

**Francisco de Assis Tenorio de Carvalho**  
Full Publication List

January/2025

## Full Papers in Journals

1. PALOMINO MARIÑO, LAURA MARIA; **TENORIO DE CARVALHO, FRANCISCO DE ASSIS**  
Self-organizing maps with adaptive distances for multiple dissimilarity matrices. MACHINE LEARNING. , v.113, p. 7783-7806, 2024. <https://doi.org/10.1007/s10994-024-06607-x>
2. SIMÕES, EDUARDO C.; **De Carvalho, Francisco de A.T.**  
Gaussian Kernel Fuzzy C-Means with Width Parameter Computation and Regularization. PATTERN RECOGNITION. , v.143, p.109749 - , 2023. <https://doi.org/10.1016/j.patcog.2023.109749>
3. BRANCO, DIOGO P.P.; **DE A.T. DE CARVALHO, FRANCISCO**  
Medoid based semi-supervised fuzzy clustering algorithms for multi-view relational data. FUZZY SETS AND SYSTEMS. , v.469, p.108630 - , 2023. <https://doi.org/10.1016/j.fss.2023.108630>
4. **de Carvalho, Francisco de A. T.**; IRPINO, ANTONIO; Verde, Rosanna; BALZANELLA, ANTONIO  
Batch Self-Organizing Maps for Distributional Data with an Automatic Weighting of Variables and Components. JOURNAL OF CLASSIFICATION. , v.39, p.343 - 375, 2022. <https://doi.org/10.1007/s00357-022-09411-1>
5. RIZO RODRÍGUEZ, SARA INÉS; **TENÓRIO DE CARVALHO, FRANCISCO DE ASSIS**  
Clustering interval-valued data with adaptive Euclidean and City-Block distances. EXPERT SYSTEMS WITH APPLICATIONS. , v.198, p.116774 - , 2022. <https://doi.org/10.1016/j.eswa.2022.116774>
6. MARIÑO, LAURA M.P.; **De Carvalho, Francisco de A.T.**  
Two weighted c-medoids batch SOM algorithms for dissimilarity data. INFORMATION SCIENCES. , v.607, p.603 - 619, 2022. <https://doi.org/10.1016/j.ins.2022.06.019>
7. OLIVEIRA, MARCOS DE S.; QUEIROZ, SERGIO R. DE M.; **CARVALHO, FRANCISCO DE A.T. DE**  
Unsupervised feature selection method based on iterative similarity graph factorization and clustering by modularity. EXPERT SYSTEMS WITH APPLICATIONS. , v.208, p.118092 - , 2022. <https://doi.org/10.1016/j.eswa.2022.118092>
8. MARIÑO, LAURA M.P.; **De Carvalho, Francisco de A.T.**  
Vector batch SOM algorithms for multi-view dissimilarity data. KNOWLEDGE-BASED SYSTEMS. , v.258, p.109994 - , 2022. <https://doi.org/10.1016/j.knosys.2022.109994>
9. **De Carvalho, Francisco de A.T.**; Lima Neto, Eufrásio de A.; DA SILVA, KASSIO C.F.  
A clusterwise nonlinear regression algorithm for interval-valued data. INFORMATION SCIENCES. , v.555, p.357 - 385, 2021. <https://doi.org/10.1016/j.ins.2020.10.054>
10. **De Carvalho, Francisco de A.T.**; BALZANELLA, ANTONIO; IRPINO, ANTONIO; Verde, Rosanna  
Co-clustering algorithms for distributional data with automated variable weighting. INFORMATION SCIENCES. , v.549, p.87 - 115, 2021. <https://doi.org/10.1016/j.ins.2020.11.018>
11. RODRÍGUEZ, SARA I.R.; **De Carvalho, Francisco de A.T.**  
Fuzzy clustering algorithms with distance metric learning and entropy regularization. APPLIED SOFT COMPUTING. , v.113, p.107922 - , 2021. <https://doi.org/10.1016/j.asoc.2021.107922>
12. **DE A.T. DE CARVALHO, FRANCISCO**; DE A. LIMA NETO, EUFRÁSIO; DA N. ROSENDO, ULLYSSES  
Interval joint robust regression method. NEUROCOMPUTING. , v.465, p.265 - 288, 2021. <https://doi.org/10.1016/j.neucom.2021.08.129>
13. RODRÍGUEZ, SARA I.R.; **De Carvalho, Francisco de A.T.**  
Soft subspace clustering of interval-valued data with regularizations. KNOWLEDGE-BASED SYSTEMS. , v.227, p.107191 - , 2021. <https://doi.org/10.1016/j.knosys.2021.107191>
14. DA SILVA, RICARDO A.M.; **De Carvalho, Francisco de A.T.**  
Weighted Clusterwise Linear Regression based on adaptive quadratic form distance. EXPERT SYSTEMS WITH APPLICATIONS. , v.185, p.115609 - , 2021. <https://doi.org/10.1016/j.eswa.2021.115609>

15. DE GUSMÃO, RENÉ PEREIRA; **DE CARVALHO, FRANCISCO DE ASSIS TENÓRIO**  
PSO for Fuzzy Clustering of Multi-view Relational Data. INTERNATIONAL JOURNAL OF PATTERN RECOGNITION AND ARTIFICIAL INTELLIGENCE. , v.34, p.2050022 - 2050022-33, 2020. <https://doi.org/10.1142/S0218001420500226>
16. DE GUSMÃO, RENÉ PEREIRA; **De Carvalho, Francisco de A.T.**  
Clustering of multi-view relational data based on particle swarm optimization. EXPERT SYSTEMS WITH APPLICATIONS. , v.123, p.34 - 53, 2019. <https://doi.org/10.1016/j.eswa.2018.12.053>
17. NETO, EUFRÁSIO DE A. LIMA; **De Carvalho, Francisco de A.T.**  
An exponential-type kernel robust regression model for interval-valued variables. INFORMATION SCIENCES. , v.454, p.419 - 442, 2018. <https://doi.org/10.1016/j.ins.2018.05.008>
18. **De Carvalho, Francisco de A.T.**; SIMÕES, EDUARDO C.; SANTANA, LUCAS V.C.; FERREIRA, MARCELO R.P.  
Gaussian Kernel C-Means Hard Clustering Algorithms with Automated Computation of the Width Hyper-Parameters. PATTERN RECOGNITION. , v.79, p.370 - 386, 2018. <https://doi.org/10.1016/j.patcog.2018.02.018>
19. **de Carvalho, Francisco de A. T.**; LIMA NETO, E. A.; Ferreira, M.R.P.  
A robust regression method based on exponential-type kernel functions. Neurocomputing (Amsterdam). , v.234, p.58 - 74, 2017. <https://doi.org/10.1016/j.neucom.2016.12.035>
20. IRPINO, ANTONIO; Verde, Rosanna; **De Carvalho, Francisco de A.T.**  
Fuzzy clustering of distributional data with automatic weighting of variable components. INFORMATION SCIENCES. , v.406, p.248 - 268, 2017. <https://doi.org/10.1016/j.ins.2017.04.040>
21. **De Carvalho, Francisco de A.T.**; SIMÕES, EDUARDO C.  
Fuzzy Clustering of Interval-Valued Data with City-Block and Hausdorff Distances. NEUROCOMPUTING. , v.266, p.659 - 673, 2017. <https://doi.org/10.1016/j.neucom.2017.05.084>
22. Lima Neto, Eufrásio de A.; **de Carvalho, Francisco de A. T.**  
Nonlinear regression applied to interval-valued data. PATTERN ANALYSIS AND APPLICATIONS. , v.20, p.809 - 824, 2017. <https://doi.org/10.1007/s10044-016-0538-y>
23. **CARVALHO, FRANCISCO DE A.T. DE**; BERTRAND, PATRICE; SIMÕES, EDUARDO C.  
Batch SOM algorithms for interval-valued data with automatic weighting of the variables. Neurocomputing (Amsterdam). , v.182, p.66 - 81, 2016. <https://doi.org/10.1016/j.neucom.2015.11.084>
24. SU, SHUN-FENG; PEDRYCZ, WITOLD; HONG, TZUNG-PEI; **de Carvalho, Francisco de A. T.**  
Guest Editorial Special Issue on Granular/Symbolic Data Processing. IEEE T CYBERNETICS. , v.46, p.342 - 343, 2016. <https://doi.org/10.1109/TCYB.2015.2513258>
25. FERREIRA, MARCELO R.P.; **De Carvalho, Francisco de A.T.**; SIMÕES, EDUARDO C.  
Kernel-based hard clustering methods with kernelization of the metric and automatic weighting of the variables. Pattern Recognition. , v.51, p.310 - 321, 2016. <https://doi.org/10.1016/j.patcog.2015.09.025>
26. **De Carvalho, Francisco de A.T.**; de Melo, Filipe M.; Lechevallier, Yves  
A multi-view relational fuzzy c-medoid vectors clustering algorithm. Neurocomputing (Amsterdam). , v.163, p.115 - 123, 2015. <https://doi.org/10.1016/j.neucom.2014.11.083>
27. IRPINO, ANTONIO; Verde, Rosanna; **De Carvalho, Francisco de A.T.**  
Dynamic clustering of histogram data based on adaptive squared Wasserstein distances. Expert Systems with Applications. , v.41, p.3351 - 3366, 2014. <https://doi.org/10.1016/j.eswa.2013.12.001>
28. FERREIRA, MARCELO R.P.; **De Carvalho, Francisco de A.T.**  
Kernel fuzzy c-means with automatic variable weighting. Fuzzy Sets and Systems. , v.237, p.1 - 46, 2014. <https://doi.org/10.1016/j.fss.2013.05.004>

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Kernel-based hard clustering methods in the feature space with automatic variable weighting. Pattern Recognition. , v.47, p.3082 - 3095, 2014. <https://doi.org/10.1016/j.patcog.2014.03.026>
30. QUEIROZ, SERGIO; **De Carvalho, Francisco de A.T.**; Lechevallier, Yves  
Nonlinear multicriteria clustering based on multiple dissimilarity matrices. Pattern Recognition. , v.46, p.3383 - 3394, 2013. <https://doi.org/10.1016/j.patcog.2013.06.008>
31. **de Carvalho, F.A.T.**; LECHEVALLIER, Y.; MELO, F. M.  
Relational Partitioning Fuzzy Clustering Algorithms Based on Multiple Dissimilarity Matrices. Fuzzy Sets and Systems. , v.215, p.1 - 28, 2013. <https://doi.org/10.1016/j.fss.2012.09.011>
32. DO REGO, T. G.; Roider, H. G.; **DE CARVALHO, F. A. T.**; COSTA, I. G.  
Inferring epigenetic and transcriptional regulation during blood cell development with a mixture of sparse linear models. Bioinformatics (Oxford. Print). , v.28, p.362 - , 2012.  
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33. **DE CARVALHO, F. A. T.**; LECHEVALLIER, Y.; de Melo, Filipe M.  
Partitioning hard clustering algorithms based on multiple dissimilarity matrices. Pattern Recognition. , v.45, p.447 - 464, 2012. <https://doi.org/10.1016/j.patcog.2011.05.016>
34. LIMA NETO, E. A.; CORDEIRO, G. M.; **DECARVALHO, F**  
Bivariate Symbolic Regression Models for Interval-Valued Variables. Journal of Statistical Computation and Simulation (Print). , v.81, p.1727 - 1744, 2011. <https://doi.org/10.1080/00949655.2010.500470>
35. MAIA, A. L. S.; **De Carvalho, Francisco de A.T.**  
Holt's exponential smoothing and neural network models for forecasting interval-valued time series. International Journal of Forecasting. , v.27, p.740 - 759, 2011.  
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Predicting gene expression in T cell differentiation from histone modifications and transcription factor binding affinities by linear mixture models. BMC Bioinformatics. , v.12, p.S29 - , 2011.  
<https://doi.org/10.1186/1471-2105-12-S1-S29>
37. B Leite Dantas Bezerra; **Tenorio de Carvalho, FA**  
Symbolic data analysis tools for recommendation systems. Knowledge and Information Systems. , v.26, p.385 - 418, 2011. <https://doi.org/10.1007/s10115-009-0282-3>
38. Lima Neto, Eufrásio de A.; **De Carvalho, Francisco de A.T.**  
Constrained linear regression models for symbolic interval-valued variables. Computational Statistics & Data Analysis (Print). , v.54, p.333 - 347, 2010. <https://doi.org/10.1016/j.csda.2009.08.010>
39. **De Carvalho, Francisco de A.T.**; Tenório, Camilo P.  
Fuzzy K-means clustering algorithms for interval-valued data based on adaptive quadratic distances?. Fuzzy Sets and Systems. , v.161, p.2978 - 2999, 2010. <https://doi.org/10.1016/j.fss.2010.08.003>
40. **De Carvalho, Francisco de A.T.**; de Souza, Renata M.C.R.  
Unsupervised pattern recognition models for mixed feature-type symbolic data. Pattern Recognition Letters. , v.31, p.430 - 443, 2010. <https://doi.org/10.1016/j.patrec.2009.11.007>
41. **DE CARVALHO, F. A. T.**; CSERNEL, M.; LECHEVALLIER, Y.  
Clustering Constrained Symbolic Data. Pattern Recognition Letters. , v.30, p.1037 - 1045, 2009.  
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42. **de Carvalho, Francisco de A. T.**; Lechevallier, Yves  
Dynamic Clustering of Interval-Valued Data Based on Adaptive Quadratic Distances. IEEE Transactions on Systems, Man and Cybernetics. Part A. Systems and Humans. , v.39, p.1295 - 1306, 2009.  
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Partitional clustering algorithms for symbolic interval data based on single adaptive distances. *Pattern Recognition*. , v.42, p.1223 - 1236, 2009. <https://doi.org/10.1016/j.patcog.2008.11.016>
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45. MAIA, A; **DECARVALHO, F**; LUDERMIR, T  
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Adaptive Hausdorff distances and dynamic clustering of symbolic interval data. *Pattern Recognition Letters*. , v.27, p.167 - 179, 2006. <https://doi.org/10.1016/j.patrec.2005.08.014>
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Dynamic clustering for interval data based on L 2 distance. *Computational Statistics (Zeitschrift)*. , v.21, p.231 - 250, 2006. <https://doi.org/10.1007/s00180-006-0261-z>
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New clustering methods for interval data. *Computational Statistics (Zeitschrift)*. , v.21, p.211 - 229, 2006. <https://doi.org/10.1007/s00180-006-0260-0>
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Partitional fuzzy clustering methods based on adaptive quadratic distances. *Fuzzy Sets and Systems*. , v.157, p.2833 - 2857, 2006. <https://doi.org/10.1016/j.fss.2006.06.004>
51. SOUZA, R. M. C. R.; **DE CARVALHO, F. A. T.**  
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52. LIMA NETO, E. A.; **DE CARVALHO, F. A. T.**  
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62. **de Carvalho, F.A.T.**; de Souza, R.M.C.R.  
Unsupervised pattern recognition methods for interval data using non-quadratic distances. *Electronics Letters.* , v.39, p.433 - , 2003. <https://doi.org/10.1049/el:20030304>
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64. CSERNEL, M.; **DE CARVALHO, F. A. T.**  
Usual operations with symbolic data under normal symbolic form. *Applied Stochastic Models in Business and Industry.* , v.15, p.241 - 257, 1999. [https://doi.org/10.1002/\(SICI\)1526-4025\(199910/12\)15:4<241::AID-ASMB390>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1526-4025(199910/12)15:4<241::AID-ASMB390>3.0.CO;2-Z)
65. KOENING, M. L.; ESKINAZILEÇA, E.; **de Carvalho, Francisco de A. T.**  
Análise Ecológica da Diatomoflora do Estuário do rio Ipojuca (Suape- Pernambuco-Brasil). *Trabalhos Oceanograficos da Universidade Federal de Pernambuco.* , v.24, p.61 - 78, 1996.
66. **DECARVALHO, F**  
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## Book Chapters

1. Araújo, Rodrigo C.; **Assis Tenorio de Carvalho, Francisco**; Lechevallier, Yves  
A Novel Clustering Method with Automatic Weighting of Tables and Variables In: *Advances in Data Science.* 1 ed.: Wiley, 2020, p. 187-207. <https://doi.org/10.1002/9781119695110.ch9>
2. Bessafi, Miloud; **de A.T. de Carvalho, Franciscos**; Charton, Philippe; Delsaut, Mathieu; Despeyroux, Thierry; Jeanty, Patrick; Lan-Sun-Luk, Jean Daniel; Lechevallier, Yves; Ralambondrainy, Henri; Trovalet, Lionel  
Clustering of Solar Irradiance In: *Studies in Classification, Data Analysis, and Knowledge Organization.* 1 ed.: Springer Berlin Heidelberg, 2015, p. 43-53. [https://doi.org/10.1007/978-3-662-44983-7\\_4](https://doi.org/10.1007/978-3-662-44983-7_4)
3. **A.T. de Carvalho, Francisco**; Lechevallier, Yves; Despeyroux, Thierry; Melo, Filipe M.  
Multi-view Clustering on Relational Data In: *Studies in Computational Intelligence.* 527 ed. Berlin et al (Germany): Springer International Publishing, 2014, v.4, p. 37-51. [https://doi.org/10.1007/978-3-319-02999-3\\_3](https://doi.org/10.1007/978-3-319-02999-3_3)
4. CSERNEL, M.; **DE CARVALHO, F. A. T.**  
Normalizing Constrained Symbolic Data for Clustering In: *Advances in Theory and Applications of High Dimensional and Symbolic Data Analysis.* 1 ed. Paris (França): Éditions Hermann, 2013, v.E.25, p. 59-80.

5. Silva, Alzenny; Lechevallier, Yves; Rossi, Fabrice; **Carvalho, Francisco**  
Clustering Dynamic Web Usage Data In: Innovative Applications in Data Mining.169 ed.Berlin et al (Germany): Springer Berlin Heidelberg, 2008, v.1, p. 71-82. [https://doi.org/10.1007/978-3-540-88045-5\\_4](https://doi.org/10.1007/978-3-540-88045-5_4)
6. **Carvalho, Francisco de A. T. de**; Lechevallier, Yves; Verde, Rosanna  
Clustering Methods in Symbolic Data Analysis In: Symbolic Data Analysis and the SODAS Software.1 ed.San Francisco (USA): John Wiley & Sons, Ltd, 2008, v.1, p. 181-203.  
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7. Silva, Alzenny; Lechevallier, Yves; **Carvalho, Francisco**  
Comparing Clustering on Symbolic Data In: Intelligent Text Categorization and Clustering.164 ed.Berlin et al (Germany): Springer Berlin Heidelberg, 2008, v.1, p. 81-94. [https://doi.org/10.1007/978-3-540-85644-3\\_5](https://doi.org/10.1007/978-3-540-85644-3_5)
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The Normal Symbolic Form In: Symbolic Data Analysis and the SODAS Software.1 ed.San Francisco (USA): John Wiley & Sons, Ltd, 2008, v.1, p. 93-107. <https://doi.org/10.1002/9780470723562.ch6>
10. **Carvalho, Francisco de A. T.**  
A Clustering Algorithm for Symbolic Interval Data Based on a Single Adaptive Hausdorff Distance In: Selected Contributions in Data Analysis and Classification.1 ed.Berlin et al: Springer Berlin Heidelberg, 2007, v.1, p. 35-44. [https://doi.org/10.1007/978-3-540-73560-1\\_4](https://doi.org/10.1007/978-3-540-73560-1_4)
11. GOMES, A. C.; LECHEVALLIER, Y.; ROSSI, F.; **DE CARVALHO, F. A. T.**  
Construction et analyse de résumés de données évolutives : application aux données d'usage du Web In: Revue des Nouvelles Technologies de l'Information (RNTI-E-9) ed.Toulouse (França): Cepadue Editions, 2007, v.II, p. 539-544.
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13. DE CARVALHO, F. A. T.; DIDAY, E.  
Un Indice de Proximite entre Objets Symboliques qui tient compte des Contraintes dans l'Espace de Description In: Induction Symbolique Numerique a partir de Donnees ed.Toulouse: Cepadues Editions, 2000, p. 225-246.

#### **Book (Org.)**

1. BRITO, P.; BERTRAND, P.; CUCUMEL, G.; **DE CARVALHO, F. A. T.**  
Selected Contributions in Data Analysis and Classification. Heidelberg (Alemanha): Springer-Verlag, 2007, v.1. p.627.

#### **Full papers in Conferences**

1. DE SA, JOSE NATANIEL A.; FERREIRA, MARCELO R.P.; **De Carvalho, Francisco de A.T.**  
Kernel-based Fuzzy Co-clustering in Feature Space with Automated Variable Weighting In: 2022 IEEE International Conference on Fuzzy Systems (FUZZIEEE), 2022, Padua.  
**2022 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)**. , 2022. p.1 –  
<https://doi.org/10.1109/FUZZ-IEEE55066.2022.9882838>
2. MARINO, LAURA M. P.; **de Carvalho, Francisco de A. T.**

A new batch SOM algorithm for relational data with weighted medoids In: 2020 International Joint Conference on Neural Networks (IJCNN), 2020, Glasgow.

**2020 International Joint Conference on Neural Networks (IJCNN)**. IEEE, 2020. v.1. p.1 – 8  
<https://doi.org/10.1109/IJCNN48605.2020.9207310>

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