

Alberto Fernandez

List of Publications by Citations

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114
papers

8,554
citations

36
h-index

92
g-index

122
ext. papers

10,337
ext. citations

4.3
avg, IF

6.31
L-index

#	Paper	IF	Citations
114	A Review on Ensembles for the Class Imbalance Problem: Bagging-, Boosting-, and Hybrid-Based Approaches. <i>IEEE Transactions on Systems, Man and Cybernetics, Part C: Applications and Reviews</i> , 2012 , 42, 463-484		1372
113	Advanced nonparametric tests for multiple comparisons in the design of experiments in computational intelligence and data mining: Experimental analysis of power. <i>Information Sciences</i> , 2010 , 180, 2044-2064	7.7	1240
112	An insight into classification with imbalanced data: Empirical results and current trends on using data intrinsic characteristics. <i>Information Sciences</i> , 2013 , 250, 113-141	7.7	829
111	An overview of ensemble methods for binary classifiers in multi-class problems: Experimental study on one-vs-one and one-vs-all schemes. <i>Pattern Recognition</i> , 2011 , 44, 1761-1776	7.7	465
110	A study of statistical techniques and performance measures for genetics-based machine learning: accuracy and interpretability. <i>Soft Computing</i> , 2009 , 13, 959-977	3.5	460
109	SMOTE for Learning from Imbalanced Data: Progress and Challenges, Marking the 15-year Anniversary. <i>Journal of Artificial Intelligence Research</i> , 2011 , 61, 863-905	4	415
108	EUSBoost: Enhancing ensembles for highly imbalanced data-sets by evolutionary undersampling. <i>Pattern Recognition</i> , 2013 , 46, 3460-3471	7.7	242
107	Analysing the classification of imbalanced data-sets with multiple classes: Binarization techniques and ad-hoc approaches. <i>Knowledge-Based Systems</i> , 2013 , 42, 97-110	7.3	216
106	Learning from Imbalanced Data Sets 2018 ,		198
105	A study of the behaviour of linguistic fuzzy rule based classification systems in the framework of imbalanced data-sets. <i>Fuzzy Sets and Systems</i> , 2008 , 159, 2378-2398	3.7	196
104	Analysis of preprocessing vs. cost-sensitive learning for imbalanced classification. Open problems on intrinsic data characteristics. <i>Expert Systems With Applications</i> , 2012 , 39, 6585-6608	7.8	192
103	Big Data with Cloud Computing: an insight on the computing environment, MapReduce, and programming frameworks. <i>Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery</i> , 2014 , 4, 380-409	6.9	134
102	Hierarchical fuzzy rule based classification systems with genetic rule selection for imbalanced data-sets. <i>International Journal of Approximate Reasoning</i> , 2009 , 50, 561-577	3.6	134
101	KEEL 3.0: An Open Source Software for Multi-Stage Analysis in Data Mining. <i>International Journal of Computational Intelligence Systems</i> , 2017 , 10, 1238	3.4	122
100	On the combination of genetic fuzzy systems and pairwise learning for improving detection rates on Intrusion Detection Systems. <i>Expert Systems With Applications</i> , 2015 , 42, 193-202	7.8	116
99	Addressing data complexity for imbalanced data sets: analysis of SMOTE-based oversampling and evolutionary undersampling. <i>Soft Computing</i> , 2011 , 15, 1909-1936	3.5	109
98	Genetics-Based Machine Learning for Rule Induction: State of the Art, Taxonomy, and Comparative Study. <i>IEEE Transactions on Evolutionary Computation</i> , 2010 , 14, 913-941	15.6	106

97	IVTURS: A Linguistic Fuzzy Rule-Based Classification System Based On a New Interval-Valued Fuzzy Reasoning Method With Tuning and Rule Selection. <i>IEEE Transactions on Fuzzy Systems</i> , 2013 , 21, 399-411	8.3	105
96	An insight into imbalanced Big Data classification: outcomes and challenges. <i>Complex & Intelligent Systems</i> , 2017 , 3, 105-120	7.1	101
95	A genetic tuning to improve the performance of Fuzzy Rule-Based Classification Systems with Interval-Valued Fuzzy Sets: Degree of ignorance and lateral position. <i>International Journal of Approximate Reasoning</i> , 2011 , 52, 751-766	3.6	99
94	On the importance of the validation technique for classification with imbalanced datasets: Addressing covariate shift when data is skewed. <i>Information Sciences</i> , 2014 , 257, 1-13	7.7	97
93	Revisiting Evolutionary Fuzzy Systems: Taxonomy, applications, new trends and challenges. <i>Knowledge-Based Systems</i> , 2015 , 80, 109-121	7.3	95
92	Enhancing Multiclass Classification in FARC-HD Fuzzy Classifier: On the Synergy Between n -Dimensional Overlap Functions and Decomposition Strategies. <i>IEEE Transactions on Fuzzy Systems</i> , 2015 , 23, 1562-1580	8.3	92
91	Big Data: Tutorial and guidelines on information and process fusion for analytics algorithms with MapReduce. <i>Information Fusion</i> , 2018 , 42, 51-61	16.7	90
90	Improving the performance of fuzzy rule-based classification systems with interval-valued fuzzy sets and genetic amplitude tuning. <i>Information Sciences</i> , 2010 , 180, 3674-3685	7.7	90
89	. <i>IEEE Computational Intelligence Magazine</i> , 2019 , 14, 69-81	5.6	90
88	On the 2-tuples based genetic tuning performance for fuzzy rule based classification systems in imbalanced data-sets. <i>Information Sciences</i> , 2010 , 180, 1268-1291	7.7	82
87	Dynamic classifier selection for One-vs-One strategy: Avoiding non-competent classifiers. <i>Pattern Recognition</i> , 2013 , 46, 3412-3424	7.7	75
86	Enhancing the effectiveness and interpretability of decision tree and rule induction classifiers with evolutionary training set selection over imbalanced problems. <i>Applied Soft Computing Journal</i> , 2009 , 9, 1304-1314	7.5	72
85	DRCW-OVO: Distance-based relative competence weighting combination for One-vs-One strategy in multi-class problems. <i>Pattern Recognition</i> , 2015 , 48, 28-42	7.7	61
84	A hierarchical genetic fuzzy system based on genetic programming for addressing classification with highly imbalanced and borderline data-sets. <i>Knowledge-Based Systems</i> , 2013 , 38, 85-104	7.3	58
83	Ordering-based pruning for improving the performance of ensembles of classifiers in the framework of imbalanced datasets. <i>Information Sciences</i> , 2016 , 354, 178-196	7.7	55
82	Solving multi-class problems with linguistic fuzzy rule based classification systems based on pairwise learning and preference relations. <i>Fuzzy Sets and Systems</i> , 2010 , 161, 3064-3080	3.7	53
81	On the influence of an adaptive inference system in fuzzy rule based classification systems for imbalanced data-sets. <i>Expert Systems With Applications</i> , 2009 , 36, 9805-9812	7.8	43
80	A View on Fuzzy Systems for Big Data: Progress and Opportunities. <i>International Journal of Computational Intelligence Systems</i> , 2016 , 9, 69-80	3.4	43

79	A proposal for evolutionary fuzzy systems using feature weighting: Dealing with overlapping in imbalanced datasets. <i>Knowledge-Based Systems</i> , 2015 , 73, 1-17	7.3	37
78	A Pareto-based Ensemble with Feature and Instance Selection for Learning from Multi-Class Imbalanced Datasets. <i>International Journal of Neural Systems</i> , 2017 , 27, 1750028	6.2	31
77	Imbalance: Oversampling algorithms for imbalanced classification in R. <i>Knowledge-Based Systems</i> , 2018 , 161, 329-341	7.3	29
76	FEATURE SELECTION AND GRANULARITY LEARNING IN GENETIC FUZZY RULE-BASED CLASSIFICATION SYSTEMS FOR HIGHLY IMBALANCED DATA-SETS. <i>International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems</i> , 2012 , 20, 369-397	0.8	28
75	Addressing the Classification with Imbalanced Data: Open Problems and New Challenges on Class Distribution. <i>Lecture Notes in Computer Science</i> , 2011 , 1-10	0.9	28
74	Empowering difficult classes with a similarity-based aggregation in multi-class classification problems. <i>Information Sciences</i> , 2014 , 264, 135-157	7.7	26
73	IIVFDT: IGNORANCE FUNCTIONS BASED INTERVAL-VALUED FUZZY DECISION TREE WITH GENETIC TUNING. <i>International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems</i> , 2012 , 20, 1-30	0.8	26
72	An Overview of E-Learning in Cloud Computing. <i>Advances in Intelligent Systems and Computing</i> , 2012 , 35-46	0.4	26
71	A multi-objective evolutionary fuzzy system to obtain a broad and accurate set of solutions in intrusion detection systems. <i>Soft Computing</i> , 2019 , 23, 1321-1336	3.5	26
70	Multi-class Imbalanced Data-Sets with Linguistic Fuzzy Rule Based Classification Systems Based on Pairwise Learning. <i>Lecture Notes in Computer Science</i> , 2010 , 89-98	0.9	25
69	Fuzzy rule based classification systems for big data with MapReduce: granularity analysis. <i>Advances in Data Analysis and Classification</i> , 2017 , 11, 711-730	1.8	23
68	E-learning and educational data mining in cloud computing: an overview. <i>International Journal of Learning Technology</i> , 2014 , 9, 25	0.5	22
67	Dynamic affinity-based classification of multi-class imbalanced data with one-versus-one decomposition: a fuzzy rough set approach. <i>Knowledge and Information Systems</i> , 2018 , 56, 55-84	2.4	22
66	Analysis of an evolutionary RBFN design algorithm, CO2RBFN, for imbalanced data sets. <i>Pattern Recognition Letters</i> , 2010 , 31, 2375-2388	4.7	20
65	Glasses detection on real images based on robust alignment. <i>Machine Vision and Applications</i> , 2015 , 26, 519-531	2.8	16
64	NMC: nearest matrix classification I A new combination model for pruning One-vs-One ensembles by transforming the aggregation problem. <i>Information Fusion</i> , 2017 , 36, 26-51	16.7	14
63	Evolutionary Fuzzy Systems: A Case Study for Intrusion Detection Systems. <i>Studies in Computational Intelligence</i> , 2019 , 169-190	0.8	11
62	SMOTE-BD: An Exact and Scalable Oversampling Method for Imbalanced Classification in Big Data. <i>Journal of Computer Science and Technology(Argentina)</i> , 2018 , 18, e23	0.3	11

61	Chi-Spark-RS: An Spark-built evolutionary fuzzy rule selection algorithm in imbalanced classification for big data problems 2017 ,		10
60	A Metahierarchical Rule Decision System to Design Robust Fuzzy Classifiers Based on Data Complexity. <i>IEEE Transactions on Fuzzy Systems</i> , 2019 , 27, 701-715	8.3	9
59	Why Linguistic Fuzzy Rule Based Classification Systems perform well in Big Data Applications?. <i>International Journal of Computational Intelligence Systems</i> , 2017 , 10, 1211	3.4	9
58	KEEL: A data mining software tool integrating genetic fuzzy systems 2008 ,		8
57	IFC-BD: An Interpretable Fuzzy Classifier for Boosting Explainable Artificial Intelligence in Big Data. <i>IEEE Transactions on Fuzzy Systems</i> , 2021 , 1-1	8.3	8
56	A First Approach in Evolutionary Fuzzy Systems based on the lateral tuning of the linguistic labels for Big Data classification 2016 ,		7
55	A Genetic Algorithm for Feature Selection and Granularity Learning in Fuzzy Rule-Based Classification Systems for Highly Imbalanced Data-Sets. <i>Communications in Computer and Information Science</i> , 2010 , 741-750	0.3	6
54	On the Need of Interpretability for Biomedical Applications: Using Fuzzy Models for Lung Cancer Prediction with Liquid Biopsy 2019 ,		5
53	An Analysis of Local and Global Solutions to Address Big Data Imbalanced Classification: A Case Study with SMOTE Preprocessing. <i>Communications in Computer and Information Science</i> , 2019 , 75-85	0.3	5
52	Using KEEL software as a educational tool: A case of study teaching data mining 2011 ,		5
51	FW-SMOTE: A feature-weighted oversampling approach for imbalanced classification. <i>Pattern Recognition</i> , 2022 , 124, 108511	7.7	5
50	An Analysis of the Rule Weights and Fuzzy Reasoning Methods for Linguistic Rule Based Classification Systems Applied to Problems with Highly Imbalanced Data Sets. <i>Lecture Notes in Computer Science</i> , 2007 , 170-178	0.9	5
49	Construction of Interval-Valued Fuzzy Preference Relations Using Ignorance Functions: Interval-Valued Non Dominance Criterion. <i>Advances in Intelligent and Soft Computing</i> , 2011 , 243-255		5
48	Revisiting data complexity metrics based on morphology for overlap and imbalance: snapshot, new overlap number of balls metrics and singular problems prospect. <i>Knowledge and Information Systems</i> , 2021 , 63, 1961-1989	2.4	5
47	Introduction to KDD and Data Science 2018 , 1-17		5
46	Foundations on Imbalanced Classification 2018 , 19-46		5
45	Cost-Sensitive Learning 2018 , 63-78		5
44	Enhancing evolutionary fuzzy systems for multi-class problems: Distance-based relative competence weighting with truncated confidences (DRCW-TC). <i>International Journal of Approximate Reasoning</i> , 2016 , 73, 108-122	3.6	4

43	Addressing covariate shift for Genetic Fuzzy Systems classifiers: A case of study with FARC-HD for imbalanced datasets 2013 ,		4
42	A genetic algorithm for tuning fuzzy rule-based classification systems with Interval-Valued Fuzzy Sets 2010 ,		4
41	Addressing Overlapping in Classification with Imbalanced Datasets: A First Multi-objective Approach for Feature and Instance Selection. <i>Lecture Notes in Computer Science</i> , 2015 , 36-44	0.9	4
40	HFER: Promoting Explainability in Fuzzy Systems via Hierarchical Fuzzy Exception Rules 2020 ,		4
39	Imbalanced Classification for Big Data 2018 , 327-349		4
38	A first approach for cost-sensitive classification with linguistic Genetic Fuzzy Systems in imbalanced data-sets 2010 ,		3
37	Addressing Data-Complexity for Imbalanced Data-Sets: A Preliminary Study on the Use of Preprocessing for C4.5 2009 ,		3
36	Improving the Performance of Fuzzy Rule Based Classification Systems for Highly Imbalanced Data-Sets Using an Evolutionary Adaptive Inference System. <i>Lecture Notes in Computer Science</i> , 2009 , 294-301	0.9	3
35	Linguistic Fuzzy Rules in Data Mining: Follow-Up Mamdani Fuzzy Modeling Principle. <i>Studies in Fuzziness and Soft Computing</i> , 2012 , 103-122	0.7	3
34	Ensemble Learning 2018 , 147-196		3
33	A Proposal of Evolutionary Prototype Selection for Class Imbalance Problems. <i>Lecture Notes in Computer Science</i> , 2006 , 1415-1423	0.9	3
32	On the joint-effect of class imbalance and overlap: a critical review. <i>Artificial Intelligence Review</i> ,1	9.7	3
31	A Real-Time Big Data Architecture for Glasses Detection Using Computer Vision Techniques 2015 ,		2
30	Surveying alignment-free features for Ortholog detection in related yeast proteomes by using supervised big data classifiers. <i>BMC Bioinformatics</i> , 2018 , 19, 166	3.6	2
29	2015 ,		2
28	An Overview on the Structure and Applications for Business Intelligence and Data Mining in Cloud Computing. <i>Advances in Intelligent Systems and Computing</i> , 2013 , 559-570	0.4	2
27	Analysing the Hierarchical Fuzzy Rule Based Classification Systems with genetic rule selection 2010 ,		2
26	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 ,		2

25	A genetic learning of the fuzzy rule-based classification system granularity for highly imbalanced data-sets 2009 ,		2
24	Studying the behavior of a multiobjective genetic algorithm to design fuzzy rule-based classification systems for imbalanced data-sets 2011 ,		2
23	Predicting Biodegradable Quality of Chemicals with the TGI+.3 Classifier 2011 ,		2
22	A Study on the Use of the Fuzzy Reasoning Method Based on the Winning Rule vs. Voting Procedure for Classification with Imbalanced Data Sets. <i>Lecture Notes in Computer Science</i> , 2007 , 375-382	0.9	2
21	A First Study on the Use of Interval-Valued Fuzzy Sets with Genetic Tuning for Classification with Imbalanced Data-Sets. <i>Lecture Notes in Computer Science</i> , 2009 , 581-588	0.9	2
20	FDR2-BD: A Fast Data Reduction Recommendation Tool for Tabular Big Data Classification Problems. <i>Electronics (Switzerland)</i> , 2021 , 10, 1757	2.6	2
19	Dimensionality Reduction for Imbalanced Learning 2018 , 227-251		2
18	Data Intrinsic Characteristics 2018 , 253-277		2
17	Evolutionary Fuzzy Systems: A Case Study in Imbalanced Classification. <i>Studies in Fuzziness and Soft Computing</i> , 2016 , 169-200	0.7	1
16	On the cooperation of interval-valued fuzzy sets and genetic tuning to improve the performance of fuzzy decision trees 2011 ,		1
15	A Short Study on the Use of Genetic 2-Tuples Tuning for Fuzzy Rule Based Classification Systems in Imbalanced Data-Sets 2008 ,		1
14	On the Combination of Pairwise and Granularity Learning for Improving Fuzzy Rule-Based Classification Systems: GL-FARCHD-OVO. <i>Advances in Intelligent Systems and Computing</i> , 2016 , 135-146	0.4	1
13	New Ordering-Based Pruning Metrics for Ensembles of Classifiers in Imbalanced Datasets. <i>Advances in Intelligent Systems and Computing</i> , 2016 , 3-15	0.4	1
12	Chi-BD-DRF: Design of Scalable Fuzzy Classifiers for Big Data via A Dynamic Rule Filtering Approach 2020 ,		1
11	A Review of Distributed Data Models for Learning. <i>Lecture Notes in Computer Science</i> , 2017 , 88-97	0.9	0
10	Implementation and Integration of Algorithms into the KEEL Data-Mining Software Tool. <i>Lecture Notes in Computer Science</i> , 2009 , 562-569	0.9	0
9	SOUL: Scala Oversampling and Undersampling Library for imbalance classification. <i>SoftwareX</i> , 2021 , 15, 100767	2.7	0
8	Data Level Preprocessing Methods 2018 , 79-121		0

- 7 Imbalanced Classification with Multiple Classes **2018**, 197-226 0
- 6 A New Exploitation Scheme in the Context of Bipolar Classifiers. *Studies in Computational Intelligence*, **2022**, 1-9 0.8
- 5 A Preliminar Analysis of CO2RBFN in Imbalanced Problems. *Lecture Notes in Computer Science*, **2009**, 57-64 0.9
- 4 On the Usefulness of Fuzzy Rule Based Systems Based on Hierarchical Linguistic Fuzzy Partitions. *Intelligent Systems Reference Library*, **2011**, 155-184 0.8
- 3 Software and Libraries for Imbalanced Classification **2018**, 351-377
- 2 Learning interpretable multi-class models by means of hierarchical decomposition: Threshold Control for Nested Dichotomies. *Neurocomputing*, **2021**, 463, 514-524 5.4
- 1 The impact of heterogeneous distance functions on missing data imputation and classification performance. *Engineering Applications of Artificial Intelligence*, **2022**, 111, 104791 7.2