List of Publications

Antônio Horta Ribeiro

Journal articles

[J1] P. Hempel, **A. H. Ribeiro**, M. Vollmer, T. Bender, M. Dörr, D. Krefting, and N. Spicher. *"Explainable AI associates ECG aging effects with increased cardiovascular risk in a longitudinal population study"*
In: NPJ DIGITAL MEDICINE 8.1 (2025), p. 25.
DOI: 10.1038/s41746-024-01428-7.

[J2] G. Pillonetto, A. Aravkin, D. Gedon, L. Ljung, **A. H. Ribeiro**, and T. B. Schön. *"Deep networks for system identification: a Survey"*
In: AUTOMATICA (2025).
DOI: 10.1016/j.automatica.2024.111907.

[J3] A. Sau, B. Zeidaabadi, K. Patlatzoglou, L. Pastika, **A. H. Ribeiro**, E. Sabino, N. S. Peters, A. L. P. Ribeiro, D. B. Kramer, J. W. Waks, and F. S. Ng. *"A comparison of artificial intelligence-enhanced electrocardiography approaches for prediction of time-to-mortality using electrocardiogram images"*
In: EUROPEAN HEART JOURNAL - DIGITAL HEALTH (2024), ztae090.
DOI: 10.1093/ehjdh/ztae090.

[J4] K. A. McGurk, M. Qiao, S. L. Zheng, A. Sau, A. Henry, A. L. P. Ribeiro, **A. H. Ribeiro**, F. S. Ng, R. T. Lumbers, W. Bai, J. S. Ware, and D. P. O'Regan. *"Genetic and phenotypic architecture of human myocardial trabeculation"*
In: NATURE CARDIOVASCULAR RESEARCH (2024).
DOI: 10.1038/s44161-024-00564-3.

[J5] A. Sau, **A. H. Ribeiro**, K. A. McGurk, L. Pastika, N. Bajaj, M. Gurnani, E. Sieliwonczyk, K. Patlatzoglou, M. Ardissino, J. Y. Chen, H. Wu, X. Shi, K. Hnatkova, S. L. Zheng, A. Britton, M. Shipley, I. Andršová, T. Novotný, E. C. Sabino, L. Giatti, S. M. Barreto, J. W. Waks, D. B. Kramer, D. Mandic, N. S. Peters, D. P. O'Regan, M. Malik, J. S. Ware, A. L. P. Ribeiro, and F. S. Ng. *"Prognostic Significance and Associations of Neural Network–Derived Electrocardiographic Features"*
In: CIRCULATION: CARDIOVASCULAR QUALITY AND OUTCOMES 0.0 (2024), e010602.
DOI: 10.1161/CIRCOUTCOMES.123.010602.

[J6] L. Pastika, A. Sau, K. Patlatzoglou, E. Sieliwonczyk, **A. H. Ribeiro**, K. A. McGurk, W. R. Scott, J. S. Ware, A. L. P. Ribeiro, D. B. Kramer, J. W. Waks, and F. S. Ng. *"Artificial intelligence–enabled electrocardiogram for mortality and cardiovascular risk estimation: An actionable, explainable and biologically plausible platform"*
In: NPJ DIGITAL MEDICINE 7.167 (2024).
DOI: https://doi.org/10.1038/s41746-024-01170-0.

[J7] Z. Huang, S. MacLachlan, L. Yu, L. F. Herbozo Contreras, N. D. Truong, **A. H. Ribeiro**, and O. Kavehei. *"Generalization challenges in electrocardiogram deep learning: insights from dataset characteristics and attention mechanism"*
In: FUTURE CARDIOLOGY 0.0 (2024), pp. 1–12.
DOI: 10.1080/14796678.2024.2354082.

[J8] L. Lu, T. Zhu, **A. H. Ribeiro**, L. Clifton, E. Zhao, J. Zhou, A. L. P. Ribeiro, Y.-T. Zhang, and D. A. Clifton. *"Decoding 2.3 Million ECGs: Interpretable Deep Learning for Advancing Cardiovascular Diagnosis and Mortality Risk Stratification"*
In: EUROPEAN HEART JOURNAL - DIGITAL HEALTH (2024), ztae014.
DOI: 10.1093/ehjdh/ztae014.

[J9] **A. H. Ribeiro** and T. B. Schön. *"Overparameterized Linear Regression under Adversarial Attacks"*
In: IEEE TRANSACTIONS ON SIGNAL PROCESSING (2023).
DOI: 10.1109/TSP.2023.3246228.

[J10] E. Zvuloni, J. Read, **A. H. Ribeiro**, A. L. P. Ribeiro, and J. A. Behar. *"On Merging Feature Engineering and Deep Learning for Diagnosis, Risk-Prediction and Age Estimation Based on the 12-Lead ECG"*
In: IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING (2023).
DOI: 10.1109/TBME.2023.3239527.

[J11] V. Sangha, A. A. Nargesi, L. S. Dhingra, B. J. Mortazavi, **A. H. Ribeiro**, C. A. Brandt, E. J. Miller, A. L. P. Ribeiro, E. J. Velazquez, H. M. Krumholz, and R. Khera. *"Detection of Left Ventricular Systolic Dysfunction from Electrocardiographic Images"*
In: CIRCULATION (2023).
DOI: 10.1161/CIRCULATIONAHA.122.062646.

[J12] T. Lindow, M. Maanja, E. B. Schelbert, **A. H. Ribeiro**, A. L. P. Ribeiro, T. T. Schlegel, and M. Ugander. *"Heart age gap by explainable advanced electrocardiography is associated with cardiovascular risk factors and survival"*
In: EUROPEAN HEART JOURNAL - DIGITAL HEALTH (2023).
DOI: 10.1093/ehjdh/ztad045.

[J13] L. C. C. Brant, **A. H. Ribeiro**, M. M. Pinto-Filho, J. Kornej, S. R. Preis, B. Eromosele, J. W. Magnani, J. M. Murabito, M. G. Larson, E. J. Benjamin, A. L. P. Ribeiro, and H. Lin. *"Electrocardiographic Age Predicts Cardiovascular Events in Community: The Framingham Heart Study"*
In: CIRCULATION: CARDIOVASCULAR QUALITY AND OUTCOMES (2023).
DOI: 10.1161/CIRCOUTCOMES.122.009821.

[J14] C. Jidling, D. Gedon, T. B. Schön, C. D. L. Oliveira, C. S. Cardos, A. M. Ferreira, L. Giatti, S. M. Barreto, E. C. Sabino, A. L. P. Ribeiro, and **A. H. Ribeiro**. *"Screening for Chagas disease from the electrocardiogram using a deep neural network"*
In: PLOS NEGLECTED TROPICAL DISEASES 17.7 (2023).
DOI: 10.1371/journal.pntd.0011118.

[J15] D. Gedon, **A. H. Ribeiro**, N. Wahlström, and T. B. Schön. *"Invertible Kernel PCA with Random Fourier Features"*
In: IEEE SIGNAL PROCESSING LETTERS (2023).
DOI: 10.1109/LSP.2023.3275499.

[J16] C. Zhang, X. Miao, B. Wang, **A. H. Ribeiro**, L. Brant, A. L. P. Ribeiro, and H. Lin. *"Association of lifestyle with deep-learning based ECG-age"*
In: FRONTIERS IN CARDIOVASCULAR MEDICINE 10 (2023).
DOI: 10.3389/fcvm.2023.1160091.

[J17] S. Gustafsson, D. Gedon, E. Lampa, **A. H. Ribeiro**, M. J. Holzmann, T. B. Schön, and J. Sundström. *"Development and validation of deep learning ECG-based prediction of myocardial infarction in emergency department patients"*
In: SCIENTIFIC REPORTS 12.1 (2022), p. 19615.
DOI: 10.1038/s41598-022-24254-x.
Equal contribution: S. Gustafsson and D. Gedon

[J18] V. Sangha, B. J. Mortazavi, A. D. Haimovich, **A. H. Ribeiro**, C. A. Brandt, D. L. Jacoby, W. L. Schulz, H. M. Krumholz, A. L. P. Ribeiro, and R. Khera. *"Automated multilabel diagnosis on electrocardiographic images and signals"*
In: NATURE COMMUNICATIONS 13 (2022), p. 1583.
DOI: 10.1038/s41467-022-29153-3.

[J19] G. M. M. Paixão, E. M. Lima, P. R. Gomes, D. M. Oliveira, M. H. Ribeiro, J. S. Nascimento, **A. H. Ribeiro**, P. W. Macfarlane, and A. L. P. Ribeiro. *"Electrocardiographic Predictors of Mortality: Data from a Primary Care Tele-Electrocardiography Cohort of Brazilian Patients"*
In: HEARTS 2.4 (2021), pp. 449–458.
DOI: 10.3390/hearts2040035.

[J20] E. M. Lima, **A. H. Ribeiro**, G. M. M. Paixão, M. H. Ribeiro, M. M. P. Filho, P. R. Gomes, D. M. Oliveira, E. C. Sabino, B. B. Duncan, L. Giatti, S. M. Barreto, W. Meira, T. B. Schön, and A. L. P. Ribeiro. *"Deep neural network estimated electrocardiographic-age as a mortality predictor"*
In: NATURE COMMUNICATIONS 12 (2021).
DOI: 10.1038/s41467-021-25351-7.
Equal contribution: E. M. Lima, A. H. Ribeiro, G. M. M. Paixao

[J21] S. Biton, S. Gendelman, **A. H. Ribeiro**, G. Miana, C. Moreira, A. L. P. Ribeiro, and J. A. Behar. *"Atrial fibrillation risk prediction from the 12-lead ECG using digital biomarkers and deep representation learning"*
In: EUROPEAN HEART JOURNAL - DIGITAL HEALTH (2021).
DOI: 10.1093/ehjdh/ztab071.

[J22] W. Meira Jr, A. L. P. Ribeiro, D. M. Oliveira, and **A. H. Ribeiro**. *"Contextualized Interpretable Machine Learning for Medical Diagnosis"*
In: COMMUNICATIONS OF THE ACM (2020).
DOI: 10.1145/3416965.

[J23] G. M. M. Paixão, L. G. S. Silva, P. R. Gomes, E. M. Lima, M. P. F. Ferreira, D. M. Oliveira, M. H. Ribeiro, **A. H. Ribeiro**, J. S. Nascimento, J. A. Canazart, L. B. Ribeiro, E. J. Benjamin, P. W. Macfarlane, M. S. Marcolino, and A. L. Ribeiro. *"Evaluation of Mortality in Atrial Fibrillation: Clinical Outcomes in Digital Electrocardiography (CODE) Study"*
In: GLOBAL HEART 15.1 (2020), p. 48.
DOI: 10.5334/gh.772.

[J24] **A. H. Ribeiro**, K. Tiels, J. Umenberger, T. B. Schön, and L. A. Aguirre. *"On the smoothness of nonlinear system identification"*
In: AUTOMATICA 121 (2020), p. 109158.
DOI: 10.1016/j.automatica.2020.109158.

[J25] **A. H. Ribeiro**, M. H. Ribeiro, G. M. M. Paixão, D. M. Oliveira, P. R. Gomes, J. A. Canazart, M. P. S. Ferreira, C. R. Andersson, P. W. Macfarlane, W. Meira Jr., T. B. Schön, and A. L. P. Ribeiro. *"Automatic diagnosis of the 12-lead ECG using a deep neural network"*
In: NATURE COMMUNICATIONS 11.1 (2020), p. 1760.
DOI: 10.1038/s41467-020-15432-4.

[J26] P. Virtanen, R. Gommers, T. E. Oliphant, M. Haberland, T. Reddy, D. Cournapeau, E. Burovski, P. Peterson, W. Weckesser, J. Bright, S. J. van der Walt, M. Brett, J. Wilson, K. J. Millman, N. Mayorov, A. R. J. Nelson, E. Jones, R. Kern, E. Larson, C. J. Carey, Polat, Y. Feng, E. W. Moore, J. VanderPlas, D. Laxalde, J. Perktold, R. Cimrman, I. Henriksen, E. A. Quintero, C. R. Harris, A. M. Archibald, **A. H. Ribeiro**, F. Pedregosa, P. van Mulbregt, and S. Contributors. *"SciPy 1.0–Fundamental Algorithms for Scientific Computing in Python"*
In: NATURE METHODS 17.3 (2020), pp. 261–272.
DOI: 10.1038/s41592-019-0686-2.

[J27] A. L. P. Ribeiro, G. M. M. Paixão, P. R. Gomes, M. H. Ribeiro, **A. H. Ribeiro**, J. A. Canazart, D. M. Oliveira, M. P. Ferreira, E. M. Lima, J. L. de Moraes, N. Castro, L. B. Ribeiro, and P. W. MacFarlane. *"Tele-electrocardiography and bigdata: The CODE (Clinical Outcomes in Digital Electrocardiography) study"*
In: JOURNAL OF ELECTROCARDIOLOGY (2019).
DOI: 10/gf7pwg.

[J28] G. M. M. Paixão, E. M. Lima, P. R. Gomes, M. P. Ferreira, D. M. Oliveira, M. H. Ribeiro, **A. H. Ribeiro**, J. Nascimento, J. A. Canazart, G. Cardoso, L. B. Ribeiro, and A. L. P. Ribeiro. *"Evaluation of mortality in bundle branch block patients from an electronic cohort: Clinical Outcomes in Digital Electrocardiography (CODE) study"*
In: JOURNAL OF ELECTROCARDIOLOGY (2019).
DOI: 10.1016/j.jelectrocard.2019.09.004.

[J29] **A. H. Ribeiro** and L. A. Aguirre. *""Parallel Training Considered Harmful?": Comparing series-parallel and parallel feedforward network training"*
In: NEUROCOMPUTING 316 (2018), pp. 222–231.
DOI: 10.1016/j.neucom.2018.07.071.

Conference papers

[C1] **A. H. RIbeiro**, T. B. Schön, D. Zahariah, and F. Bach. *"Efficient Optimization Algorithms for Linear Adversarial Training"*
In: INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE AND STATISTICS (AISTATS) (2025).

[C2] F. Taleb, M. Vasco, **A. H. Ribeiro**, M. Björkman, and D. Kragic. *"Can Transformers Smell Like Humans?"*
In: ADVANCES IN NEURAL INFORMATION PROCESSING SYSTEMS (2024).

[C3] A. Eriksson, T. B. Schön, and **A. H. RIbeiro**. *"Transferability and Adversarial Training in Automatic Classification of the Electrocardiogram with Deep Learning"*
In: COMPUTERS IN CARDIOLOGY (CINC) (2024).

[C4] D. Gedon, **A. H. Ribeiro**, and T. B. Schön. *"No Double Descent in Principal Component Regression: A High-Dimensional Analysis"*
In: INTERNATIONAL CONFERENCE ON MACHINE LEARNING (ICML) (2024).

[C5] **A. H. Ribeiro**, D. Zachariah, F. Bach, and T. B. Schön. *"Regularization properties of adversarially-trained linear regression"*
In: ADVANCES IN NEURAL INFORMATION PROCESSING SYSTEMS (NEURIPS) (2023).
Spotlight paper

[C6] J. N. Hendriks, F. K. Gustafsson, **A. H. Ribeiro**, A. G. Wills, and T. B. Schön. *"Deep Energy-Based NARX Models"*
In: IFAC SYMPOSIUM ON SYSTEM IDENTIFICATION (SYSID) 54.7 (2021), pp. 505–510.
DOI: 10.1016/j.ifacol.2021.08.410.

[C7] **A. H. Ribeiro**, J. N. Hendriks, A. G. Wills, and T. B. Schön. *"Beyond Occam's Razor in System Identification: Double-Descent when Modeling Dynamics"*
In: IFAC SYMPOSIUM ON SYSTEM IDENTIFICATION (SYSID). Vol. 54. 2021, pp. 97–102.
DOI: 10.1016/j.ifacol.2021.08.341.
Young Author Award (Honorable Mention)

[C8] **A. H. Ribeiro** and T. B. Schon. *"How convolutional neural networks deal with aliasing"*
In: IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING (ICASSP). IEEE, 2021, pp. 2755–2759.
DOI: 10.1109/ICASSP39728.2021.9414627.

[C9] D. Gedon, **A. H. Ribeiro**, N. Wahlström, and T. B. Schön. *"First Steps Towards Self-Supervised Pretraining of the 12-Lead ECG"*
In: COMPUTING IN CARDIOLOGY (CINC). Vol. 48. 2021, pp. 1–4.
DOI: 10.23919/CinC53138.2021.9662748.

[C10] D. M. Oliveira, **A. H. Ribeiro**, J. A. O. Pedrosa, G. M. Paixao, A. L. P. Ribeiro, and W. Meira Jr. *"Explaining end-to-end ECG automated diagnosis using contextual features"*
In: EUROPEAN CONFERENCE ON MACHINE LEARNING AND PRINCIPLES AND PRACTICE OF KNOWLEDGE DISCOVERY IN DATABASES (ECML-PKDD). Vol. 12461. Ghent, Belgium: Springer, 2020, pp. 204–219.
DOI: 10.1007/978-3-030-67670-4˙13.

[C11] **A. H. Ribeiro**, D. Gedon, D. M. Teixeira, M. H. Ribeiro, A. L. P. Ribeiro, T. B. Schon, and W. M. Jr. *"Automatic 12-lead ECG classification using a convolutional network ensemble"*
In: COMPUTING IN CARDIOLOGY (CINC). 2020.
DOI: 10.22489/CinC.2020.130.

[C12] **A. H. Ribeiro**, K. Tiels, L. A. Aguirre, and T. B. Schön. *"Beyond exploding and vanishing gradients: attractors and smoothness in the analysis of recurrent neural network training"*
In: INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE AND STATISTICS (AISTATS). Vol. 108. 2020, pp. 2370–2380.

[C13] D. M. Oliveira, **A. H. Ribeiro**, J. A. O. Pedrosa, G. M. M. Paixao, A. L. Ribeiro, and W. M. Jr. *"Explaining black-box automated electrocardiogram classification to cardiologists"*
In: 2020 COMPUTING IN CARDIOLOGY (CINC). Vol. 47. 2020.
DOI: 10.22489/CinC.2020.452.

[C14] C. Andersson, **A. H. Ribeiro**, K. Tiels, N. Wahlström, and T. B. Schön. *"Deep Convolutional Networks in System Identification"*
In: IEEE CONFERENCE ON DECISION AND CONTROL (CDC) (2019), pp. 3670–3676.
DOI: 10.1109/CDC40024.2019.9030219.
*Equal contribution: C. Andersson and A. H. Ribeiro

[C15] **A. H. Ribeiro** and L. A. Aguirre. *"Lasso Regularization Paths for NARMAX Models via Coordinate Descent"*
In: 2018 ANNUAL AMERICAN CONTROL CONFERENCE (ACC). 2018, pp. 5268–5273.
DOI: 10.23919/ACC.2018.8430924.

[C16] **A. H. Ribeiro** and L. A. Aguirre. *"Shooting Methods for Parameter Estimation of Output Error Models"*
In: IFAC WORLD CONGRESS 50.1 (2017), pp. 13998–14003.
DOI: 10.1016/j.ifacol.2017.08.2421.

[C17] **A. H. Ribeiro** and L. A. Aguirre. *"Selecting transients automatically for the identification of models for an oil well"*
In: IFAC WORKSHOP ON AUTOMATIC CONTROL IN OFFSHORE OIL AND GAS PRODUCTION 48.6 (2015), pp. 154–158.
DOI: 10.1016/j.ifacol.2015.08.024.

Peer-reviewed but non-archival workshop papers

[W1] N. Rajabi, **A. H. Ribeiro**, M. Vasco, and D. Kragic. *"Amplified Early Stopping Bias: Overestimated Performance with Deep Learning"*
In: NeurIPS 2024 WORKSHOP ON SCIENTIFIC METHODS FOR UNDERSTANDING DEEP LEARNING (2024).

[W2] J. N. Hendriks, F. K. Gustafsson, **A. H. Ribeiro**, A. G. Wills, and T. B. Schön. *"Deep Energy-Based NARX Models"*
In: WORKSHOP ON NONLINEAR SYSTEM IDENTIFICATION (2021).

[W3] **A. H. Ribeiro**, J. N. Hendriks, A. G. Wills, and T. B. Schön. *"Beyond Occam's Razor in System Identification: Double-Descent when Modeling Dynamics"*
In: WORKSHOP ON NONLINEAR SYSTEM IDENTIFICATION. 2021.

[W4] **A. H. Ribeiro** and T. B. Schön. *"Overparametrized Regression Under L2 Adversarial Attacks"*
In: WORKSHOP ON THE THEORY OF OVERPARAMETERIZED MACHINE LEARNING (TOPML). 2021.

[W5] **A. H. Ribeiro**, C. Andersson, K. Tiels, N. Wahlstrom, and T. B. Schon. *"Deep Convolutional Networks are Useful in System Identification"*
In: WORKSHOP ON NONLINEAR SYSTEM IDENTIFICATION (2019).

[W6] **A. H. Ribeiro**, M. H. Ribeiro, G. Paixão, D. Oliveira, P. R. Gomes, J. A. Canazart, M. Pifano, W. Meira Jr., T. B. Schön, and A. L. Ribeiro. *"Automatic Diagnosis of Short-Duration 12-Lead ECG using a Deep Convolutional Network"*
In: MACHINE LEARNING FOR HEALTH (ML4H) WORKSHOP AT NeurIPS (2018).