

ADÈLE HELENA RIBEIRO

PERSONAL INFORMATION

Born in Brazil, June 4, 1985
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EDUCATION

- Ph.D. in Computer Science*
November 2018 University of São Paulo, Brazil
Institution: Institute of Mathematics and Statistics.
PhD dissertation: *Identification of Causality in Genetics and Neuroscience*.
DOI:10.11606/T.45.2019.tde-15032019-190109
Advisor: Prof. Dr. André Fujita / Co-Advisor: Prof. Dr. Júlia Maria Pavan Soler
- M.Sc. in Computer Science*
Jun 2014 University of São Paulo, Brazil
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. Dr. Roberto Hirata Jr.
- B.Sc. in Applied Mathematics*
Dec 2011 University of São Paulo, Brazil
Institution: Institute of Mathematics and Statistics.
Senior thesis: *Analysis of Pyroelectric Infrared (PIR) sensor output signals*.
Advisor: Prof. Dr. Roberto Hirata Jr.

ACADEMIC POSITIONS

- Visiting Researcher*
Oct 2023 – Present Heinrich Heine University of Düsseldorf, Germany
Institution: ML for Medical Data Lab, Faculty of Mathematics and Natural Sciences.
- Postdoctoral Researcher*
Oct 2022 – Present Philipps University of Marburg, Germany
Institution: AI in Biomedicine Lab, Faculty of Mathematics and Computer Science.
Supervisor: Prof. Dr. Dominik Heider
- Postdoctoral Researcher*
Sept 2019 – Aug 2022 Columbia University, USA
Institution: Causal AI Lab, Department of Computer Science and Data Science Institute.
Supervisor: Prof. Dr. Elias Bareinboim.
- Postdoctoral Researcher*
Feb 2019 – Aug 2019 Heart Institute, University of São Paulo, Brazil
Institution: Laboratory of Genetics and Molecular Cardiology.
Supervisor: Prof. Dr. José Eduardo Krieger.
- Doctoral Research Internship*
Fall 2017 Princeton University, USA
Institution: Neuroscience Institute
Project: *Deep Learning for pose representation and dynamics modeling of marmoset monkeys*.
Supervisor: Prof. Dr. Asif A. Ghazanfar.

PRE-PUBLICATION MANUSCRIPTS

- Research Article*
da Silva, T., Silva, E., **Ribeiro, A. H.**, Góis, A., Heider, D., Kaski, S. and Mesquita, D., (2023). Human-in-the-Loop Causal Discovery under Latent Confounding using Ancestral GFlowNets. arXiv preprint arXiv:2309.12032 ([Link](#))

PEER-REVIEWED PUBLICATIONS

- Research Article*
Meneguitti Dias, F., Ribeiro, E., **Ribeiro, A. H.**, Krieger, J., Antonio Gutierrez, M. (2023) *Artificial Intelligence-Driven Screening System for Rapid Image-Based Classification of 12-Lead ECG Exams: A Promising Solution for Emergency Room Prioritization*. IEEE Access, ([Link](#))
- Research Article*
Tajabadi, M, Grabenhenrich, L., **Ribeiro, A. H.**, Leyer, M., Heider D. (2023) *Sharing Data With Shared Benefits: Artificial Intelligence Perspective*. J Med Internet Res 2023;25:e47540 ([Link](#))

- Conference Article* Mundt, M., Cooper, K.W., Dhimi, D.S., **Ribeiro, A. H.**, Smith, J.S., Bellot A., Hayes, T. (2023) *Continual Causality: A Retrospective of the Inaugural AAAI-23 Bridge Program*. Proceedings of The First AAAI Bridge Program on Continual Causality, PMLR 208:1-10. ([Link](#))
- Research Article* Anand, T. V.* , **Ribeiro, A. H.*** , Tian, J., Bareinboim, E. (2023). Causal Effect Identification in Cluster DAGs. Proceedings of the AAAI Conference on Artificial Intelligence, 37(10), 12172-12179. ([Link](#)) – Selected for **Oral Presentation**.
- Research Article* Jaber, A.* , **Ribeiro, A. H.*** , Zhang, J., Bareinboim, E. (2022) *Causal Identification under Markov equivalence: Calculus, Algorithm, and Completeness*. Advances in Neural Information Processing Systems, 35, 3679-3690. (NeurIPS-22). ([Link](#)) – Highlighted Paper (< 2%, out of 10,411).
- Conference Article* Dias, F. M., Samesima, N., **Ribeiro, A.**, Moreno, R. A., Pastore, C. A., Krieger, J. E., and Gutierrez, M. A. (2021). *2D Image-Based Atrial Fibrillation Classification*. In 2021 Computing in Cardiology (CinC), volume 48, pages 1–4. IEEE. ([Link](#))
- 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. ([Link](#))
- 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. ([Link](#))
- 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. ([Link](#))
- 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. ([Link](#)).
- 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. ([Link](#)).

*Equal contribution as first author

ASSOCIATION IN RESEARCH GRANTS

- Fev 2019– Jan 2025* **FAPESP - Thematic Grants**
FAPESP **Title:** Lifestyle, biochemical and genetic markers as cardiometabolic risk factors: Health Survey in São Paulo City. — Grant number: 17/05125-7.
Principal Investigator: Prof. Dr. Regina Mara Fisberg. **My Role:** Associate Researcher.
- Aug 2023 – Jul 2025* **FAPESP - Regular Grants**
FAPESP **Title:** Reimagining AI for a world on fire. – Grant number: 23/00815-6. **Principal Investigator:** Prof. Dr. Diego Parente Paiva Mesquita. **My Role:** Associate Researcher.
- Sep 2023 – Oct 2023* **FAPESP - Research Internship Abroad**
FAPESP **Title:** Application of causal structure learning algorithms to obesity and other risk factors for cardiovascular diseases. – Grant number: 23/08647-5 **Principal Investigator:** Prof. Dr. Andressa Cerqueira. **My Role:** Supervisor.

SCHOLARSHIPS, FELLOWSHIPS, AND AWARDS

- Sep 2021* **DAAD Postdoc-NeT-AI Fellowship**
DAAD DAAD award for outstanding international early career researchers in the field of Artificial Intelligence in Medicine, Federal Ministry of Education and Research, Germany.
- Sep 2020– Aug 2022* **DSI Postdoctoral Fellowship**
Columbia Uni Data Science Institute (DSI) Post-Doctoral Fellows Program, Columbia University, USA.
- Jan 2019– Aug 2019* **Postdoctoral Research Fellowship**
CAPES Coordination for the Improvement of Higher Education Personnel, Brazil.
- Sep 2017 – Dec 2017* **Ph.D. Visiting Student at Princeton University**

- CAPES Coordination for the Improvement of Higher Education Personnel, Brazil
 Aug 2014– Jul 2018 PhD Graduate Research Scholarship
 CAPES Coordination for the Improvement of Higher Education Personnel, Brazil.
 Mar 2012 – Feb 2014 M.Sc. Graduate Research Scholarship
 CAPES/CNPq National Council of Technological and Scientific Development, Brazil.

POSTERS AND ABSTRACTS

- July 2023 10th International Contrastive Linguistics Conference
 Oral Presentation Natalia Levshina, **Ribeiro, A. H.** Who did What to Whom: Measuring and explaining cross-linguistic differences – Mannheim, Germany. ([Conference Abstract](#))
- 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. – Barcelona, Spain. ([Conference Abstract](#))
- July 2017 3º 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. 3º 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](https://doi.org/10.1038/jid.2015.71)
- October 2014 ISCB-Latin America X-Meeting on Bioinformatics
 Research Poster **Ribeiro, A. H.**, Hirata Jr., R. , Soler, J. M. P. Two-color microarray data analysis taking into account probe-level inaccuracies. Belo Horizonte, MG, Brazil. ([Poster Presentation](#))

INVITED TALKS, SHORT COURSES, AND TUTORIALS

- January 2024 Tropical Probabilistic AI School
 3-hour tutorial Hosted with the EMap FGV Summer School on Data Science 2024, Rio de Janeiro, Brazil
Title: [Introduction to Causal Inference](#)
- August 2023 FGV-EMAp
 Invited Talk School of Applied Mathematics of Getulio Vargas Foundation, Rio de Janeiro, Brazil.
Title: [Recent Advances in Causal Inference under Limited Domain Knowledge](#)
- July 2023 European Summer School on Artificial Intelligence - ESSAI
 5-day Course Faculty of Computer and Information Science, University of Ljubljana, Slovenia – with Devendra Dhami, and Matej Zecevic.
Title: [Machines Climbing Pearl’s Ladder of Causation](#)
- July 2023 13rd Lisbon Machine Learning School (LxMLS)
 3-hour Tutorial Instituto Superior Técnico, Lisbon, Portugal.
Title: [Causality and its Role in Reasoning, Explainability, and Generalizability](#)
- June 2023 Nordic Probabilistic AI School
 3-hour tutorial Norwegian University of Science and Technology (NTNU), Trondheim, Norway
Title: [Causal Inference: Towards Explainable, Generalizable, and Trustworthy AI](#)
- April 2023 Workshop on Causal Representation Learning
 Invited Talk Max Planck Institute for Intelligent Systems, Tübingen, Germany
Title: [Effect Identification in Cluster Causal Diagrams.](#)

- February 2023 Continual Causality - Bridge Program at AAAI
 90-min Tutorial Walter E. Washington Convention Center, Washington DC, USA
Title: Putting the Causality in Continual Causality.
- August 2022 DAAD Postdoc-NeT-AI Tour – Germany
 Invited Talks Institute of Information Systems & Institute for Medical Biometrics and Statistics at the University of
 Lübeck; Institute for Computational Systems Biology at the University of Hamburg; Centre for
 Cognitive Science at TU Darmstadt; Center for Systems Biology and Department of Computer Science
 at TU Dresden; and Helmholtz Center Munich
Title: Causal Inference from Observational Data in Partially Understood Domains
- August 2022 Future Bioinformatics Workshop, Germany
 Invited Talk **Title:** Causal AI: Towards Explainable, Generalizable, and Trustworthy Decision-Making.
- July 2022 12th Lisbon Machine Learning School (LxMLS)
 3-hour Tutorial Instituto Superior Técnico, Lisbon, Portugal – with Elias Bareinboim.
Title: Causal AI: Towards Explainable, Generalizable, and Trustworthy Decision-Making.
- May 2022 Interinstitutional Graduate Program in Statistics
 Invited Talk Interinstitutional Graduate Program in Statistics (PIPGES) – Federal University of Sao Carlos
 (UFSCar) and University of Sao Paulo (USP)
Title: Causal Effect Identification in Partially Understood Domains.
- Dec 2021 WHY-21 Workshop at NeurIPS-2021
 Invited Talk Causal Inference & Machine Learning: Why now? – Virtual Conference.
Title: Effect Identification in Cluster Causal Diagrams.
- Nov 2021 National Institute on Aging (NIA)
 Invited Talk Laboratory of Epidemiology & Population Science (LEPS) at National Institute on Aging (NIA)
Title: Causal Inference and the Data-Fusion Problem.
- Nov 2021 OECD workshop on AI and the productivity of science
 Invited Talk with Elias Bareinboim. **Title:** Developing causal AI: its importance and an overview.
- Sep 2021 University of Brasilia (UnB), Brasilia, Brazil.
 Invited Lecture Graduate Seminars Series - Statistics Department, University of Brasilia (UnB)
Title: Causal Inference and Data-Fusion.
- July 2021 11st Lisbon Machine Learning School (LxMLS)
 3-hour Tutorial Virtual Conference – with Elias Bareinboim.
Title: Causal Data Science: An Introduction to Causal Inference and Data Fusion.
- Jun 2021 Perspectives in Statistics - IME-USP
 Invited Lecture Statistics Department, University of Sao Paulo (IME - USP), Sao Paulo, SP, Brazil.
Title: Causal Inference from Observational Studies.
- December 2020 76th Annual Deming Conference on Applied Statistics.
 3-hour Tutorial Virtual Conference – with Mohammad Adibuzzaman and Elias Bareinboim.
Title: Causal Inference in the Health Sciences.
- November 2020 American Medical Informatics Association (AMIA)
 3.5-hour Tutorial Virtual Conference – with Mohammad Adibuzzaman and Elias Bareinboim.
Title: Causal Inference in the Health Sciences.
- Oct 2020 Biostatistics and Biometrics Seminar Series - UNESP
 Invited Lecture Sao Paulo State University - UNESP, Botucatu, SP, Brazil.
Title: Causal Inference from Observational Studies.
- Mar 2019 Statistics Seminar Series – UFSCar & USP
 Invited Lecture Federal University of Sao Carlos and University of Sao Paulo, Sao Carlos, SP, Brazil.
Title: Learning Genetic and Environmental Graphical Models from Gaussian Family Data.
- Jan 2017 Graduate Summer School – UNESP
 9-hour Short São Paulo State University - UNESP, Presidente Prudente, Brazil – with Julia M. P. Soler.
 Course **Title:** Dimensionality Reduction and Structure Learning with Applications to Genomics.
- May 2016 61st Annual Meeting of RBras - IBS
 4-hour Short 61st Annual Meeting of the Brazilian Region (RBras) International Biometric Society (IBS), Bahia,
 Course Brazil – with Julia M. P. Soler.
Title: Dimensionality Reduction Applied to Genomics.

ACADEMIC SERVICE

- Workshop Organizer* Feb 2023 and Feb 2024 [Continual Causality – I and II Editions](#)
Bridge Program at AAAI-24 and AAAI-2024. With other organizers from TU Darmstadt, Hessian.AI, NAVER Labs Europe, Georgia Tech, University of California, TU Eindhoven, and Deutsches Zentrum für Luft- und Raumfahrt.
- Workshop Organizer* Dec 2021 [Causal Inference & Machine Learning: Why now?](#)
WHY-21 Workshop at NeurIPS-2021. Advised by Elias Bareinboim (Columbia University), Bernhard Scholkopf (Max Planck Institute), Terry Sejnowski (Salk Institute & UCSD), Yoshua Bengio, (University of Montreal & Mila), Judea Pearl, (UCLA).
- Reviewer* 2018 - Present [Conference and Journal Reviewer](#)
(2021 - Present) NeurIPS, AAAI, ICML UAI, CLeaR, JMLR, Neuro Causal and Symbolic AI (nCSI), WHY (2021), XXXVIII-th CNMAC (2018).

TEACHING EXPERIENCE

LECTURER

- October 2023 – Present [Heinrich Heine University of Düsseldorf, Germany](#)
Department of Mathematics and Natural Sciences, Germany. Course: Causality.
- Mar 2023–October 2023 [Phillips University of Marburg, Germany](#)
Department of Mathematics and Computer Science, Germany. Course: Causal Data Science: Theoretical Foundations and Algorithms.

ASSISTANT PROFESSOR

- Feb 2018–Jul 2018 [Institute of Education and Research \(Insper\)](#)
Computer Engineering Department, Inper, SP, Brazil. Course: Software Design using Python.

TEACHING ASSISTANT

- Mar 2012–Jul 2017 [University of São Paulo \(USP\), SP, Brazil](#)
Institute of Mathematics and Statistics (IME), Institute of Astronomy, Geophysics and Atmospheric Sciences (IAG), and School of Architecture and Urbanism (FAU) – USP, SP, Brazil
Courses: Statistical Design of Experiments; Multivariate Data Analysis; Statistical Methods for Genetics and Genomics; Statistical techniques, programming and simulation (at IME-USP); Numerical Calculus with Applications in Physics; Mathematical Modeling (at IAG-USP); Introduction to Computer Programming; Linear Programming; Numerical Methods for Linear Algebra; Mathematics, Architecture and Design (at FAU-USP)

OPEN-SOURCE LIBRARIES

- R package* 2022 – Present [PAG-ID on GitHub](#)
Algorithms for (Conditional) Causal Identification in Partial Ancestral Graphs.
- R package* 2018 – Present [FamilyBasedPGMs on GitHub](#)
Methods for Learning Genetic and Environmental Graphical Models from Family Data.
- R package* 2018 – Present [omicsMA on GitHub](#)
Variance-Preserving Estimation and Normalization of M-A Values from Omics Experiments.

OTHER SKILLS

- Programming Languages* Python, R, Matlab, C#, C++, C, Java, Ruby, PHP, ADA, APQ, Corba, MySQL, PostgreSQL.
- Languages* PORTUGUESE · Native language.
ENGLISH · Fluent.

January 31, 2024