

ADÈLE HELENA RIBEIRO

PERSONAL INFORMATION

email
website

Born in Brazil, June 4, 1985
adele.ribeiro@uni-marburg.de
<https://adele.github.io/>



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](https://doi.org/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](https://doi.org/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

Postdoctoral
Researcher

Oct 2022 – Present Philipps University of Marburg, Germany
Institution: AI in Biomedicine Lab, Department 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.

PEER-REVIEWED PUBLICATIONS

Research Article

Anand, T.*, **Ribeiro, A. H.***, Tian, J., Bareinboim, E. (2022) Causal Effect Identification in Cluster DAGs. Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI-23), Forthcoming. ([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*. In Proceedings of the 36th Annual Conference on Neural Information Processing Systems (NeurIPS-22), Forthcoming. ([Link](#)) – Highlighted Paper (< 2%, out of 10,411 papers).

Short Essay

Ribeiro, A. H.*, Bareinboim, E. (2021). *Causal Inference and Data Fusion: Towards an Accelerated Process of Scientific Discovery*. Organisation for Economic Co-operation and Development (OECD), Volume “AI and the productivity of science”. ([Link](#))

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

SCHOLARSHIPS, FELLOWSHIPS, AND AWARDS

- DAAD* *Sep 2021* **DAAD Postdoc-NeT-AI Fellowship**
DAAD award for outstanding international early career researchers in the field of Artificial Intelligence in Medicine, Federal Ministry of Education and Research, Germany.
- Columbia Uni* *Sep 2020– Aug 2022* **DSI Postdoctoral Fellowship**
Data Science Institute (DSI) Post-Doctoral Fellows Program, Columbia University, USA.
- CAPES* *Jan 2019– Aug 2019* **Postdoctoral Research Fellowship**
Coordination for the Improvement of Higher Education Personnel, Brazil.
- CAPES* *Sep 2017 – Dec 2017* **Ph.D. Visiting Student at Princeton University**
Coordination for the Improvement of Higher Education Personnel, Brazil
- CAPES* *Aug 2014– Jul 2018* **PhD Graduate Research Scholarship**
Coordination for the Improvement of Higher Education Personnel, Brazil.
- CAPES/CNPq* *Mar 2012 – Feb 2014* **M.Sc. Graduate Research Scholarship**
National Council of Technological and Scientific Development, Brazil.

POSTERS AND ABSTRACTS

- Research Poster (Best Poster Award)* *October 2018* **X-Meeting - 14th International Conference of the AB3C**
Ribeiro, A. H., Sato, J. R., Fujita, A. Granger Causality Between Graphs and Applications in Functional Brain Networks. – São Pedro, SP, Brazil. ([Poster Presentation](#))
- Oral Presentation* *July 2018* **XXIXth International Biometric Conference, Spain**
Ribeiro, A. H., Soler, J. M. P., Fujita, A. Learning Genetic and Environmental Causal Graphical Models in Family-Based Studies. – Barcelona, Spain. ([Conference Abstract](#))
- Educational Poster* *July 2017* **3º Congresso de Graduação da Universidade de São Paulo**
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](#))
- Conference Abstract* *July 2016* **XXVIII-th International Biometric Conference, Canada.**
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)

Research Poster October 2014 ISCB-Latin America X-Meeting on Bioinformatics
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

Invited Talks August 2022 DAAD Postdoc-NeT-AI Tour – Germany
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

Invited Talk August 2022 Future Bioinformatics Workshop, Germany
Title: Causal AI: Towards Explainable, Generalizable, and Trustworthy Decision-Making.

3-hour Tutorial July 2022 12th Lisbon Machine Learning School (LxMLS)
Instituto Superior Técnico, Lisbon, Portugal – with Elias Bareinboim.
Title: Causal AI: Towards Explainable, Generalizable, and Trustworthy Decision-Making.

Invited Talk May 2022 Interinstitutional Graduate Program in Statistics
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.

Invited Talk Dec 2021 WHY-21 Workshop at NeurIPS-2021
Causal Inference & Machine Learning: Why now? – Virtual Conference.
Title: Effect Identification in Cluster Causal Diagrams.

Invited Talk Nov 2021 National Institute on Aging (NIA)
Laboratory of Epidemiology & Population Science (LEPS) at National Institute on Aging (NIA)
Title: Causal Inference and the Data-Fusion Problem.

Invited Talk Nov 2021 OECD workshop on AI and the productivity of science
with Elias Bareinboim. **Title:** Developing causal AI: its importance and an overview.

Invited Lecture Sep 2021 University of Brasilia (UnB), Brasilia, Brazil.
Graduate Seminars Series - Statistics Department, University of Brasilia (UnB)
Title: Causal Inference and Data-Fusion.

3-hour Tutorial July 2021 11st Lisbon Machine Learning School (LxMLS)
Virtual Conference – with Elias Bareinboim.
Title: Causal Data Science: An Introduction to Causal Inference and Data Fusion.

Invited Lecture Jun 2021 Perspectives in Statistics - IME-USP
Statistics Department, University of Sao Paulo (IME - USP), Sao Paulo, SP, Brazil.
Title: Causal Inference from Observational Studies.

3-hour Tutorial December 2020 76th Annual Deming Conference on Applied Statistics.
Virtual Conference – with Mohammad Adibuzzaman and Elias Bareinboim.
Title: Causal Inference in the Health Sciences.

3.5-hour Tutorial November 2020 American Medical Informatics Association (AMIA)
Virtual Conference – with Mohammad Adibuzzaman and Elias Bareinboim.
Title: Causal Inference in the Health Sciences.

Invited Lecture Oct 2020 Biostatistics and Biometrics Seminar Series - UNESP
Sao Paulo State University - UNESP, Botucatu, SP, Brazil.
Title: Causal Inference from Observational Studies.

Invited Lecture Mar 2019 Statistics Seminar Series – UFSCar & USP
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.

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| 9-hour Short Course | Jan 2017 | Graduate Summer School – UNESP São Paulo State University - UNESP, Presidente Prudente, Brazil – with Julia M. P. Soler. Title: Dimensionality Reduction and Structure Learning with Applications to Genomics. |
| | May 2016 | 61st Annual Meeting of RBras - IBS 61st Annual Meeting of the Brazilian Region (RBras) International Biometric Society (IBS), Bahia, Brazil – with Julia M. P. Soler. Title: Dimensionality Reduction Applied to Genomics. |

ACADEMIC SERVICE

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| Workshop Organizer | Feb 2023 | Continual Causality Bridge Program at AAAI-2023. Advised by Kristian Kersting (TU Darmstadt & Hessian.AI), Diyi Yang and Tobias Gerstenberg (Stanford Uni & ContinualAI), Razvan Pascanu (DeepMind), Christopher Kanan (Uni Rochester), and Martha White (Uni Alberta) |
| | Dec 2021 | Causal Inference and 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 Paper Reviewer UAI (2023), AAAI (2023,2022), CLear(2023), ICML (2022), NeurIPS (2021,2022), WHY (2021), XXXVIII-th CNMAC (2018). |

TEACHING EXPERIENCE

ASSISTANT PROFESSOR

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| Feb 2018–Jul 2018 | Institute of Education and Research (Insper) Computer Engineering Department, Inper, SP, Brazil. Course: Software Design using Python. |
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TEACHING ASSISTANT

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| 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) |
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OPEN-SOURCE LIBRARIES

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| 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

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