Alberto Fernandez

List of Publications by Year
in descending order

117	12,232	81839	62565
papers	citations	39	80
		h-index	g-index

122	122	122	9156
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	A Review on Ensembles for the Class Imbalance Problem: Bagging-, Boosting-, and Hybrid-Based Approaches. IEEE Transactions on Systems, Man and Cybernetics, Part C: Applications and Reviews, 2012, 42, 463-484.	3.3	1,955
2	Advanced nonparametric tests for multiple comparisons in the design of experiments in computational intelligence and data mining: Experimental analysis of power. Information Sciences, 2010, 180, 2044-2064.	4.0	1,627
3	An insight into classification with imbalanced data: Empirical results and current trends on using data intrinsic characteristics. Information Sciences, 2013, 250, 113-141.	4.0	1,158
4	SMOTE for Learning from Imbalanced Data: Progress and Challenges, Marking the 15-year Anniversary. Journal of Artificial Intelligence Research, 0, 61, 863-905.	7.0	942
5	An overview of ensemble methods for binary classifiers in multi-class problems: Experimental study on one-vs-one and one-vs-all schemes. Pattern Recognition, 2011, 44, 1761-1776.	5.1	599
6	A study of statistical techniques and performance measures for genetics-based machine learning: accuracy and interpretability. Soft Computing, 2009, 13, 959-977.	2.1	563
7	Learning from Imbalanced Data Sets. , 2018, , .		477
8	EUSBoost: Enhancing ensembles for highly imbalanced data-sets by evolutionary undersampling. Pattern Recognition, 2013, 46, 3460-3471.	5.1	317
9	Analysing the classification of imbalanced data-sets with multiple classes: Binarization techniques and ad-hoc approaches. Knowledge-Based Systems, 2013, 42, 97-110.	4.0	286
10	A study of the behaviour of linguistic fuzzy rule based classification systems in the framework of imbalanced data-sets. Fuzzy Sets and Systems, 2008, 159, 2378-2398.	1.6	250
11	Analysis of preprocessing vs. cost-sensitive learning for imbalanced classification. Open problems on intrinsic data characteristics. Expert Systems With Applications, 2012, 39, 6585-6608.	4.4	248
12	KEEL 3.0: An Open Source Software for Multi-Stage Analysis in Data Mining. International Journal of Computational Intelligence Systems, 2017, 10, 1238.	1.6	201
13	Big Data with Cloud Computing: an insight on the computing environment, <scp>MapReduce</scp>, and programming frameworks. Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery, 2014, 4, 380-409.	4.6	175
14	Hierarchical fuzzy rule based classification systems with genetic rule selection for imbalanced data-sets. International Journal of Approximate Reasoning, 2009, 50, 561-577.	1.9	166
15	On the combination of genetic fuzzy systems and pairwise learning for improving detection rates on Intrusion Detection Systems. Expert Systems With Applications, 2015, 42, 193-202.	4.4	162
16	Evolutionary Fuzzy Systems for Explainable Artificial Intelligence: Why, When, What for, and Where to?. IEEE Computational Intelligence Magazine, 2019, 14, 69-81.	3.4	154
17	An insight into imbalanced Big Data classification: outcomes and challenges. Complex & Intelligent Systems, 2017, 3, 105-120.	4.0	153
18	Addressing data complexity for imbalanced data sets: analysis of SMOTE-based oversampling and evolutionary undersampling. Soft Computing, 2011, 15, 1909-1936.	2.1	144

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19	Genetics-Based Machine Learning for Rule Induction: State of the Art, Taxonomy, and Comparative Study. IEEE Transactions on Evolutionary Computation, 2010, 14, 913-941.	7.5	137
20	Enhancing Multiclass Classification in FARC-HD Fuzzy Classifier: On the Synergy Between n-Dimensional Overlap Functions and Decomposition Strategies. IEEE Transactions on Fuzzy Systems, 2015, 23, 1562-1580.	6.5	132
21	On the importance of the validation technique for classification with imbalanced datasets: Addressing covariate shift when data is skewed. Information Sciences, 2014, 257, 1-13.	4.0	125
22	IVTURS: A Linguistic Fuzzy Rule-Based Classification System Based On a New Interval-Valued Fuzzy Reasoning Method With Tuning and Rule Selection. IEEE Transactions on Fuzzy Systems, 2013, 21, 399-411.	6.5	122
23	Big Data: Tutorial and guidelines on information and process fusion for analytics algorithms with MapReduce. Information Fusion, 2018, 42, 51-61.	11.7	122
24	A genetic tuning to improve the performance of Fuzzy Rule-Based Classification Systems with Interval-Valued Fuzzy Sets: Degree of ignorance and lateral position. International Journal of Approximate Reasoning, 2011, 52, 751-766.	1.9	121
25	Revisiting Evolutionary Fuzzy Systems: Taxonomy, applications, new trends and challenges. Knowledge-Based Systems, 2015, 80, 109-121.	4.0	120
26	Improving the performance of fuzzy rule-based classification systems with interval-valued fuzzy sets and genetic amplitude tuning. Information Sciences, 2010, 180, 3674-3685.	4.0	106
27	On the 2-tuples based genetic tuning performance for fuzzy rule based classification systems in imbalanced data-sets. Information Sciences, 2010, 180, 1268-1291.	4.0	95
28	Enhancing the effectiveness and interpretability of decision tree and rule induction classifiers with evolutionary training set selection over imbalanced problems. Applied Soft Computing Journal, 2009, 9, 1304-1314.	4.1	87
29	Dynamic classifier selection for One-vs-One strategy: Avoiding non-competent classifiers. Pattern Recognition, 2013, 46, 3412-3424.	5.1	85
30	Ordering-based pruning for improving the performance of ensembles of classifiers in the framework of imbalanced datasets. Information Sciences, 2016, 354, 178-196.	4.0	78
31	DRCW-OVO: Distance-based relative competence weighting combination for One-vs-One strategy in multi-class problems. Pattern Recognition, 2015, 48, 28-42.	5.1	74
32	A hierarchical genetic fuzzy system based on genetic programming for addressing classification with highly imbalanced and borderline data-sets. Knowledge-Based Systems, 2013, 38, 85-104.	4.0	70
33	Solving multi-class problems with linguistic fuzzy rule based classification systems based on pairwise learning and preference relations. Fuzzy Sets and Systems, 2010, 161, 3064-3080.	1.6	66
34	FW-SMOTE: A feature-weighted oversampling approach for imbalanced classification. Pattern Recognition, 2022, 124, 108511.	5.1	57
35	On the influence of an adaptive inference system in fuzzy rule based classification systems for imbalanced data-sets. Expert Systems With Applications, 2009, 36, 9805-9812.	4.4	55
36	Imbalance: Oversampling algorithms for imbalanced classification in R. Knowledge-Based Systems, 2018, 161, 329-341.	4.0	53

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37	A proposal for evolutionary fuzzy systems using feature weighting: Dealing with overlapping in imbalanced datasets. Knowledge-Based Systems, 2015, 73, 1-17.	4.0	49
38	An Overview of E-Learning in Cloud Computing. Advances in Intelligent Systems and Computing, 2012, , 35-46.	0.5	49
39	A View on Fuzzy Systems for Big Data: Progress and Opportunities. International Journal of Computational Intelligence Systems, 2016, 9, 69.	1.6	47
40	A multi-objective evolutionary fuzzy system to obtain a broad and accurate set of solutions in intrusion detection systems. Soft Computing, 2019, 23, 1321-1336.	2.1	43
41	A Pareto-based Ensemble with Feature and Instance Selection for Learning from Multi-Class Imbalanced Datasets. International Journal of Neural Systems, 2017, 27, 1750028.	3.2	42
42	Addressing the Classification with Imbalanced Data: Open Problems and New Challenges on Class Distribution. Lecture Notes in Computer Science, 2011, , 1-10.	1.0	39
43	Cost-Sensitive Learning. , 2018, , 63-78.		37
44	Empowering difficult classes with a similarity-based aggregation in multi-class classification problems. Information Sciences, 2014, 264, 135-157.	4.0	34
45	E-learning and educational data mining in cloud computing: an overview. International Journal of Learning Technology, 2014, 9, 25.	0.2	33
46	Fuzzy rule based classification systems for big data with MapReduce: granularity analysis. Advances in Data Analysis and Classification, 2017, 11, 711-730.	0.9	33
47	IIVFDT: IGNORANCE FUNCTIONS BASED INTERVAL-VALUED FUZZY DECISION TREE WITH GENETIC TUNING. International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems, 2012, 20, 1-30.	0.9	32
48	Multi-class Imbalanced Data-Sets with Linguistic Fuzzy Rule Based Classification Systems Based on Pairwise Learning. Lecture Notes in Computer Science, 2010, , 89-98.	1.0	31
49	FEATURE SELECTION AND GRANULARITY LEARNING IN GENETIC FUZZY RULE-BASED CLASSIFICATION SYSTEMS FOR HIGHLY IMBALANCED DATA-SETS. International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems, 2012, 20, 369-397.	0.9	30
50	Analysis of an evolutionary RBFN design algorithm, CO2RBFN, for imbalanced data sets. Pattern Recognition Letters, 2010, 31, 2375-2388.	2.6	27
51	Dynamic affinity-based classification of multi-class imbalanced data with one-versus-one decomposition: a fuzzy rough set approach. Knowledge and Information Systems, 2018, 56, 55-84.	2.1	27
52	On the joint-effect of class imbalance and overlap: a critical review. Artificial Intelligence Review, 2022, 55, 6207-6275.	9.7	27
53	Glasses detection on real images based on robust alignment. Machine Vision and Applications, 2015, 26, 519-531.	1.7	23
54	NMC: nearest matrix classification â€“ A new combination model for pruning One-vs-One ensembles by transforming the aggregation problem. Information Fusion, 2017, 36, 26-51.	11.7	18

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55	IFC-BD: An Interpretable Fuzzy Classifier for Boosting Explainable Artificial Intelligence in Big Data. IEEE Transactions on Fuzzy Systems, 2022, 30, 830-840.	6.5	18
56	Chi-Spark-RS: An Spark-built evolutionary fuzzy rule selection algorithm in imbalanced classification for big data problems. , 2017, , .		16
57	SMOTE-BD: An Exact and Scalable Oversampling Method for Imbalanced Classification in Big Data. Journal of Computer Science and Technology(Argentina), 2018, 18, e23.	0.5	15
58	Evolutionary Fuzzy Systems: A Case Study for Intrusion Detection Systems. Studies in Computational Intelligence, 2019, , 169-190.	0.7	14
59	A Metahierarchical Rule Decision System to Design Robust Fuzzy Classifiers Based on Data Complexity. IEEE Transactions on Fuzzy Systems, 2019, 27, 701-715.	6.5	12
60	Why Linguistic Fuzzy Rule Based Classification Systems perform well in Big Data Applications?. International Journal of Computational Intelligence Systems, 2017, 10, 1211.	1.6	11
61	KEEL: A data mining software tool integrating genetic fuzzy systems. , 2008, , .		10
62	A First Approach in Evolutionary Fuzzy Systems based on the lateral tuning of the linguistic labels for Big Data classification. , 2016, , .		10
63	Revisiting data complexity metrics based on morphology for overlap and imbalance: snapshot, new overlap number of balls metrics and singular problems prospect. Knowledge and Information Systems, 2021, 63, 1961-1989.	2.1	10
64	Foundations on Imbalanced Classification. , 2018, , 19-46.		9
65	An efficiency curve for evaluating imbalanced classifiers considering intrinsic data characteristics: Experimental analysis. Information Sciences, 2022, 608, 1131-1156.	4.0	9
66	Introduction to KDD and Data Science. , 2018, , 1-17.		8
67	An Analysis of Local and Global Solutions to Address Big Data Imbalanced Classification: A Case Study with SMOTE Preprocessing. Communications in Computer and Information Science, 2019, , 75-85.	0.4	8
68	HFER: Promoting Explainability in Fuzzy Systems via Hierarchical Fuzzy Exception Rules. , 2020, , .		8
69	Using KEEL software as a educational tool: A case of study teaching data mining. , 2011, , .		7
70	Imbalanced Classification for Big Data. , 2018, , 327-349.		7
71	Data Intrinsic Characteristics. , 2018, , 253-277.		7
72	On the Need of Interpretability for Biomedical Applications: Using Fuzzy Models for Lung Cancer Prediction with Liquid Biopsy. , 2019, , .		7

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73	Addressing Data-Complexity for Imbalanced Data-Sets: A Preliminary Study on the Use of Preprocessing for C4.5. , 2009, , .		6
74	A genetic algorithm for tuning fuzzy rule-based classification systems with Interval-Valued Fuzzy Sets. , 2010, , .		6
75	Analysing the Hierarchical Fuzzy Rule Based Classification Systems with genetic rule selection. , 2010, , .		6
76	Linguistic Fuzzy Rules in Data Mining: Follow-Up Mamdani Fuzzy Modeling Principle. Studies in Fuzziness and Soft Computing, 2012, , 103-122.	0.6	6
77	Interpreting Deep Machine Learning Models: An Easy Guide for Oncologists. IEEE Reviews in Biomedical Engineering, 2023, 16, 192-207.	13.1	6
78	A genetic learning of the fuzzy rule-based classification system granularity for highly imbalanced data-sets. , 2009, , .		5
79	Enhancing evolutionary fuzzy systems for multi-class problems: Distance-based relative competence weighting with truncated confidences (DRCW-TC). International Journal of Approximate Reasoning, 2016, 73, 108-122.	1.9	5
80	Chi-BD-DRF: Design of Scalable Fuzzy Classifiers for Big Data via A Dynamic Rule Filtering Approach. , 2020, , .		5
81	Addressing Overlapping in Classification with Imbalanced Datasets: A First Multi-objective Approach for Feature and Instance Selection. Lecture Notes in Computer Science, 2015, , 36-44.	1.0	5
82	An Analysis of the Rule Weights and Fuzzy Reasoning Methods for Linguistic Rule Based Classification Systems Applied to Problems with Highly Imbalanced Data Sets. Lecture Notes in Computer Science, 2007, , 170-178.	1.0	5
83	Construction of Interval-Valued Fuzzy Preference Relations Using Ignorance Functions: Interval-Valued Non Dominance Criterion. Advances in Intelligent and Soft Computing, 2011, , 243-255.	0.2	5
84	An Overview on the Structure and Applications for Business Intelligence and Data Mining in Cloud Computing. Advances in Intelligent Systems and Computing, 2013, , 559-570.	0.5	4
85	Addressing covariate shift for Genetic Fuzzy Systems classifiers: A case of study with FARC-HD for imbalanced datasets. , 2013, , .		4
86	Unobtrusive health monitoring system using video-based physiological information and activity measurements. , 2015, , .		4
87	A first approach for cost-sensitive classification with linguistic Genetic Fuzzy Systems in imbalanced data-sets. , 2010, , .		3
88	A case study on medical diagnosis of cardiovascular diseases using a Genetic Algorithm for Tuning Fuzzy Rule-Based Classification Systems with Interval-Valued Fuzzy Sets. , 2011, , .		3
89	A Real-Time Big Data Architecture for Glasses Detection Using Computer Vision Techniques. , 2015, , .		3
90	Dimensionality Reduction for Imbalanced Learning. , 2018, , 227-251.		3

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91	Ensemble Learning. , 2018, , 147-196.		3
92	Surveying alignment-free features for Ortholog detection in related yeast proteomes by using supervised big data classifiers. BMC Bioinformatics, 2018, 19, 166.	1.2	3
93	FDR2-BD: A Fast Data Reduction Recommendation Tool for Tabular Big Data Classification Problems. Electronics (Switzerland), 2021, 10, 1757.	1.8	3
94	Improving the Performance of Fuzzy Rule Based Classification Systems for Highly Imbalanced Data-Sets Using an Evolutionary Adaptive Inference System. Lecture Notes in Computer Science, 2009, , 294-301.	1.0	3
95	Implementation and Integration of Algorithms into the KEEL Data-Mining Software Tool. Lecture Notes in Computer Science, 2009, , 562-569.	1.0	3
96	A Review of Distributed Data Models for Learning. Lecture Notes in Computer Science, 2017, , 88-97.	1.0	3
97	The impact of heterogeneous distance functions on missing data imputation and classification performance. Engineering Applications of Artificial Intelligence, 2022, 111, 104791.	4.3	3
98	Optical fiber sensor toward pyridine vapors detection. , 2008, , .		2
99	Studying the behavior of a multiobjective genetic algorithm to design fuzzy rule-based classification systems for imbalanced data-sets. , 2011, , .		2
100	Data Level Preprocessing Methods. , 2018, , 79-121.		2
101	A First Study on the Use of Interval-Valued Fuzzy Sets with Genetic Tuning for Classification with Imbalanced Data-Sets. Lecture Notes in Computer Science, 2009, , 581-588.	1.0	2
102	Predicting Biodegradable Quality of Chemicals with the TGI+.3 Classifier. , 2011, , .		2
103	A Short Study on the Use of Genetic 2-Tuples Tuning for Fuzzy Rule Based Classification Systems in Imbalanced Data-Sets. , 2008, , .		1
104	On the cooperation of interval-valued fuzzy sets and genetic tuning to improve the performance of fuzzy decision trees. , 2011, , .		1
105	Improving the OVO performance in Fuzzy Rule-Based Classification Systems by the genetic learning of the granularity level. , 2015, , .		1
106	Evolutionary Fuzzy Systems: A Case Study in Imbalanced Classification. Studies in Fuzziness and Soft Computing, 2016, , 169-200.	0.6	1
107	Improving Fuzzy Rule Based Classification Systems in Big Data via Support-based Filtering. , 2018, , .		1
108	Imbalanced Classification with Multiple Classes. , 2018, , 197-226.		1

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109	SOUL: Scala Oversampling and Undersampling Library for imbalance classification. SoftwareX, 2021, 15, 100767.	1.2	1
110	On the Combination of Pairwise and Granularity Learning for Improving Fuzzy Rule-Based Classification Systems: GL-FARCHD-OVO. Advances in Intelligent Systems and Computing, 2016, , 135-146.	0.5	1
111	On the impact of Distance-based Relative Competence Weighting approach in One-vs-One classification for Evolutionary Fuzzy Systems: DRCW-FH-GBML algorithm. , 2015, , .		0
112	Software and Libraries for Imbalanced Classification. , 2018, , 351-377.		0
113	Guest Editorial: Computational Intelligence for Big Data Analytics. Cognitive Computation, 2019, 11, 329-330.	3.6	0
114	Learning interpretable multi-class models by means of hierarchical decomposition: Threshold Control for Nested Dichotomies. Neurocomputing, 2021, 463, 514-524.	3.5	0
115	A Preliminar Analysis of CO2RBFN in Imbalanced Problems. Lecture Notes in Computer Science, 2009, , 57-64.	1.0	0
116	On the Usefulness of Fuzzy Rule Based Systems Based on Hierarchical Linguistic Fuzzy Partitions. Intelligent Systems Reference Library, 2011, , 155-184.	1.0	0
117	Improving Pairwise Learning Classification in Fuzzy Rule Based Classification Systems Using Dynamic Classifier Selection. , 0, , .		0