictive ability for postweaning liveweight and age at first calving in a Nellore cattle population with missing sire information. Tropical Animal Health and Production, 2021. DOI.

9. **Amorim ST**, Stafuzza NB, Kluska S, Peripolli E, Pereira ASC, Muller LF, De Albuquerque LG, Baldi F. Genome-wide interaction study reveals epistatic interactions for beef lipid-related traits in Nellore cattle. Animal Genetics, 2021. DOI.

8. Berton MP, Lemos M, Chud T, Stafuzza NB, Kluska S, **Amorim ST**, Lopes LSF, Pereira ASC, Bickhart D, Liu G, Albuquerque LG, Baldi F. Genome-wide association study between copy number variation regions and carcass and meat quality traits in Nellore cattle. Animal Production Science, 2021. DOI.

7. Feitosa FLB, Pereira ASC, Mueller L, Fonseca P, Braz C, **Amorim ST**, Espigolan R, Lemos MVA, Albuquerque LG, Schenkel F, Brito L, Stafuzza NB, Baldi F. Genome-wide association study for beef fatty acid profile using haplotypes in Nellore cattle. Livestock Science, 2021. DOI.

2020

6. **Amorim ST**, Yu H, Momen M, Albuquerque LG, Pereira ASC, Baldi F, Morota G. An assessment of genomic connectedness measures in Nellore cattle. Journal of Animal Science, 2020. DOI.

2019

5. Feitosa FLB, Pereira ASC, **Amorim ST**, Peripolli E, Silva RMO, Braz CU, Ferrinho AM, Schenkel FS, Brito LF, Espigolan R, De Albuquerque LG, Baldi F. Comparison between haplotype-based and individual SNP-based genomic predictions for beef fatty acid profile in Nellore cattle. Journal of Animal Breeding and Genetics, 2019. DOI.

4. Peripolli E, Stafuzza NB, **Amorim ST**, Lemos MVA, Grigoletto L, Kluska S, Ferraz JBS, Eler JP, Mattos EC, Baldi F. Genome-wide scan for runs of homozygosity in composite Montana Tropical® beef cattle. Journal of Animal Breeding and Genetics, 2019. DOI.

3. Stivanin T, Maia FMC, Migliorini E, Kluska S, **Amorim ST**, Lovatto FS, Martins EN. Evaluation of selection criteria in laying quails (Coturnix coturnix japonica). Livestock Research for Rural Development, 2019. DOI.

2018

2. Bonamy M, Kluska S, Peripolli E, Lemos MVA, **Amorim ST**, Vaca RJ, Lobo RB, Castro LM, Faria CU, Ferrari FB, Baldi F. Genetic association between different criteria to define sexual precocious heifers with growth, carcass, reproductive, and feed efficiency indicator traits in Nellore cattle using genomic information. Journal of Animal Breeding and Genetics, 2018. DOI.

1. **Amorim ST**, Kluska S, Berton MP, Lemos MVA, Peripolli E, Stafuzza NB, Martin JF, Alvarez MS, Gavina BV, Toro MA, Banchero G, Oliveira PS, Grigoletto L, Eler JP, Baldi F, Ferraz JBS. Genomic study for maternal related traits in Santa Inês sheep breed. Livestock Science, 2018. DOI.

Peer-reviewed conference proceedings

2018

2. **Amorim ST**, Eler JP, Grigoleto L, Lemos MVA, Baldi F, Ferraz JBS. Genome Wide Association Study (GWAS) for body weight traits in Santa Ines Sheep breed. In: World Congress On Genetics Applied To Livestock Production, 2018, Auckland. Proceedings Of The World Congress On Genetics Applied To Livestock Production, Volume Genetic Gain - In Challenging Environments, 2018. V. 11. P. 708-708.

1. Berton M, **Amorim ST**, Kluska S, Lemos MVA, Olivieri B, Tonussi R, Peripolli E, Eler JP, Baldi F, Ferraz JBS. Genetic Parameters and Genome Wide Association Study (GWAS) for maternal related traits in Santa Ines Sheep breed. In: World Congress On Genetics Applied To Livestock Production, 2018, Auckland. Proceedings Of The World Congress On Genetics Applied To Livestock Production, Volume Electronic Poster Session - Species - Ovine, 2018. V. 11. P. 826-826.

Invited Presentations

3 domestic and 4 international

2022

7. Implementation of Medical Subject Headings (MeSH) analysis in farm animals. Animal Sciences Seminar. Blacksburg, VA, USA.

6. Collaborative Innovation in Agriculture. CAIA Big Event. Blacksburg, VA, USA.

2020

5. The Faces of Animal Sciences. I SEMAZOOT Online. Florianópolis, Santa Catarina,Brazil.

2019

4. Genomic connectedness in Nellore beef cattle. NCERA-225 Meeting for Implementation and Strategies for National Beef Cattle Genetic Evaluation. Blacksburg, VA, USA.

2018

3. Genome Wide Association Study (GWAS) For Body Weight Traits In Santa Ines Sheep Breed. World Congress on Genetics Applied to Livestock Production. Auckland, New Zealand.

2. Efficiency in feed conversion in pigs: Association of favorable alleles with nutritional modeling. Scientific Initiation Seminar. Florianópolis, Brazil.

1. Genetic Monomorphism Of Insulin-Like Growth Hormone On Crioulo Lageano Cattle (Bos taurus). Scientific Initiation Seminar. Florianópolis, Brazil.

Teaching

Virginia Polytechnic Institute and State University, Blacksburg, Virginia, USA

Primary Instructor

- ALS 3104 Animal Breeding and Genetics [WWW] **Spring, 2024**
  118 participants

Teaching Assistant

- ALS 3104 Animal Breeding and Genetics [WWW] **Spring, 2023**
  115 participants

Teaching Assistant

- ALS 3104 Animal Breeding and Genetics [WWW] **Spring, 2022**
  91 participants

Faculdades Associadas de Uberaba - FAZU, Uberaba, Minas Gerais, Brazil

Lead Instructor

- Genetic Improvement of Beef Cattle Program - Selection, Mating and Crossbreeding Systems [WWW] **Fall, 2022**
  30 participants

- Genetic Improvement of Beef Cattle Program - Selection, Mating and Crossbreeding Systems [WWW] **Summer, 2022**
  33 participants

- Genetic Improvement of Beef Cattle Program - Selection, Mating and Crossbreeding Systems [WWW] **Summer, 2021**
  25 participants

- Genetic Improvement of Beef Cattle Program - Molecular Markers [WWW] **Spring, 2021**
  30 participants

- Genetic Improvement of Beef Cattle Program - Selection, Mating and Crossbreeding Systems [WWW] **Fall, 2020**
  30 participants

Universidade Estadual Paulista, Jaboticabal, São Paulo, Brazil

Teaching Assistant

- Animal Breeding and Genetics [WWW] **Fall, 2018**
  100 participants

- Animal Breeding and Genetics {WWW} **Spring, 2018**
  108 participants

Universidade Federal de Santa Catarina, Florianópolis, Santa Catarina, Brazil

Undergraduate Teaching Assistant

- Genetics for Animal Sciences [WWW] **Spring, 2015**
  30 participants
- Genetics for Animal Sciences [WWW] **Fall, 2015**
  33 participants
- Genetics for Animal Sciences [WWW] **Spring, 2016**
  35 participants
- Genetics for Animal Sciences [WWW] **Fall, 2016**
  30 participants

Khan Academy Brazil Project, São Paulo, São Paulo, Brazil

Instructor

- Chemistry [WWW] **2015-2018**
  Online Content
- Biology [WWW] **2015-2018**
  Online Content
- Physics [WWW] **2015-2018**
  Online Content
- Calculus [WWW] **2015-2018**
  Online Content

Guest Instructor

- **Virginia Polytechnic Institute and State University**, Blacksburg, Virginia, USA

  DASC4475/4476 - Dairy Enterprise Management. **Spring, 2022**
  Principles of Genomic Evaluation

Research Support

External Funding

- São Paulo Research Foundation (FAPESP) - $11,357.00 São Paulo Research Foundation
  PI: Fernando Baldi **May, 2019 - November, 2019**
  Proposal: An assessment of the relationship between Genomic Connectedness and Prediction Accuracy for fat composition traits in Nellore beef cattle
  Role: Co-Principal Investigator

- São Paulo Research Foundation (FAPESP) - $6,774.00 São Paulo Research Foundation
  PI: Fernando Baldi **January, 2019 - October, 2020**
  Proposal: Epistatic interactions associated with fatty acid profile of beef from Nellore cattle
  Role: Co-Principal Investigator

Thesis Committees

Professional Specialization Thesis Committees

2. Débora Cristina de Oliveira Martins 2021
   Genetic Improvement of Beef Cattle Program - Faculdades Associadas de Uberaba
   Major advisor: Thiago Braga

1. Jéssica Huescar dos Santos 2021
   Genetic Improvement of Beef Cattle Program - Faculdades Associadas de Uberaba
   Major advisor: Camila Raymundo

Service Activities

Departmental

- Research Committee
  Department of Animal and Food Sciences
  Oklahoma State University **2024-Present**

Research Area

- Genetics Seminar Co-Instructor
  Department of Animal and Food Sciences, Oklahoma State University **Fall 2024**

Software tools

Image/Video analysis

- Automated depth data collection - https://github.com/codeandstuf/CattleDepthCollection

Bioconductor packages

- meshr

Github

- https://github.com/sabrinaam

Participation in meetings, symposiums, and workshops

2024

- Advances in Genome Biology and Technology (AGBT). Phoenix, AZ, USA, 2024.

- CAIA Big Event. Blacksburg, VA, USA, 2024.
- Conference on Higher Education Pedagogy. Blacksburg, VA, USA, 2024.

2023
- Virginia Tech CALS Career Fair (Representing Genus/ABS Global). Blacksburg, VA, USA, 2023.
- Wisconsin State FFA Convention. Madison, WI, USA, 2023.
- Industrial and Systems Engineering Symposium. Blacksburg, VA, USA, 2023
- Conference on Higher Education Pedagogy. Blacksburg, VA, USA, 2023.

2022
- Industrial and Systems Engineering Symposium. Blacksburg, VA, USA, 2022.
- CAIA/CCI SWVA Agricultural Cyber Field Day. Virginia Tech, Blacksburg, VA, USA. April 28, 2022.
- CAIA Big Event. Blacksburg, VA, USA, 2022.

2021
- Empowering Farmers with Affordable Digital Agricultural Solutions. Blacksburg, VA, USA, 2021.

2020
- I Virtual Meeting on Innovations in Animal Production. Online Meeting. 2020.
- II Symposium on Conservation and Sustainable Management of Domestic Breeds in Danger. Online Meeting. 2020
- I COICTA - International Online Congress of Food Science and Technology - Food Security: Strategies in the Pandemic Period. Online Meeting. 2020

2019
- NCERA-225 Meeting. Implementation and Strategies for National Beef Cattle Genetic Evaluation. Christiansburg, VA, USA. 2019.

2018
- World Congress on Genetics Applied to Livestock Production. Auckland, New Zealand. 2018.

2017
- 54th Annual Meeting of the Brazilian Society of Animal Science. Foz do Iguaçu, Brazil. 2017.
- Meat Inspection and Quality. Florianópolis, Brazil. 2017.
- Workshop: Quality Brands in Meats - Red Cyted Marcarne. Foz do Iguaçu, Brazil. 2017.

2016
- XXVI Brazilian Congress of Animal Science. Santa Maria, Brazil. 2016.

Additional training

2023
- Engaging All Learners with Formative Assessment Tools, Virginia Tech.

2022
- Modern Programming in Genome to Phenome, University of California-Davis. Taught by Drs. Hao Cheng, Rohan Fernando and James Chen.
- Programming and computer algorithms in animal breeding with a focus on single-step GBLUP and genomic selection in practice, University of Georgia. Taught by Dr. Ignacy Misztal, Daniela Lourenco, Andres Legarra and Zulma Vitezica.

2021
- Basic Responsible Conduct of Research Course, CITI Program.
- Understanding and Visualizing Data with Python, University of Michigan.
- Python for Everybody Specialization, University of Michigan.
- Research Methods: Introductory Concepts, Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. Credit Hours: 30h
- Knowledge Discovery in Databases: Fundamentals, Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. Credit Hours: 20h
- Agriculture and Sustainable Rural Development, Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. Credit Hours: 40h

2020
- Python for Genomic Data Science, Johns Hopkins University.
- Introduction to Genomic Technologies, Johns Hopkins University.
- Extension in Biology, Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. Credit Hours: 40h
- Extension in Statistics: Concepts and Representations, Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. Credit Hours: 20h
- Extension in Statistics: Measures of Position and Dispersion, Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. Credit Hours: 20h
- Extension in Databases: Fundamentals, Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. Credit Hours: 20h
- Extension in Environmental Education, Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. Credit Hours: 40h
- Extension in Hygiene and Food Quality Control, Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. Credit Hours: 50h

2019

- GWAS Workshop, Virginia Polytechnic Institute and State University. Credit Hours: 30h
- Special Topics in Bioinformatics: Genome Alignment, Universidade Estadual Paulista. Credit Hours: 30h

2018

- Special Topics in Genome Sequencing for Genomic Studies, Universidade Estadual Paulista. Credit Hours: 20h

2017

- Management and Use of Poultry and Mammals in Research, Universidade Federal de Santa Catarina. Credit Hours: 17h

Miscellaneous

- Languages: English and Portuguese
- Computer skills
  - Statistical/Numerical computational tools: R and Octave
  - Computer vision and image processing: Python and R
  - Content-description languages: LaTeX, and Markdown
  - Operating systems: Linux, Windows, and Mac OS X
- Courses taken for credits at Virginia Tech
  - Spring 2024
    - ALCE 6426: University Teaching Development (Tracy Rutherford)
  - Fall 2023
    - ALCE 6425: University Teaching Development (Tracy Rutherford)
  - Spring 2023
    - ALCE 6416: Intro to Graduate Teaching Scholar (Tracy Rutherford)
    - GRAD 5212: Diversity for a Global Society (Shernita Lee)
  - Fall 2022
    - ALCE 6415: Intro to Graduate Teaching Scholar (Tracy Rutherford)
    - APSC 5014: Professional Development for Graduate Students (Jim Knight)
    - ECE 5554: Computer Vision (Lynn Abbott)
  - Spring 2022
    - FREC 5164: Population Genomics (Jason Holliday)
    - STAT 5616: Statistics in Research (Anne Ryan Driscoll)
  - Fall 2021
    - ALS 5224: Intro to Genomic Data Science (Song Li)
    - STAT 5615: Statistics in Research (Anne Ryan Driscoll)
    - GRAD 5004: GTA Training

- Courses taken for credits at Universidade Estadual Paulista (UNESP)
  - Fall 2018
    - Introduction to Bayesian Inference applied to Animal Breeding (Henrique Nunes de Oliveira)
    - Statistical Modelling in Genetics and Animal Breeding (Guilherme J. Rosa)
    - Principles of Association and Genomic Selection applied to Animal Breeding (Fernando Sebástian Baldi Rey)
  - Spring 2018
    - Quantitative Genetics I (Danísio Prado Munari)
    - Meat Genetics (Luis Artur Loyola Chardulo)
    - Selection Index and Introduction to Mixed Models (Lúcia Galvão de Albuquerque)

References

1. Gota Morota, PhD.
Associate Professor of Quantitative Genetics, Virginia Tech, USA.
Email: morota@vt.edu

2. Fernando Baldi Rey, PhD.
Associate Professor of Quantitative Genetics, Universidade Estadual Paulista (UNESP), Brazil.
Email: fernandobaldiuy@gmail.com

3. Ziqing Weng, PhD.
Research Manager, Genus-ABS Global, USA.
Email: Ziqing.Weng@genusplc.com