

ALLYSSON ALLAN, PHD

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SUMMARY

- Biologist with expertise in genomics, population genetics, statistical genetics, bioarchaeology and taphonomy;
- Strong record of collaborative work, scientific writing including 10 scientific papers, and search for research funding;
- Self-motivated, problem-solving researcher, with a deep understanding of next-generation sequencing and genotype data;
- Experienced with public outreach and science communication, more than 25 talks delivered to national and international scientific audiences;
- Driven to use bioinformatics to handle and analyze human genetic data and advance genomic medicine.

TECHNICAL SKILLS

- Programming: R, Python, Bash/shell, Git, HTML5;
- Genomics: GWAS, polygenic risk score, ancestry inference, runs of homozygosity, functional annotation, demographic inference, expression analysis;
- Genomic data analysis: Biobank data (Simons, 1KGP, HGDP, UK, AbraOM), PCA, linear models, likelihood, coalescence;
- Software: Plink, MSMS, Grammarly, Google set (Docs, Spreadsheet, Presentation, Bigquery Gis, Cloud), RStudio, VSCode, bcftools, RFMix, chromopainter;
- Data Visualization: R Shiny, ggplot2, plotly, tidyverse;
- Languages: Portuguese: native; English: fluent; Spanish: advanced; Italian: basic.

RESEARCH EXPERIENCE

State University of Paraíba, Paraíba, Brazil: Senior bioinformatician (voluntary), Department of Biology (2014-)

- I am the curator of genotyped data (Northeast communities admixed individuals);
- Local ancestry of cancer-associated variants in long-lived individuals;
- Local ancestry and longevity associated genes in admixed elderly population;
- Polygenic scores and GWAS study in individuals with schizophrenia symptoms;
- Creation of biobank for genetic data of Northeast Brazilian elderly individuals;
- Demographic history of elderly individuals in Northeast Brazil.

IPREDE, Ceará, Brazil: Associate researcher (voluntary) (2019-)

- Local ancestry and whole genome data of children with autism in an admixed population.

University of São Paulo, São Paulo, Brazil: PhD student, Institute of Biosciences (2014-2018)

- Estimated the homozygosity, inferred the global and local ancestries, and estimated the mutation age of four different rare genetic diseases from Northeast Brazil, which resulted in a first-author paper (4). The cover page of "Revista Fapesp", "Jornal da USP", and "Agência Universitária de Notícias";
- Used the server of The Human Genome and Stem Cell Research Center (HUG-CELL/USP) to run parallel analyses;
- R programming and bash (Ubuntu server) for data analysis and visualization, ENSEMBL for genomic annotations, vcftools to analyze 1000 Genomes dataset, plink to merge files, parallel computing in bash;
- I wrote the book chapter "anatomically modern human origins and dispersion" in "*assim caminhou a humanidade*": the first book about human evolution in portuguese edited by Prof Walter Alves Neves;
- Collaborated on a project focused on global ancestry of patients with systemic lupus erythematosus (6) and local ancestry of xeroderma pigmentosum mutations (2), resulting in two co-authorships;
- Part of the data collected during my doctoral fieldwork was used to investigate the attitudes of elderly and teenagers about consanguineous marriage (3) and the structure of consanguineous marriage in Brazil (1), two other co-authorships.

Federal University of Pernambuco, Pernambuco, Brazil: Master's student, Department of Archaeology (2011-2013)

- Use of Fourier transform infrared spectroscopy by attenuated total reflectance (FTIR-ATR), Raman spectroscopy and scanning electron microscopy to interpret bone diagenesis in four distinct layer in a semiarid environment, which resulted in two papers (5, 8);
- R programming to handle and analyze spectroscopic data;

- Collaborated on a project of “occurrence of archaeological vestiges in dunes’ archaeological sites of Ceara state” resulting in a co-authored paper (7);

State University of Paraíba, Paraíba, Brazil: Undergraduate’s student, Department of Biology (2006-2010)

- I investigated the occurrence of Collembola fauna in archaeological sites, resulting in a new species and genera (*Tyrannoseira sex*) acknowledged in [Bellini and Zeppelini \(2011\)](#);
- The first study about bone diagenesis in Brazil (11);
- Four fieldworks in archaeological sites, one of these resulted in a paper (9);
- Public outreach resulted in a first-authored paper about the bicentenary of Charles Darwin’s birthday (10).

EDUCATION

- PhD, Biology (Genetics), University of São Paulo, Brazil, 2018
- MSc, Archaeology, Federal University of Pernambuco, Brazil, 2013
- BSc, Biological Sciences, State University of Paraíba, Brazil, 2010

GRANTS

- CAPES Doctoral Scholarship at University of Sao Paulo (2014 - 2017)
- CAPES Master’s Scholarship at Federal University of Pernambuco (2011 - 2013)
- Cnpq Scientific Initiation Scholarship at State University of Paraíba (2009 - 2010)
- Extension Scholarship at State University of Paraíba (2008 - 2009)

PUBLICATIONS

Peer-reviewed journal papers (★ most relevant)

1. OTTO, P.A. ; LEMES, R.B. ; FARIAS, A.A. ; WELLER, M. ; LIMA, S.O.A. ; ALBINO, V.A. ; ALVES, Y.K.M. ; PARDONO, E. ; BOCANGEL, M. ; SANTOS, S. The structure of first-cousin marriages in Brazil. **Scientific Reports**, 2020. (accepted).
2. CASTRO, L.P. ; SAHBATOU, M. ; KEHDY, F.S.G. ; **FARIAS, A.A.** ; YURCHENKO, A.A. ; DE SOUZA, T.A. ; ROSA, R.C.A. ; MENDES-JUNIOR, C.T. ; BORDA, V. ; MUNFORD, V. ; ZANARDO, É.A. ; CHEHIMI, S.N. ; KULIKOWSKI, L.D. ; AQUINO, M.M. ; LEAL, T.P. ; TARAZONA-SANTOS, E. ; CHAIBUB, S.C. ; GENER, B. ; CALMELS, N. ; LAUGEL, V. ; SARASIN, A. ; MENCK, C.F.M. The Iberian legacy into a young genetic xeroderma pigmentosum cluster in central Brazil. **Mutation Research - Genetic Toxicology and Environmental Mutagenesis**, v. 852, p. 503164, 2020. DOI: [10.1016/j.mrgentox.2020.503164](#)
3. LIMA, S.O.A. ; **FARIAS, A.A.** ; ALBINO, V.A. ; ALVES, Y.K.M. ; OLINDA, R. ; SANTOS-SILVA, T.A. ; ALVES, L.U. ; ZATZ, M. ; SANTOS, S. A population-based study of intergenerational attitudes towards consanguineous marriages in Northeastern Brazil. **Journal of Biosocial Science**, v. 51, p. 683-697, 2019. DOI: [10.1017/S0021932018000433](#)
4. ★ **FARIAS, A.A.** ; NUNES, K. ; LEMES, R.B. ; MOURA, R. ; FERNANDES, G.R. ; MELO, U.S. ; ZATZ, M. ; KOK, F. ; SANTOS, S. Origin and age of the causative mutations in KLC2, IMPA1, MED25 and WNT7A unravelled through Brazilian admixed populations. **Scientific Reports**, v. 8, p. 1, 2018. [10.1038/s41598-018-35022-1](#)
5. SULLASI, H.S.L. ; SANTOS, A.L.C. ; SIMOES, S.S. ; MARTIN, G. ; SILVA, S.F.S.M. ; **FARIAS, A.A.** . A note on diagenetic parameters for bone remains from Pedra do Alexandre site without sample destruction. **Fundamentos**, v. XIX, p. 74-85, 2017 (*in portuguese*).
6. BARBOSA, F.B. ; CAGNIN, N.F. ; SIMIONI, M. ; **FARIAS, A.A.** ; TORRES, F.R. ; MOLCK, M.C. ; ARAUJO, T.K. ; GIL-DA-SILVA-LOPES, V.L. ; DONADI, E.A. ; SIMÕES, A.L. Ancestry Informative Marker Panel to Estimate Population Stratification Using Genome-wide Human Array. **Annals of Human Genetics**, v. 61, p. 233-255, 2017. DOI: [10.1111/ahg.12208](#)
7. **FARIAS, A.A.** ; RIOS, C. ; OLIVEIRA, D.L. ; SANTOS JUNIOR, V. Ocupações e reocupações por grupos pretéritos no litoral cearense: os vestígios arqueológicos das dunas de Trairi, Ceará, Brasil. **Clio (Série Arqueológica - UFPE)**, v. 31, p. 53, 2016 (*in portuguese*). DOI: [10.20891/clio.v31i1p53-8](#)
8. MUTZENBERG, D.C.S. ; SULLASI, H.S.L. ; **FARIAS, A.A.** ; SANTOS, A.L.C. ; BARBOSA, M.B.G. Fundamentos de diagênese óssea e suas formas de avaliação usando as técnicas espectroscópicas de FTIR-ATR e DRX. **Clio (Série Arqueológica - UFPE)**, v. 30, p. 154, 2015 (*in portuguese*). DOI: [10.20891/clio.v30i2p154-188](#)
9. SANTOS, J.S. ; **FARIAS, A.A.** Plants and their uses in the vicinity of necropolis site Pinturas I, São João do Tigre, state of Paraíba, brazilian semi-arid region. **revista tarairiú**, v. 1, p. 74-80, 2010.
10. **FARIAS, A.A.** ; ALMEIDA, E.S. ; BRASILEIRO, R.A. ; MELO, U.S. ; SOARES, M.T. ; QUEIROGA, A.S. ; AZEVEDO, E.L. ; BARBOSA, L. M.M.A. ; SANTOS, S. Darwin: Da universidade às escolas públicas da Paraíba. **Genética na Escola**, v. 4, p. 5-8, 2009 (*in portuguese*).

11. SANTOS, J. S. ; **FARIAS, A. A.** . Diagênese óssea nos cemitérios indígenas dos Sertões da Paraíba. **Clio (Série Arqueológica - UFPE)**, v. 24, p. 111-125, 2009 (*in portuguese*).

Book chapters

1. ★ **FARIAS, A.A.**; ANDRADE, F. ; RANGEL Jr., M.J. Origem e dispersão dos humanos modernos. In: Neves, W; Rangel Jr, M; Murrieta, R.. (Org.). **Assim caminhou a humanidade**. 1ed. São Paulo: Palas Athena, 2015, v. 1, p. 242-280 (*in portuguese - peer-reviewed*).
2. SANTOS, J.S. ; FARIAS, A.A. . Estudo arqueobotânico do sítio arqueológico cemitério Pinturas I, em São João do Tigre, no semiárido da Paraíba. In: Juvandi de Souza Santos. (Org.). **Ensaio de Arqueologia**. 1ed. Campina Grande: Eduepb, 2009, v. 1, p. 45-51 (*in portuguese*).
3. FARIAS, A.A.. Collembola e sítios Arqueológicos: relatos de uma experiência. In: Juvandi de Souza Santos. (Org.). **Ensaio de Arqueologia**. 1ed. Campina Grande: Eduepb, 2009, v. 1, p. 65-73 (*in portuguese*).

Newspapers and association bulletins

1. SANTOS, J.S.; FARIAS, A.A. Estudos de Collembolas em Sítios Arqueo/Espeleológicos na Paraíba. **SBE Notícias**, p. 2 - 2, 01 jun. 2009.
2. FARIAS, A.A.. Colêmbolo? Que bicho é esse? **Diário da Borborema**, p. A2, 18 jan. 2008.
3. FARIAS, A.A.; SANTOS, J.S. Importância da fauna edáfica nos estudos arqueológicos: estudo de caso de colêmbolos. **Boletim Informativo da Sociedade Paraibana de Arqueologia**, Campina Grande - PB, p. 10 - 11, 2008.
4. FARIAS, A.A.. Origem dos humanos modernos. **Projeto Filos**. 2018. <http://projetoofilos.com.br/2018/06/a-origem-dos-humanos-modernos/>

Talks

More than 25 talks in Brazilian and International events, see my [Lattes](#).

FIELDWORKS

Archaeological fieldworks

2008 Archaeological site: Pinturas I (15 days). Coordinator: Juvandi de Souza Santos (Dep. of History, State University of Paraíba); 2008 Archaeological site: Furna dos Ossos (7 days). Coordinator: Juvandi de Souza Santos (Dep. of History, State University of Paraíba); 2009 Archaeological site: Cabaças I (15 days). Coordinator: Juvandi de Souza Santos (Dep. of History, State University of Paraíba); 2009 Archaeological site: Tanque do Capim (7 days). Coordinator: Juvandi de Souza Santos (Dep. of History, State University of Paraíba). 2012 Archaeological site: Pedra do Alexandre (30 days). Coordinator: Claudia Oliveira (Dep. of Archaeology, Federal University of Pernambuco). 2014 Archaeological site: Lapa do Santo (15 days). Coordinator: Andre Strauss (Laboratory for Human Evolutionary Studies, University of Sao Paulo).

Paleontological fieldworks

2009 Paleontological site: Lagoa Salgada (15 days). Coordinator: Marcio Mendes (Dep. of Biology, Federal University of Ceara).

ACADEMIC SERVICES

Reviewer for

- African Journal of History and Culture (2011)
- Agricultural Science Research Journal (2012)
- International Journal of Osteoarchaeology (2017)

Teaching assistant at University of Sao Paulo

- BIO 0103 - Evolutionary Biology. Professor Walter Neves
- BIO 0207 - Anthropology: Biology and Culture. Professor Rui Murrieta

Defense committee membership for undergraduate degree

- SANTOS, S.; MARQUES, R. S.; **FARIAS, A. A.** Lúcia Carla Silva Costa. Ensino de genética: Avaliação da efetividade de um jogo didático em escolas de Campina Grande - PB. 2016. Undergraduate degree in Biological Sciences - Universidade Estadual da Paraíba (*in portuguese*).
- MARQUES, R. S.; SANTOS, S.; **FARIAS, A. A.** Lucyana Dantas Santos. Relatos e reflexões sobre o estágio supervisionado em ciências biológicas para o ensino médio. 2016. Undergraduate degree in Biological Sciences - Universidade Estadual da Paraíba (*in portuguese*).
- SANTOS, S.; WELLER, M.; **FARIAS, A. A.** Shirley de Oliveira Alves de Lima. A qualidade da informação epidemiológica sobre pessoas com deficiência auditiva colhida por agentes comunitários de saúde em dois municípios da Paraíba. 2015. Undergraduate degree in Biological Sciences - Universidade Estadual da Paraíba (*in portuguese*).