

# Ibrahim Aljarah

## List of Publications by Year in descending order

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Version: 2024-02-01

122  
papers

11,184  
citations

81743

39  
h-index

39575

94  
g-index

124  
all docs

124  
docs citations

124  
times ranked

6068  
citing authors

| #  | ARTICLE  | IF   | CITATIONS |
|----|--|------|-----------|
| 1  | Harris hawks optimization: Algorithm and applications. <i>Future Generation Computer Systems</i> , 2019, 97, 849-872.  | 4.9  | 3,345     |
| 2  | Grey wolf optimizer: a review of recent variants and applications. <i>Neural Computing and Applications</i> , 2018, 30, 413-435.   | 3.2  | 580       |
| 3  | Optimizing connection weights in neural networks using the whale optimization algorithm. <i>Soft Computing</i> , 2018, 22, 1-15.   | 2.1  | 564       |
| 4  | Grasshopper optimization algorithm for multi-objective optimization problems. <i>Applied Intelligence</i> , 2018, 48, 805-820.   | 3.3  | 517       |
| 5  | An efficient binary Salp Swarm Algorithm with crossover scheme for feature selection problems. <i>Knowledge-Based Systems</i> , 2018, 154, 43-67.  | 4.0  | 504       |
| 6  | Evolutionary Population Dynamics and Grasshopper Optimization approaches for feature selection problems. <i>Knowledge-Based Systems</i> , 2018, 145, 25-45.  | 4.0  | 331       |
| 7  | Binary grasshopper optimisation algorithm approaches for feature selection problems. <i>Expert Systems With Applications</i> , 2019, 117, 267-286.   | 4.4  | 330       |
| 8  | Binary dragonfly optimization for feature selection using time-varying transfer functions. <i>Knowledge-Based Systems</i> , 2018, 161, 185-204.  | 4.0  | 318       |
| 9  | An intelligent system for spam detection and identification of the most relevant features based on evolutionary Random Weight Networks. <i>Information Fusion</i> , 2019, 48, 67-83.                                 | 11.7 | 202       |
| 10 | An efficient hybrid multilayer perceptron neural network with grasshopper optimization. <i>Soft Computing</i> , 2019, 23, 7941-7958.   | 2.1  | 195       |
| 11 | Improved whale optimization algorithm for feature selection in Arabic sentiment analysis. <i>Applied Intelligence</i> , 2019, 49, 1688-1707.   | 3.3  | 193       |
| 12 | Simultaneous Feature Selection and Support Vector Machine Optimization Using the Grasshopper Optimization Algorithm. <i>Cognitive Computation</i> , 2018, 10, 478-495.   | 3.6  | 189       |
| 13 | Training feedforward neural networks using multi-verse optimizer for binary classification problems. <i>Applied Intelligence</i> , 2016, 45, 322-332.  | 3.3  | 176       |
| 14 | Asynchronous accelerating multi-leader salp chains for feature selection. <i>Applied Soft Computing Journal</i> , 2018, 71, 964-979.   | 4.1  | 175       |
| 15 | An evolutionary gravitational search-based feature selection. <i>Information Sciences</i> , 2019, 497, 219-239.  | 4.0  | 175       |
| 16 | A multi-verse optimizer approach for feature selection and optimizing SVM parameters based on a robust system architecture. <i>Neural Computing and Applications</i> , 2018, 30, 2355-2369.                          | 3.2  | 166       |
| 17 | Unsupervised intelligent system based on one class support vector machine and Grey Wolf optimization for IoT botnet detection. <i>Journal of Ambient Intelligence and Humanized Computing</i> , 2020, 11, 2809-2825. | 3.3  | 139       |
| 18 | Feature selection using binary grey wolf optimizer with elite-based crossover for Arabic text classification. <i>Neural Computing and Applications</i> , 2020, 32, 12201-12220.                                      | 3.2  | 121       |

| #  | ARTICLE   | IF  | CITATIONS |
|----|---|-----|-----------|
| 19 | Efficient Hybrid Nature-Inspired Binary Optimizers for Feature Selection. Cognitive Computation, 2020, 12, 150-175.   | 3.6 | 99        |
| 20 | An enhanced associative learning-based exploratory whale optimizer for global optimization. Neural Computing and Applications, 2020, 32, 5185-5211.   | 3.2 | 96        |
| 21 | Improved monarch butterfly optimization for unconstrained global search and neural network training. Applied Intelligence, 2018, 48, 445-464.   | 3.3 | 86        |
| 22 | Training radial basis function networks using biogeography-based optimizer. Neural Computing and Applications, 2018, 29, 529-553.   | 3.2 | 83        |
| 23 | Preprocessing and analyzing educational data set using X-API for improving student's performance. , 2015, , .   |     | 79        |
| 24 | Time-varying hierarchical chains of salps with random weight networks for feature selection. Expert Systems With Applications, 2020, 140, 112898.   | 4.4 | 75        |
| 25 | Natural selection methods for Grey Wolf Optimizer. Expert Systems With Applications, 2018, 113, 481-498.  | 4.4 | 73        |
| 26 | Salp Swarm Algorithm: Theory, Literature Review, and Application in Extreme Learning Machines. Studies in Computational Intelligence, 2020, , 185-199.  | 0.7 | 71        |
| 27 | Ant Lion Optimizer: Theory, Literature Review, and Application in Multi-layer Perceptron Neural Networks. Studies in Computational Intelligence, 2020, , 23-46.   | 0.7 | 71        |
| 28 | A dynamic locality multi-objective salp swarm algorithm for feature selection. Computers and Industrial Engineering, 2020, 147, 106628.   | 3.4 | 68        |
| 29 | Automatic selection of hidden neurons and weights in neural networks using grey wolf optimizer based on a hybrid encoding scheme. International Journal of Machine Learning and Cybernetics, 2019, 10, 2901-2920. | 2.3 | 65        |
| 30 | An Evolutionary Fake News Detection Method for COVID-19 Pandemic Information. Symmetry, 2021, 13, 1091.   | 1.1 | 64        |
| 31 | An efficient hybrid filter and evolutionary wrapper approach for sentiment analysis of various topics on Twitter. Knowledge-Based Systems, 2020, 192, 105353.   | 4.0 | 63        |
| 32 | Clustering analysis using a novel locality-informed grey wolf-inspired clustering approach. Knowledge and Information Systems, 2020, 62, 507-539.   | 2.1 | 62        |
| 33 | A Review of the Modification Strategies of the Nature Inspired Algorithms for Feature Selection Problem. Mathematics, 2022, 10, 464.  | 1.1 | 60        |
| 34 | EvoPy: An Open-source Nature-inspired Optimization Framework in Python. , 2016, , .   |     | 59        |
| 35 | Evolutionary static and dynamic clustering algorithms based on multi-verse optimizer. Engineering Applications of Artificial Intelligence, 2018, 72, 54-66.   | 4.3 | 58        |
| 36 | Optimizing the Learning Process of Feedforward Neural Networks Using Lightning Search Algorithm. International Journal on Artificial Intelligence Tools, 2016, 25, 1650033.                                       | 0.7 | 57        |

| #  | ARTICLE  | IF  | CITATIONS |
|----|--|-----|-----------|
| 37 | Feature Selection Using Salp Swarm Algorithm with Chaos. , 2018, , .   |     | 56        |
| 38 | Parallel particle swarm optimization clustering algorithm based on MapReduce methodology. , 2012, , .  |     | 55        |
| 39 | Improving financial bankruptcy prediction in a highly imbalanced class distribution using oversampling and ensemble learning: a case from the Spanish market. Progress in Artificial Intelligence, 2020, 9, 31-53. | 1.5 | 54        |
| 40 | Augmented whale feature selection for IoT attacks: Structure, analysis and applications. Future Generation Computer Systems, 2020, 112, 18-40.   | 4.9 | 52        |
| 41 | Multi-verse Optimizer: Theory, Literature Review, and Application in Data Clustering. Studies in Computational Intelligence, 2020, , 123-141.  | 0.7 | 48        |
| 42 | A Modified Grey Wolf Optimization Algorithm for an Intrusion Detection System. Mathematics, 2022, 10, 999.   | 1.1 | 48        |
| 43 | Intelligent detection of hate speech in Arabic social network: A machine learning approach. Journal of Information Science, 2021, 47, 483-501.   | 2.0 | 46        |
| 44 | MapReduce intrusion detection system based on a particle swarm optimization clustering algorithm. , 2013, , .  |     | 43        |
| 45 | A new clustering approach based on Glowworm Swarm Optimization. , 2013, , .  |     | 43        |
| 46 | Optimizing Feedforward neural networks using Krill Herd algorithm for E-mail spam detection. , 2015, , .   |     | 42        |
| 47 | Dragonfly Algorithm: Theory, Literature Review, and Application in Feature Selection. Studies in Computational Intelligence, 2020, , 47-67.  | 0.7 | 42        |
| 48 | Optimizing Software Effort Estimation Models Using Firefly Algorithm. Journal of Software Engineering and Applications, 2015, 08, 133-142.   | 0.8 | 41        |
| 49 | Android Ransomware Detection Based on a Hybrid Evolutionary Approach in the Context of Highly Imbalanced Data. IEEE Access, 2021, 9, 57674-57691.  | 2.6 | 40        |
| 50 | Adaptive $\eta$ - hill climbing for optimization. Soft Computing, 2019, 23, 13489-13512.   | 2.1 | 39        |
| 51 | An efficient clustering algorithm based on the k-nearest neighbors with an indexing ratio. International Journal of Machine Learning and Cybernetics, 2020, 11, 675-714.   | 2.3 | 39        |
| 52 | Evolutionary inspired approach for mental stress detection using EEG signal. Expert Systems With Applications, 2022, 197, 116634.  | 4.4 | 38        |
| 53 | Evolving Radial Basis Function Networks Using Moth Flame Optimizer. , 2017, , 537-550.   |     | 37        |
| 54 | An intelligent feature selection approach based on moth flame optimization for medical diagnosis. Neural Computing and Applications, 2021, 33, 7165-7204.  | 3.2 | 37        |

| #  | ARTICLE  | IF  | CITATIONS |
|----|--|-----|-----------|
| 55 | EvolPy-FS: An Open-Source Nature-Inspired Optimization Framework in Python for Feature Selection. Algorithms for Intelligent Systems, 2020, , 131-173.   | 0.5 | 36        |
| 56 | Grey Wolf Optimizer: Theory, Literature Review, and Application in Computational Fluid Dynamics Problems. Studies in Computational Intelligence, 2020, , 87-105.                                       | 0.7 | 35        |
| 57 | Relational Learning Analysis of Social Politics using Knowledge Graph Embedding. Data Mining and Knowledge Discovery, 2021, 35, 1497-1536.   | 2.4 | 30        |
| 58 | An intelligent evolutionary extreme gradient boosting algorithm development for modeling scour depths under submerged weir. Information Sciences, 2021, 570, 172-184.                                  | 4.0 | 30        |
| 59 | Parallel glowworm swarm optimization clustering algorithm based on MapReduce. , 2014, , .  |     | 29        |
| 60 | Optimizing Extreme Learning Machines Using Chains of Salps for Efficient Android Ransomware Detection. Applied Sciences (Switzerland), 2020, 10, 3706.   | 1.3 | 29        |
| 61 | Hate Speech Detection using Word Embedding and Deep Learning in the Arabic Language Context. , 2020, , .   |     | 28        |
| 62 | A Hybrid Approach Based on Particle Swarm Optimization and Random Forests for E-Mail Spam Filtering. Lecture Notes in Computer Science, 2016, , 498-508.   | 1.0 | 25        |
| 63 | Software Defect Prediction Using Heterogeneous Ensemble Classification Based on Segmented Patterns. Applied Sciences (Switzerland), 2020, 10, 1745.  | 1.3 | 25        |
| 64 | IoT Botnet Detection Using Salp Swarm and Ant Lion Hybrid Optimization Model. Symmetry, 2021, 13, 1377.  | 1.1 | 25        |
| 65 | Hybrid SMOTE-Ensemble Approach for Software Defect Prediction. Advances in Intelligent Systems and Computing, 2017, , 355-366.   | 0.5 | 24        |
| 66 | Evolving neural networks using bird swarm algorithm for data classification and regression applications. Cluster Computing, 2019, 22, 1317-1345.   | 3.5 | 24        |
| 67 | An Enhanced Evolutionary Software Defect Prediction Method Using Island Moth Flame Optimization. Mathematics, 2021, 9, 1722.   | 1.1 | 24        |
| 68 | Twitter sentiment analysis: A case study in the automotive industry. , 2015, , .   |     | 23        |
| 69 | A Modified Multi-objective Particle Swarm Optimizer-Based Lévy Flight: An Approach Toward Intrusion Detection in Internet of Things. Arabian Journal for Science and Engineering, 2020, 45, 6081-6108. | 1.7 | 23        |
| 70 | A twitter sentiment analysis for cloud providers: A case study of Azure vs. AWS. , 2016, , .   |     | 21        |
| 71 | A parallel metaheuristic approach for ensemble feature selection based on multi-core architectures. Expert Systems With Applications, 2021, 182, 115290.   | 4.4 | 21        |
| 72 | Selecting discriminating terms for bug assignment. , 2011, , .   |     | 20        |

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|----|--|-----|-----------|
| 73 | A Simultaneous Moth Flame Optimizer Feature Selection Approach Based on Levy Flight and Selection Operators for Medical Diagnosis. <i>Arabian Journal for Science and Engineering</i> , 2021, 46, 8415-8440. | 1.7 | 19        |
| 74 | An efficient evolutionary algorithm with a nearest neighbor search technique for clustering analysis. <i>Journal of Ambient Intelligence and Humanized Computing</i> , 2021, 12, 8387-8412.                  | 3.3 | 18        |
| 75 | Evolutionary competitive swarm exploring optimal support vector machines and feature weighting. <i>Soft Computing</i> , 2021, 25, 3335-3352.   | 2.1 | 18        |
| 76 | EvoCluster: An Open-Source Nature-Inspired Optimization Clustering Framework in Python. <i>Lecture Notes in Computer Science</i> , 2020, , 20-36.  | 1.0 | 18        |
| 77 | Multi-objective Particle Swarm Optimization: Theory, Literature Review, and Application in Feature Selection for Medical Diagnosis. <i>Algorithms for Intelligent Systems</i> , 2020, , 175-201.             | 0.5 | 16        |
| 78 | Sentiment Analysis for Arabic Language: A Brief Survey of Approaches and Techniques. <i>International Journal of Advanced Science and Technology</i> , 2018, 119, 13-24.                                     | 0.3 | 15        |
| 79 | Towards a scalable intrusion detection system based on parallel PSO clustering using mapreduce. , 2013, , .  |     | 14        |
| 80 | Teaching Learning-Based Optimization With Evolutionary Binarization Schemes for Tackling Feature Selection Problems. <i>IEEE Access</i> , 2021, 9, 41082-41103.  | 2.6 | 14        |
| 81 | Multi-objective Particle Swarm Optimization for Botnet Detection in Internet of Things. <i>Algorithms for Intelligent Systems</i> , 2020, , 203-229.   | 0.5 | 14        |
| 82 | Salp Chain-Based Optimization of Support Vector Machines and Feature Weighting for Medical Diagnostic Information Systems. <i>Algorithms for Intelligent Systems</i> , 2020, , 11-34.                        | 0.5 | 14        |
| 83 | Voting-based Classification for E-mail Spam Detection. <i>Journal of ICT Research and Applications</i> , 2016, 10, 29-42.  | 0.5 | 14        |
| 84 | Improving email spam detection using content based feature engineering approach. , 2017, , .   |     | 12        |
| 85 | An evolutionary optimized artificial intelligence model for modeling scouring depth of submerged weir. <i>Engineering Applications of Artificial Intelligence</i> , 2020, 96, 104012.                        | 4.3 | 12        |
| 86 | Rank Based Moth Flame optimisation for Feature Selection in the Medical Application. , 2020, , .   |     | 12        |
| 87 | An Efficient Moth Flame Optimization Algorithm using Chaotic Maps for Feature Selection in the Medical Applications. , 2020, , .   |     | 12        |
| 88 | Link Prediction Based on Whale Optimization Algorithm. , 2017, , .   |     | 11        |
| 89 | A Robust Multi-Objective Feature Selection Model Based on Local Neighborhood Multi-Verse Optimization. <i>IEEE Access</i> , 2021, 9, 100009-100028.  | 2.6 | 11        |
| 90 | A Scalable MapReduce-enabled Glowworm Swarm Optimization Approach for High Dimensional Multimodal Functions. <i>International Journal of Swarm Intelligence Research</i> , 2016, 7, 32-54.                   | 0.5 | 11        |

| #   | ARTICLE  | IF  | CITATIONS |
|-----|--|-----|-----------|
| 91  | A Classification Approach Based on Evolutionary Clustering and Its Application for Ransomware Detection. Algorithms for Intelligent Systems, 2021, , 237-248.  | 0.5 | 10        |
| 92  | A Real-Time Electrical Load Forecasting in Jordan Using an Enhanced Evolutionary Feedforward Neural Network. Sensors, 2021, 21, 6240.  | 2.1 | 10        |
| 93  | A MapReduce based glowworm swarm optimization approach for multimodal functions. , 2013, , .   |     | 9         |
| 94  | An Investigation of Microsoft Azure and Amazon Web Services from Usersâ€™ Perspectives. International Journal of Emerging Technologies in Learning, 2019, 14, 217.   | 0.8 | 9         |
| 95  | Neuro-evolutionary models for imbalanced classification problems. Journal of King Saud University - Computer and Information Sciences, 2022, 34, 2787-2797.  | 2.7 | 9         |
| 96  | A Review of Multiobjective Evolutionary Algorithms for Data Clustering Problems. Algorithms for Intelligent Systems, 2021, , 177-199.  | 0.5 | 9         |
| 97  | Empirical Evaluation of Distance Measures for Nearest Point with Indexing Ratio Clustering Algorithm. , 2020, , .  |     | 9         |
| 98  | Conformal Prediction Technique to Predict Breast Cancer Survivability. International Journal of Advanced Science and Technology, 2016, 96, 1-10.   | 0.3 | 7         |
| 99  | A Comprehensive Review of Evaluation and Fitness Measures for Evolutionary Data Clustering. Algorithms for Intelligent Systems, 2021, , 23-71.   | 0.5 | 7         |
| 100 | EvoCluster: An Open-Source Nature-Inspired Optimization Clustering Framework. SN Computer Science, 2021, 2, 1.   | 2.3 | 6         |
| 101 | Link Prediction Using Evolutionary Neural Network Models. Algorithms for Intelligent Systems, 2020, , 85-111.  | 0.5 | 6         |
| 102 | New Fitness Functions in Binary Harris Hawks Optimization for Gene Selection in Microarray Datasets. , 2020, , .   |     | 6         |
| 103 | Salp Swarm Optimization Search Based Feature Selection for Enhanced Phishing Websites Detection. Lecture Notes in Computer Science, 2021, , 146-161.   | 1.0 | 5         |
| 104 | Discovering Communities in Social Networks Using Topology and Attributes. , 2011, , .  |     | 4         |
| 105 | A cooperative coevolutionary method for optimizing random weight networks and its application for medical classification problems. Journal of Ambient Intelligence and Humanized Computing, 2021, 12, 321-342. | 3.3 | 4         |
| 106 | An Evolutionary-based Random Weight Networks with Taguchi Method for Arabic Web Pages Classification. Arabian Journal for Science and Engineering, 2021, 46, 3955-3980.  | 1.7 | 4         |
| 107 | An Intelligent Web Service Composition and Resource-Optimization Method Using K-Means Clustering and Knapsack Algorithms. Mathematics, 2021, 9, 2023.  | 1.1 | 4         |
| 108 | Introduction to Evolutionary Machine Learning Techniques. Algorithms for Intelligent Systems, 2020, , 1-7.   | 0.5 | 4         |

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|-----|---|-----|-----------|
| 109 | Feature Selection using Binary Moth Flame Optimization with Time Varying Flames Strategies. , 2020, , .   |     | 4         |
| 110 | Estimating ARMA Model Parameters of an Industrial Process Using Meta-Heuristic Search Algorithms. International Journal of Engineering and Technology(UAE), 2018, 7, 187.         | 0.2 | 3         |
| 111 | AutoRWN: automatic construction and training of random weight networks using competitive swarm of agents. Neural Computing and Applications, 2021, 33, 5507-5524.                 | 3.2 | 3         |
| 112 | A Grey Wolf-Based Clustering Algorithm for Medical Diagnosis Problems. Algorithms for Intelligent Systems, 2021, , 73-87.   | 0.5 | 3         |
| 113 | CLARM. , 2011, , .  |     | 2         |
| 114 | Binary Harris Hawks Optimisation Filter Based Approach for Feature Selection. , 2021, , .   |     | 2         |
| 115 | Swarm intelligence-based model for improving prediction performance of low-expectation teams in educational software engineering projects. PeerJ Computer Science, 2022, 8, e857. | 2.7 | 2         |
| 116 | A formal study of classification techniques on entity discovery and their application to opinion mining. , 2010, , .  |     | 1         |
| 117 | Introduction to Evolutionary Data Clustering and Its Applications. Algorithms for Intelligent Systems, 2021, , 1-21.  | 0.5 | 1         |
| 118 | Prediction of Hysteresis Loop of Barium Hexaferrite Nanoparticles Based on Neuroevolutionary Models. Symmetry, 2021, 13, 1079.  | 1.1 | 1         |
| 119 | An Automatic Course Scheduling Approach Using Instructors' Preferences. International Journal of Emerging Technologies in Learning, 2012, 7, 24.                                  | 0.8 | 1         |
| 120 | An Intelligent Approach for the Effect of Social Media on Undergraduate Students Performance. , 2020, , .   |     | 1         |
| 121 | An Enhanced Opposition-Based Evolutionary Feature Selection Approach. Lecture Notes in Computer Science, 2022, , 3-14.  | 1.0 | 1         |
| 122 | Improving Functional Modules Discovery by Enriching Interaction Networks with Gene Profiles. Current Bioinformatics, 2013, 8, 328-338.  | 0.7 | 0         |