ADÈLE HELENA RIBEIRO

PERSONAL INFORMATION

Born in Brazil, June 4, 1985

email adele@cs.columbia.edu

website https://adele.github.io/

EDUCATION

November 2018 — University of São Paulo, Brazil

Doctor of Philosophy in Computer Science

Institution: Institute of Mathematics and Statistics.
PhD's dissertation: *Identification of Causality in Genetics and Neuroscience.*
DOI:10.11606/T.45.2019.tde-15032019-190109
Advisor: Prof. André Fujita.
Co-Advisor: Prof. Júlia Maria Pavan Soler

Fall 2017 — Princeton University, USA

Research Internship

Institution: Neuroscience Institute
Research Project: *Deep Learning algorithms for pose representation and dynamics modeling of marmoset monkeys.*
Supervisor: Prof. Asif A. Ghazanfar.

Jun 2014 — University of São Paulo, Brazil

Master of Science in Computer Science

Institution: Institute of Mathematics and Statistics.
Master's thesis: *Gene expression analysis taking into account measurement errors and application to real data.* DOI:10.11606/D.45.2014.tde-04082014-163616.
Advisor: Prof. Roberto Hirata Jr.

Dec 2011 — University of São Paulo, Brazil

Bachelor of Science in Computational and Applied Mathematics

Institution: Institute of Mathematics and Statistics.
Senior thesis: *Analysis of Pyroelectric Infrared (PIR) sensor output signals.*
Advisor: Prof. Roberto Hirata Jr.

ACADEMIC POSITIONS

Sept 2019 – Present — Columbia University, USA

Postdoctoral Researcher

Institution: Causal AI Lab, Department of Computer Science and Data Science Institute.
Research project: *Causal Health Sciences – From Biased and Heterogeneous Data Collections to Personalized and Improved Patient Outcomes.*
Supervisor: Prof. Elias Bareinboim.

Jan 2019 – Aug 2019 — Heart Institute, University of São Paulo, Brazil

Postdoctoral Researcher

Institution: Laboratory of Genetics and Molecular Cardiology.
Research project: *Deep Learning for 12-lead ECG Classification.*
Supervisor: Prof. José Eduardo Krieger.

PUBLICATIONS

Research Article — Anand, T.*, **Ribeiro, A. H.***, Tian, J. , Bareinboim, E. (2021). *Effect Identification in Causal Diagrams with Clustered Variables.* Columbia CausalAI Laboratory, Technical Report, R-77

Research Article — **Ribeiro, A. H.***, Vidal, M. C., Sato, J. R., and Fujita, A. (2021). *Granger Causality among Graphs and Application to Functional Brain Connectivity in Autism Spectrum Disorder.* Entropy. 23(9):1024. DOI: 10.3390/e23091204

Research Article — **Ribeiro, A. H.***, Soler, J. M. P.. (2020). *Learning Genetic and Environmental Graphical Models from Gaussian Family Data.* Statistics in Medicine. 39: 2403– 2422. DOI: 10.1002/sim.8545

Research Article — **Ribeiro, A. H.***, Gutierrez, M. A., and Krieger, J. E. (2020). *Deep learning approach for normal versus abnormal 12-lead ECG images classification.* Manuscript in preparation.

Research Article

Ribeiro, A. H.*, Soler, J. M. P., R. Hirata Jr.. (2019). *Variance-Preserving Estimation of Intensity Values Obtained from Omics Experiments.* Frontiers in Genetics, 10:855. DOI: 10.3389/fgene.2019.00855.

Research Article

Ribeiro, A. H.*, Lotufo, P., Fujita, A, Goulart, A., Chor, D., Mill, J. G., Bensenor, I., Santos, I. S. (2017). *Association Between Short-Term Systolic Blood Pressure Variability and Carotid Intima-Media Thickness in ELSA-Brasil Baseline*. American Journal of Hypertension, 30:954–960. DOI: 10.1093/ajh/hpx076.

Springer Book Chapter

Ribeiro, A. H.*, Soler, J. M. P., Neto, E. C., Fujita, A. (2016). *Causal Inference and Structure Learning of Genotype-Phenotype Networks Using Genetic Variation.* In Big Data Analytics in Genomics. Springer International Publishing, New York, p. 89-143. DOI: 10.1007/978-3-319-41279-5_3.

FELLOWSHIPS AND SCHOLARSHIPS

Sep 2021 — DAAD Postdoc-NeT-AI Fellowship

DAAD

DAAD Artificial Intelligence Networking (AInet) Fellowship, by the Federal Ministry of Education and Research, Germany

Sep 2019– Aug 2022 — Postdoctoral Research Fellowship

Columbia University

Causal Artificial Intelligence Lab, Department of Computer Science and Data Science Institute - Columbia University

Jan 2019– Aug 2019 — Postdoctoral Research Fellowship

CAPES

Coordination for the Improvement of Higher Education Personnel.

Sep 2017 – Dec 2017 — Ph.D. Visiting Student at Princeton University

CAPES

Scholarship from Coordination for the Improvement of Higher Education Personnel for research internship at Princeton Neuroscience Institute.

Aug 2014– Jul 2018 — PhD Graduate Research Scholarship

CAPES

Ph.D. Scholarship from Coordination for the Improvement of Higher Education Personnel for Doctorate of Philosophy in Computer Science.

Mar 2012 – Feb 2014 — MSc Graduate Research Scholarship

CAPES/CNPq

Graduate Scholarship from National Council of Technological and Scientific Development for Master of Science in Computer Science

PARTICIPATION IN CONFERENCES AND WORKSHOPS

October 2018 — X-Meeting - 14th International Conference of the AB3C, São Pedro, SP, Brazil

Research Poster (Best Poster Award)

Ribeiro, A. H., Sato, J. R., Fujita, A. Granger Causality Between Graphs and Applications in Functional Brain Networks. *X-Meeting - 14th International Conference of the AB3C*, 2018, São Pedro, SP, Brazil. (Poster Presentation)

September 2018 — XXXVIII-th CNMAC, Campinas, SP, Brazil

Reviewer

XXXVIII-th National Congress of Applied and Computational Mathematics – CNMAC, 2018, at the IMECC, UNICAMP, Campinas, SP, Brazil.

July 2018 — XXIXth International Biometric Conference, Spain

Oral Presentation

Ribeiro, A. H., Soler, J. M. P., Fujita, A. Learning Genetic and Environmental Causal Graphical Models in Family-Based Studies. *XIXth International Biometric Conference*, 2018, Barcelona, Spain. (Conference Abstract)

July 2017 — 3^o Congresso de Graduação da Universidade de São Paulo

Educational Poster

Soler, J. M. P., **Ribeiro, A. H.**, Jahnke, M. R.. A produção da cerveja produzindo conhecimento. 3^o *Congresso de Graduação da USP*, 2017, SP, Brazil. (Poster Presentation)

July 2016 — XXVIII-th International Biometric Conference, Canada.

Conference Abstract

Ribeiro, A. H., Soler, J. M. P. , Fujita, A. A Comparative Study of Algorithms for Learning Causal Genotype–Phenotype Networks. *Abstracts for the XXVIIIth International Biometric Conference*, 10-15 July, 2016, Victoria, British Columbia, Canada, International Biometric Society. ISBN 978-0-9821919-4-1. (Poster Presentation)

May 2015 — SID 2015, 74th Annual Meeting of the Society for Investigative Dermatology, Atlanta, GA, USA.

Conference Abstract

Swinka, BB, Carvalho, CM, Weihermann, A, Schuck, DC, Boldrini, N, Silva, VV, Costa, MT, **Ribeiro, AH**, Fujita, A, Brohem CA, and Lorencini M. Analysis of extracellular-matrix and cell-adhesion genes modulated by mechanical massage applied in combination with a cosmetic emulsion. *Supplement issue of the Journal of Investigative Dermatology, Epidermal Structure & Barrier Function*, v. 135, p. S58-S69, 2015. DOI: 10.1038/jid.2015.71

October 2014 — ISCB-Latin America X-Meeting on Bioinformatics with BSB and SoiBio, Belo Horizonte, MG, Brazil

Research Poster

Ribeiro, A. H., Hirata Jr., R. , Soler, J. M. P. Two-color microarray data analysis taking into account probe-level inaccuracies. *ISCB-Latin America X-Meeting on Bioinformatics with BSB and SoiBio*, 2014, Belo Horizonte, MG, Brazil. (Poster Presentation)

INVITED TALKS, SHORT COURSES, AND TUTORIALS

Dec 2021 - Forthcoming — Effect Identification in Cluster Causal Diagrams

Invited Talk

Ribeiro, A. H.. *WHY-21 Workshop at NeurIPS - Causal Inference & Machine Learning: Why now?*, NeurIPS 2021, Virtual Conference.

Nov 2021 — Causal Inference and the Data-Fusion Problem

Invited Talk

Ribeiro, A. H.. *Laboratory of Epidemiology & Population Science (LEPS) at the National Institute on Aging (NIA)*

Nov 2021 — Developing causal AI: its importance and an overview

Invited Talk

Ribeiro, A. H. and Bareinboim, E.. *OECD workshop on AI and the productivity of science.*

Sep 2021 — Causal Inference and Data-Fusion

Invited Lecture

Ribeiro, A. H.. *Graduate Seminars Series - Statistics Department*, University of Brasilia (UnB), Brasilia, Federal District, Brazil.

July 2021 — Causal Data Science: An Introduction to Causal Inference and Data Fusion

3-hour Tutorial

Ribeiro, A. H., Bareinboim, E. *11th Lisbon Machine Learning Summer School (LxMLS - 2021)*. Virtual Conference.

Jun 2021 — Causal Inference from Observational Studies

Invited Lecture

Ribeiro, A. H.. *Perspectives in Statistics*, Statistics Department, University of Sao Paulo (IME - USP), Sao Paulo, SP, Brazil.

December 2020 — Causal Inference in the Health Sciences.

3-hour Tutorial

Ribeiro, A. H., Adibuzzaman, M., Bareinboim, E.. *Seventy-Sixth (76th) Annual Deming Conference on Applied Statistics.* Virtual Conference.

November 2020 — Causal Inference in the Health Sciences.

3.5-hour Tutorial

Ribeiro, A. H., Adibuzzaman, M., Bareinboim, E.. *American Medical Informatics Association (AMIA 2020) Virtual Annual Symposium*.

Oct 2020 — Learning Genetic and Environmental Probabilistic Graphical Models from Gaussian Family Data.

Invited Lecture

Ribeiro, A. H.. *Graduate Seminars Series - Biostatistics and Biometrics*, Federal University of Sao Carlos and University of Sao Paulo (UFSCar - USP), Sao Carlos, SP, Brazil

Oct 2020 — Causal Inference from Observational Studies

Invited Lecture

Ribeiro, A. H.. *Graduate Seminars Series - Statistics*, Sao Paulo State University - UNESP, Botucatu, SP, Brazil

Jan 2017 — Dimensionality Reduction and Structure Learning. with Applications to Genomics

9-hour Short Course

Ribeiro, A. H., Soler, J. M. P. *Graduate Summer School at the São Paulo State University - UNESP*, Presidente Prudente, Brazil

May 2016 — Dimensionality Reduction Applied to Genomics

4-hour Short Course

Ribeiro, A. H., Soler, J. M. P. 61^{a} *Reunião Anual da Região Brasileira da Sociedade Internacional de Biometria (RBras)*, Bahia.

TEACHING EXPERIENCE

ASSISTANT PROFESSOR

Feb 2018–Jul 2018 Software Design using Python
Computer Engineering Department - Insper (Institute of Education and Research), SP, Brazil.

TEACHING ASSISTANT

Mar 2017–Jul 2017 Statistical Design of Experiments
Institute of Mathematics and Statistics - University of São Paulo, Brazil.

Aug 2016–Dec 2016 Multivariate Data Analysis
Institute of Mathematics and Statistics - University of São Paulo, Brazil.

Mar 2016–Jul 2016 Statistical Methods for Genetics and Genomics
Institute of Mathematics and Statistics - University of São Paulo, Brazil.

Aug 2015–Dec 2015 Multivariate Data Analysis
Institute of Mathematics and Statistics - University of São Paulo, Brazil.

Mar 2015–Jul 2015 Mathematics, Architecture and Design
Architecture and Urbanism College - University of São Paulo, Brazil.

Aug 2014–Dec 2014 Statistical techniques, programming and simulation
Institute of Mathematics and Statistics - University of São Paulo, Brazil.

Mar 2014–Jul 2014 Numerical Calculus with Applications in Physics
Institute of Astronomy, Geophysics and Atmospheric Sciences - University of São Paulo, Brazil.

Aug 2013–Dec 2013 Mathematical Modeling
Institute of Mathematics and Statistics - University of São Paulo, Brazil.

Mar 2013–Jul 2013 Introduction to Computer Programming
Institute of Mathematics and Statistics - University of São Paulo, Brazil.

Aug 2012–Dec 2012 Linear Programming
Institute of Mathematics and Statistics - University of São Paulo, Brazil.

Mar 2012–Jul 2012 Numerical Methods for Linear Algebra
Institute of Mathematics and Statistics - University of São Paulo, Brazil.

OPEN-SOURCE LIBRARIES

2018 – Present
R package FamilyBasedPGMs: Methods for Learning Genetic and Environmental Graphical Models from Gaussian Family Data. Repository: https://github.com/adele/FamilyBasedPGMs

2018 – Present
R package omicsMA: Variance-Preserving Estimation and Normalization of M-A Values from Omics Experiments. Repository: https://github.com/adele/omicsMA

OTHER SKILLS

Programming Languages Python, R, Matlab, C#, C++, C, Java, Ruby, PHP, ADA, APQ, Corba, MySQL, PostgreSQL.

Languages
- PORTUGUESE · Native language.
- ENGLISH · Fluent.
- JAPANESE · Basic reading, listening, and speaking.

December 1, 2021