Appendix A. List of Analyzed Papers

This appendix shows all the articles reviewed for each of the strategies mentioned in section 3, which are described in Figure 4. Most of them have not been cited in the paper for reasonable space constraints. They are divided into the following categories:

1. Random

1.A. Given probability

- 1.A.1. A hybrid genetic algorithm for feature subset selection in rough set theory (Jing, 2014)
- 1.A.2. Genetic algorithm based wrapper feature selection on hybrid prediction model for analysis of high dimensional data (Anirudha, Kannan, & Patil, 2014)
- 1.A.3. Feature Selection with a Genetic Algorithm for Classification of Brain Imaging Data (Szenkovits, Meszlényi, Buza, Gaskó, Lung, & Suciu, 2017)
- 1.A.4. RGAP: A Rough Set, Genetic Algorithm and Particle Swarm Optimization based Feature Selection Approach (Gupta & Purohit, 2017)
- 1.A.5. Efficient genetic algorithm for feature selection for early time series classification (Ahn & Hur, 2020)

1.B. Even probability

- 1.B.1. Effective feature selection for supervised learning using genetic algorithm (Hilda & Rajalaxmi, 2015)
- 1.B.2. PHGA: Proposed Hybrid Genetic Algorithm for Feature Selection in Binary Classification (Khiabani & Sabbaghi, 2017)
- 1.B.3. Feature selection for ECG signal processing using improved genetic algorithm and empirical mode decomposition (Anderson, 2015)
- 1.B.4. A multi-objective genetic algorithm for simultaneous model and feature selection for support vector machines (Bouraoui, Jamoussi, & BenAyed, 2018)
- 1.B.5. A Genetic Algorithm-Based Feature Selection for Kinship Verification (Alirezazadeh, Fathi, & Abdali-Mohammadi, 2015)
- 1.B.6. Feature Selection Based on Hybridization of Genetic Algorithm and Particle Swarm Optimization (Ghamisi & Benediktsson, 2015)
- 1.B.7. Genetic algorithm based feature selection combined with dual classification for the automated detection of proliferative diabetic retinopathy (Welikala, Fraz, Dehmeshki, Hoppe, Tah, Mann, Williamson, & Barman, 2015b)
- 1.B.8. Hybrid feature selection based on enhanced genetic algorithm for text categorization (Ghareb, Bakar, & Hamdan, 2016)
- 1.B.9. DWFS: A Wrapper Feature Selection Tool Based on a Parallel Genetic Algorithm (Soufan, Kleftogiannis, Kalnis, & Bajic, 2015)
- 1.B.10. The Feature Selection Method based on Genetic Algorithm for Efficient of Text Clustering and Text Classification (Hong, Lee, & Han, 2015)
- 1.B.11. Genetic algorithm with aggressive mutation for feature selection in BCI feature space (Rejer, 2015)

- 1.B.12. Feature Selection using Genetic Algorithm: An Analysis of the Bias-Property for One-Point Crossover (de Paula, Soares, de Lima, & Coelho, 2016)
- 1.B.13. Genetic algorithm based feature selection approach for effective intrusion detection system (Desale & Ade, 2015)
- 1.B.14. Ensemble feature selection using bi-objective genetic algorithm (Das, Das, & Ghosh, 2017)
- 1.B.15. Feature selection in cancer microarray data using multi-objective genetic algorithm combined with correlation coefficient (Hasnat & Molla, 2016)
- 1.B.16. Automatic Feature Selection in Markov State Models Using Genetic Algorithm (Chen, Feng, Mittal, & Shukla, 2018)
- 1.B.17. Feature selection using genetic algorithm for breast cancer diagnosis: experiment on three different datasets (Aalaei, Shahraki, Rowhanimanesh, & Eslami, 2016)
- 1.B.18. Study of image retrieval and classification based on adaptive features using genetic algorithm feature selection (Lin, Chen, & Wu, 2014)
- 1.B.19. Feature Selection using K-Means Genetic Algorithm for Multi-objective Optimization (Anusha & Sathiaseelan, 2015)
- 1.B.20. Genetic Algorithm Based Feature Selection Combined with Dual Classification for the Automated Detection of Proliferative Diabetic Retinopathy (Welikala, Fraz, Dehmeshki, Hoppe, Tah, Mann, & Barman, 2015a)
- 1.B.21. Unsupervised text feature selection technique based on hybrid particle swarm optimization algorithm with genetic operators for the text clustering (Abualigah & Khader, 2017)
- 1.B.22. Breast Cancer Diagnosis Using a Hybrid Genetic Algorithm for Feature Selection Based on Mutual Information (Alzubaidi, Cosma, Brown, & Pockley, 2016)
- 1.B.23. Simultaneous Feature Selection and Cluster Analysis Using Genetic Algorithm (Das, Chaudhuri, Ghatak, & Das, 2016)
- 1.B.24. Feature Selection for Object-Based Classification of High-Resolution Remote Sensing Images Based on the Combination of a Genetic Algorithm and Tabu Search (Shi, Wan, Gao, & Wang, 2018)
- 1.B.25. Genetic Algorithm based Feature Selection for Classification of Focal and Non-focal Intracranial Electroencephalographic Signals (Sathish, Sivakumaran, Simon, & Raghavan, 2017)
- 1.B.26. A Novel Genetic Algorithm for Feature Selection in Hierarchical Feature Spaces (da Silva, Plastino, & Freitas, 2018)
- 1.B.27. A new genetic algorithm for multi-label correlation-based feature selection (Jungjit & Freitas, 2015b)
- 1.B.28. A novel hybrid genetic algorithm with granular information for feature selection and optimization (Dong, Li, Ding, & Sun, 2018)
- 1.B.29. Feature selection based on modified genetic algorithm for optimization of functional near-infrared spectroscopy (fNIRS) signals for BCI (Noori, Qureshi, Khan, & Naseer, 2016)

- 1.B.30. A Genetic Feature Selection Algorithm for Anomaly Classification in Mobile Networks (Kajó & Nováczki, 2016)
- 1.B.31. Intrusion detection system for wireless mesh network using multiple support vector machine classifiers with genetic-algorithm-based feature selection (Vijayanand, Devaraj, & Kannapiran, 2018)
- 1.B.32. A novel ensemble-based wrapper method for feature selection using extreme learning machine and genetic algorithm (Xue, Yao, & Wu, 2018)
- 1.B.33. Classification of vocal and non-vocal segments in audio clips using genetic algorithm based feature selection (GAFS) (Murthy & Koolagudi, 2018)
- 1.B.34. Maximizing Appropriate Responses Returned by a Conversational Agent through the Use of a Genetic Algorithm for Feature Selection (McClendon, Hodges, & Remy, 2016a)
- 1.B.35. Hybridization between multi-objective genetic algorithm and support vector machine for feature selection in walker-assisted gait (Martins, Costa, Frizera, Ceres, & Santos, 2014)
- 1.B.36. Sequential and Mixed Genetic Algorithm and Learning Automata (SGALA, MGALA) for Feature Selection in QSAR (MotieGhader, Gharaghani, Masoudi-Sobhanzadeh, & Masoudi-Nejad, 2017)
- 1.B.37. An Intelligent System for Lung Cancer Diagnosis Using a New Genetic Algorithm Based Feature Selection Method (Lu, Zhu, & Gu, 2014)
- 1.B.38. Multi-objective Genetic Algorithm setup for feature subset selection in clustering (Kashyap, Das, Bhattacharjee, Halder, & Goswami, 2016)
- 1.B.39. A clustering based genetic algorithm for feature selection (Rostami & Moradi, 2014)
- 1.B.40. A genetic algorithm based feature selection approach for rainfall forecasting in sugarcane areas (Haidar & Verma, 2016)
- 1.B.41. Genetic algorithm based feature selection and parameter optimization for support vector regression applied to semantic textual similarity (Su & Wang, 2015)
- 1.B.42. A Feature Selection Method Based on Shapley Value to False Alarm Reduction in ICUs, A Genetic-Algorithm Approach (Zaeri-Amirani, Afghah, & Mousavi, 2018)
- 1.B.43. Performance Analysis of Genetic Algorithm with kNN and SVM for Feature Selection in Tumor Classification (Gunavathi & Premalatha, 2014)
- 1.B.44. An improved simulated annealing genetic algorithm of EEG feature selection in sleep stage (Ji, Bu, Sun, & Liu, 2016)
- 1.B.45. A Novel Hybrid Feature Selection Model for Classification of Neuromuscular Dystrophies Using Bhattacharyya Coefficient, Genetic Algorithm and Radial Basis Function Based Support Vector Machine (Anand, Pandey, & Pandey, 2018)
- 1.B.46. Maximizing the Number of Appropriate Responses Returned by a Conversational Agent through the Use of a Genetic Algorithm for Feature Selection (McClendon, Hodges, & Remy, 2016b)

- 1.B.47. Multi-Objective Feature Subset Selection using Non-dominated Sorting Genetic Algorithm (Khan & Baig, 2015)
- 1.B.48. Dynamic feature selection with wrapper model and ensemble approach based on measures of local relevances and group diversity using genetic algorithm (Kurzynski, Trajdos, & Krysmann, 2015)
- 1.B.49. An improved genetic algorithm for feature selection in the classification of Disaster-related Twitter messages (Benitez, Sison, & Medina, 2018)
- 1.B.50. A novel Hybrid Genetic Local Search Algorithm for feature selection and weighting with an application in strategic decision making in innovation management (Eroglu & Kilic, 2017)
- 1.B.51. Using K-NN with weights to detect diabetes mellitus based on genetic algorithm feature selection (Shu, Zhang, & Tang, 2016)
- 1.B.52. A genetic algorithm feature selection based approach for Arabic Sentiment Classification (Aliane, Aliane, Ziane, & Bensaou, 2016)
- 1.B.53. Feature Selection Optimization in SPL using Genetic Algorithm (Kumari et al., 2018)
- 1.B.54. A genetic algorithm for feature selection in gait analysis (Altilio, Liparulo, Proietti, Paoloni, & Panella, 2016)
- 1.B.55. A hybrid feature selection method based on genetic algorithm and information gain (He, Yang, Miao, & Louis, 2016)
- 1.B.56. A Feature Selection Model based on Genetic Algorithm for Intrusion Detection (Mahmood & Hameed, 2016)
- 1.B.57. Optimal feature selection using elitist genetic algorithm (Maini, Misra, & Singh, 2015)
- 1.B.58. Feature selection for facial emotion recognition based on genetic algorithm (Boubenna & Lee, 2016)
- 1.B.59. Feature selection using genetic algorithm to improve classification in network intrusion detection system (Ferriyan, Thamrin, Takeda, & Murai, 2017)
- 1.B.60. Genetic algorithm with different feature selection method for intrusion detection (Cleetus & Dhanya, 2014)
- 1.B.61. An Efficient Feature Selection Algorithm for Evolving Job Shop Scheduling Rules With Genetic Programming (Mei, Nguyen, Xue, & Zhang, 2017)
- 1.B.62. Application of Genetic Algorithm Based on F-Ratio Rule in Signal Feature Selection (An, 2017)
- 1.B.63. Integer-based genetic algorithm for feature selection in multivariate calibration (Sousa, de Lima, de Paula, Lima, Arlindo Filho, & Soares, 2017)
- 1.B.64. Differential evolution and genetic algorithm based feature subset selection for recognition of river ice types (Bharathi & Subashini, 2014)
- 1.B.65. A Survey on Genetic Algorithm Based Feature Selection for Disease Diagnosis System (Sindhiya & Gunasundari, 2014)
- 1.B.66. An effective feature selection approach driven genetic algorithm wrapped Bayes naïve (Mokeddem, Atmani, & Mokaddem, 2016)

- 1.B.67. Feature selection for mining SNP from Leukaemia cancer using Genetic Algorithm with BCO (Prathibha & Chandran, 2016)
- 1.B.68. A Genetic Algorithm-based 3D feature selection for lip reading (Morade & Patnaik, 2015)
- 1.B.69. Feature Selection for Natural Language Call Routing Based on Self-Adaptive Genetic Algorithm (Koromyslova, Semenkina, & Sergienko, 2017)
- 1.B.70. A Hybrid Feature Selection based on Mutual Information and Genetic Algorithm (Lan, 2017)
- 1.B.71. Genetic algorithm assisted by a SVM for feature selection in gait classification (Yeoh, Zapotecas-Martínez, Akimoto, Aguirre, & Tanaka, 2014)
- 1.B.72. Application of genetic algorithm as feature selection technique in development of effective fault prediction model (Kumar & Rath, 2016)
- 1.B.73. Genetic Algorithm Based Feature Selection for Detection of Surface Defects on Oranges (Thendral & Suhasini, 2016)
- 1.B.74. A Multi-Objective Genetic Local Search Algorithm for Optimal Feature Subset Selection (Tian, 2016)
- 1.B.75. Feature selection in web ner using genetic algorithm approach (Abdulghani & Tiun, 2016)
- 1.B.76. Binary Coded Genetic Algorithm with Ensemble Classifier for feature selection in JPEG steganalysis (Sachnev & Kim, 2014)
- 1.B.77. Enhancing the Performance of Feature Selection using a Hybrid Genetic Algorithm (Vanjulavalli & Kovalan, 2015)
- 1.B.78. Genetic Algorithm based Feature Selection in High Dimensional Text Dataset Classification (Catak, 2015)
- 1.B.79. Unsupervised feature selection technique based on genetic algorithm for improving the Text Clustering (Abualigah, Khader, & Al-Betar, 2016)
- 1.B.80. Genetic Algorithm Optimization and Feature Selection for a Support Vector Machine Weed Recognition System in Malaysia at Critical Stage of Development (Wong, Chekima, Mariappan, Khoo, Choo, & Nadarajan, 2014)
- 1.B.81. Hierarchical polarimetric SAR image classification based on feature selection and Genetic algorithm (Wang, Zhuo, Zhang, & Liao, 2014)
- 1.B.82. Feature Selection in High Dimensional Data by a Filter-Based Genetic Algorithm (De Stefano, Fontanella, & di Freca, 2017)
- 1.B.83. Random forest based classification of medical x-ray images using a genetic algorithm for feature selection(Nedjar, EL HABIB DAHO, Settouti, Mahmoudi, & Chikh, 2015)
- 1.B.84. Feature Selection for Heart Rate Variability Based Biometric Recognition Using Genetic Algorithm (Akhter, Dabhade, Bansod, & Kale, 2016)
- 1.B.85. Optimal Feature Subset Selection for Neuron Spike Sorting Using the Genetic Algorithm (Khan, Bhatti, Johnstone, Hanoun, Creighton, & Nahavandi, 2015)

- 1.B.86. Comparison of genetic algorithm, particle swarm optimization and biogeographybased optimization for feature selection to classify clusters of microcalcifications (Khehra & Pharwaha, 2017)
- 1.B.87. Feature selection using a combination of genetic algorithm and selection frequency curve analysis (Yang, Wang, Xiao, Yang, Zhu, Zhang, & Zeng, 2015)
- 1.B.88. An efficient intrusion detection system based on hypergraph Genetic algorithm for parameter optimization and feature selection in support vector machine(Raman, Somu, Kirthivasan, Liscano, & Sriram, 2017)
- 1.B.89. Genetic algorithm-based feature selection for classification of land cover changes using combined LANDSAT and ENVISAT images (Kumar & Arun, 2017)
- 1.B.90. Optimization of Feature Selection in Face Recognition System Using Differential Evolution and Genetic Algorithm (Maheshwari, Kumar, & Kumar, 2016)
- 1.B.91. A Lexicographic Multi-Objective Genetic Algorithm for Multi-Label Correlation Based Feature Selection (Jungjit & Freitas, 2015a)
- 1.B.92. State Evaluation of Diesel Engine Using Genetic Algorithm for the Feature Selection and Optimize (Liu & Liu, 2014)
- 1.B.93. Feature Selection Using Genetic Algorithm for Big Data (Saidi, Ncir, & Essoussi, 2018)
- 1.B.94. Research on Feature Selection in Near-Infrared Spectroscopy Classification Based on Improved Adaptive Genetic Algorithm Combined with ReliefF (Liu, Ding, Yu, & Hou, 2017)
- 1.B.95. Deluge based Genetic Algorithm for feature selection (Guha, Ghosh, Kapri, Shaw, Mutsuddi, Bhateja, & Sarkar, 2019)
- 1.B.96. A Nested Genetic Algorithm for feature selection in high-dimensional cancer Microarray datasets (Sayed, Nassef, Badr, & Farag, 2019)
- 1.B.97. A k-NN method for lung cancer prognosis with the use of a genetic algorithm for feature selection(Maleki, Zeinali, & Niaki, 2020)
- 1.B.98. A new and fast rival genetic algorithm for feature selection (Too & Abdullah, 2020)
- 1.B.99. A multi-objective genetic algorithm for text feature selection using the relative discriminative criterion (Labani, Moradi, & Jalili, 2020)
- 1.B.100. A novel hybrid wrapper-filter approach based on genetic algorithm, particle swarm optimization for feature subset selection(Moslehi & Haeri, 2020)
- 1.B.101. Multi-objective feature selection using hybridization of a genetic algorithm and direct multisearch for key quality characteristic selection (Li, Xue, & Zhang, 2020a)
- 1.B.102. Android Malware Detection Using Genetic Algorithm based Optimized Feature Selection and Machine Learning (Fatima, Maurya, Dutta, Burget, & Masek, 2019)

- 1.B.103. Feature Selection of EEG Oscillatory Activity Related to Motor Imagery Using a Hierarchical Genetic Algorithm (Leon, Ballesteros, Tidare, Xiong, & Astrand, 2019)
- 1.B.104. Developing an Indonesia's health literacy short-form survey questionnaire (HLS-EU-SQ10-IDN) using the feature selection and genetic algorithm (Rachmani, Hsu, Nurjanah, Chang, Shidik, Noersasongko, Jumanto, Fuad, Ningrum, Kurniadi, et al., 2019)
- 1.B.105. Using a genetic algorithm with histogram-based feature selection in hyperspectral image classification (Walton, Sheppard, & Shaw, 2019)
- 1.B.106. Feature selection based on hybridization of genetic algorithm and competitive swarm optimizer (Ding, Zhou, & Bi, 2020)
- 1.B.107. Hybrid Efficient Genetic Algorithm for Big Data Feature Selection Problems (Mohammed, Bayat, Ucan, & Alhayali, 2020)
- 1.B.108. Autonomous Monitoring of Line-to-Line Faults in Photovoltaic Systems by Feature Selection and Parameter Optimization of Support Vector Machine Using Genetic Algorithms (Eskandari, Milimonfared, Aghaei, & Reinders, 2020)
- 1.B.109. A new ensemble feature selection approach based on genetic algorithm (Wang, He, & Li, 2020)
- 1.B.110. Self-Tune Linear Adaptive-Genetic Algorithm for Feature Selection (Ooi, Lim, & Leong, 2019)
- 1.B.111. Feature selection with multi-objective genetic algorithm based on a hybrid filter and the symmetrical complementary coefficient (Zhang, Zhang, Wang, & Du, 2020)
- 1.B.112. Hybrid intelligent phishing website prediction using deep neural networks with genetic algorithm-based feature selection and weighting (Ali & Ahmed, 2019)
- 1.B.113. Feature selection with genetic algorithm for protein function prediction (Santos, Rodrigues, Pinto, Nobre, & Zárate, 2019) item Discovery of significant porcine SNPs for swine breed identification by a hybrid of information gain, genetic algorithm, and frequency feature selection technique (Pasupa, Rathasamuth, & Tongsima, 2020)
- 1.B.114. A two stages algorithm for feature selection based on feature score and genetic algorithms (Huang, 2019)
- 1.B.115. Genetic algorithm-based feature selection for depression scale prediction (Lee, Moon, Kim, & Yoon, 2019)
- 1.B.116. Feature Selection Using Multi-Objective Modified Genetic Algorithm in Multimodal Biometric System (Karthiga & Mangai, 2019)
- 1.B.117. Feature Selection for Improving Failure Detection in Hard Disk Drives Using a Genetic Algorithm and Significance Scores (Ahmad, Khan, Kim, & Kim, 2020)
- 1.B.118. Genetic Algorithm for the Mutual Information-Based Feature Selection in Univariate Time Series Data (Siddiqi, Sait, & Kaynak, 2020)

- 1.B.119. Hybrid feature selection using micro genetic algorithm on microarray gene expression data (Pragadeesh, Jeyaraj, Siranjeevi, Abishek, & Jeyakumar, 2019)
- 1.B.120. A Novel Genetic Algorithm Approach to Simultaneous Feature Selection and Instance Selection (Albuquerque, Nguyen, Xue, & Zhang, 2020)
- 1.B.121. Pixels of chemical structures correlate to chromatographic detector responses using genetic algorithm-adaptive neuro-fuzzy inference system as a novel nonlinear feature selection method (Jalili-Jahani, Zeraatkar, Fatehi, & Gholamian, 2020)
- 1.B.122. Styrian Dialect Classification: Comparing and Fusing Classifiers Based on a Feature Selection Using a Genetic Algorithm (Kisler, Winkelmann, & Schiel, 2019)
- 1.B.123. Genetic algorithm based feature selection brain tumour segmentation and classification (Kumar, Krishna, & Kusumavathi, 2019)
- 1.B.124. Genetic Algorithm Application to Feature Selection in sEMG Movement Recognition with Regularized Extreme Learning Machine (Tosin, Bagesteiro, & Balbinot, 2020)
- 1.B.125. A Feature Selection Method Based on Improved Genetic Algorithm (Liang, Dai, & Du, 2020)
- 1.B.126. Stock Prediction Based on Genetic Algorithm Feature Selection and Long Short-Term Memory Neural Network (Chen & Zhou, 2020)
- 1.B.127. Modified Genetic Algorithm (MGA) based feature selection with Mean Weighted Least Squares Twin Support Vector Machine (MW-LSTSVM) approach for vegetation classification (Priya & Ramyachitra, 2019)
- 1.B.128. Island Model Genetic Algorithm for Feature Selection in Non-Traditional Credit Risk Evaluation (Liu, Ghandar, & Theodoropoulos, 2019)
- 1.B.129. A Novel Deep Learning Classifier and Genetic Algorithm based Feature Selection for Hybrid EEG-fNIRS Brain-Computer Interface (Padmavathy, Kumar, Shakunthala, Kumar, & Saravanan, 2020)
- 1.B.130. Feature Selection for Bleeding Detection in Capsule Endoscopy Images using Genetic Algorithm (Amiri, Hassanpour, & Beghdadi, 2019)
- 1.B.131. Estimation of healthcare expenditure per capita of Turkey using artificial intelligence techniques with genetic algorithm-based feature selection (Ceylan & Atalan, 2020)
- 1.B.132. A Novel Feature Selection Method Using Whale Optimization Algorithm and Genetic Operators for Intrusion Detection System in Wireless Mesh Network (Vijayanand & Devaraj, 2020)
- 1.B.133. A novel community detection based genetic algorithm for feature selection (Mehrdad, Kamal, & Saman, 2020)
- 1.B.134. Optimization of Network Intrusion Detection System Using Genetic Algorithm with Improved Feature Selection Technique (Matel, Sison, & Medina, 2019)
- 1.B.135. Feature Selection Using Multiobjetive Micro-CHC Genetic Algorithm: A Hybrid Approach (Rathee & Ratnoo, 2020)

- 1.B.136. Feature Selection Based On Hybrid Genetic Algorithm With Support Vector Machine (GA-SVM) (Dahea & Fadewar, 2019)
- 1.B.137. A Memetic Cellular Genetic Algorithm for Cancer Data Microarray Feature Selection (Rojas, Olivera, Vidal, & Carballido, 2020)
- 1.B.138. UWB NLOS identification with feature combination selection based on genetic algorithm (Zeng, Liu, & Wang, 2019)
- 1.B.139. A Novel Feature Selection Algorithm Based on Artificial Bee Colony Algorithm and Genetic Algorithm (Ge, Zhang, Liu, & Sun, 2019)
- 1.B.140. Feature selection using principal component analysis and genetic algorithm (Adhao & Pachghare, 2020)
- 1.B.141. Genetic Algorithm for Optimal Feature Vector Selection in Facial Recognition (Yerremreddy, Talele, & Kokate, 2019)
- 1.B.142. A master slave parallel genetic algorithm for feature selection in high dimensional datasets (Tatwani & Kumar, 2019)
- 1.B.143. Permission-based Android Malware Detection System Using Feature Selection with Genetic Algorithm (Yildiz & Doğru, 2019)
- 1.B.144. Classification of spammer and nonspammer content in online social network using genetic algorithm-based feature selection (Sahoo & Gupta, 2020)
- 1.B.145. A New Hybrid Feature Subset Selection Framework Based on Binary Genetic Algorithm and Information Theory (Shukla, Singh, & Vardhan, 2019)
- 1.B.146. Human Behavior Recognition Based on the Genetic Algorithm Feature Selection and Sensor Data (Wang & Zhou, 2020)
- 1.B.147. Enhancing the Classification Performance of Lower Back Pain Symptoms Using Genetic Algorithm-Based Feature Selection (Al Imran, Rifat, & Mohammad, 2020)
- 1.B.148. Feature selection for classification in Steady state visually evoked potentials (SSVEP)-based brain-computer interfaces with genetic algorithm (Karkosz & Jukiewicz, 2020)
- 1.B.149. A Robust Genetic Algorithm for Feature Selection and Parameter Optimization in Radar-Based Gait Analysis (Dawel, Seifert, Muma, & Zoubir, 2019)
- 1.B.150. A Genetic Algorithm Based Feature Selection for Handwritten Digit Recognition (Ahlawat & Rishi, 2019)

1.C. Given number

- 1.C.1. An Ensemble Model using Genetic Algorithm for Feature Selection and rule mining using Apriori and FP-growth from Cancer Microarray data (Sahu, Dehuri, & Jagadev, 2017)
- 1.C.2. Improving flood forecasting through feature selection by a genetic algorithm
 experiments based on real data from an Amazon rainforest river (Vieira, Garcia, Pabón, Cota, de Souza, Ueyama, & Pessin, 2020)

1.D. Normal

1.D.1. A genetic algorithm based feature selection for binary phenotype prediction using structural brain magnetic resonance imaging (Ma & Xia, 2017a)

1.D.2. A tribe competition-based genetic algorithm for feature selection in pattern classification (Ma & Xia, 2017b)

1.E. Uniform

- 1.E.1. Dynamic genetic algorithm-based feature selection and incomplete value imputation for microarray classification (Priya & Sivaraj, 2017)
- 1.E.2. Comparison of Naive Bayes and Decision Tree on Feature Selection Using Genetic Algorithm for Classification Problem (Rahmadani, Dongoran, Zarlis, et al., 2018)

1.F. Special coverings

- 1.F.1. Relevant feature selection and ensemble classifier design using bi-objective genetic algorithm (Das, Pati, & Ghosh, 2020)
- 1.F.2. A novel binary chaotic genetic algorithm for feature selection and its utility in affective computing and healthcare (Tahir, Tubaishat, Al-Obeidat, Shah, Halim, & Waqas, 2020)

2. Measure

- 2.1. Genetic algorithm-based heuristic for feature selection in credit risk assessment (Oreski & Oreski, 2014)
- 2.2. Information gain directed genetic algorithm wrapper feature selection for credit rating (Jadhav, He, & Jenkins, 2018)
- A hybrid feature subset selection by combining filters and genetic algorithm (Singh & Selvakumar, 2015)
- 2.4. Modified genetic algorithm-based feature selection combined with pre-trained deep neural network for demand forecasting in outpatient department (Jiang, Chin, Wang, Qu, & Tsui, 2017)
- 2.5. A hybrid system with filter approach and multiple population genetic algorithm for feature selection in credit scoring (Wang, Zhang, Bai, & Mao, 2018)
- 2.6. Hybrid Feature Selection Based on Improved Genetic Algorithm for Stock Prediction (Mao, Zhang, & Fan, 2016)
- 2.7. Classification of Methicillin-Resistant and Methicillin-Susceptible Staphylococcus Aureus Using an Improved Genetic Algorithm for Feature Selection Based on Mass Spectra (Bai, Fan, Zhang, Xu, & Zhang, 2017)
- 2.8. Multi-Population Genetic Algorithm for Multilabel Feature Selection Based on Label Complementary Communication (Park, Park, Kim, & Lee, 2020)

3. Hybrids

3.1. A Feature Selection Method Based on Feature Grouping and Genetic Algorithm (Lin, Wang, Xiao, Huang, & Wang, 2015b)

- 3.2. An Efficient Cost-Sensitive Feature Selection Using Chaos Genetic Algorithm for Class Imbalance Problem (Bian, Peng, Wang, & Zhang, 2016)
- 3.3. Improving Floating Search Feature Selection using Genetic Algorithm (Homsapaya & Sornil, 2017)
- 3.4. Modified Floating Search Feature Selection Based on Genetic Algorithm (Homsapaya & Sornil, 2018)

4. Predetermined

- 4.1. A novel genetic algorithm approach for simultaneous feature and classifier selection in multi classifier system (Nguyen, Liew, Tran, Pham, & Nguyen, 2014)
- 4.2. A Parallel Genetic Algorithm Based Feature Selection and Parameter Optimization for Support Vector Machine (Chen, Lin, Tang, & Xia, 2016)

5. Expert knowledge

5.1. A new feature selection IDS based on genetic algorithm and SVM(Gharaee & Hosseinvand, 2016)

6. Undefined

- 6.1. Application of Genetic Algorithm for Cancer Diagnosis by Feature Selection (Mansoori, Suman, & Mishra, 2014)
- 6.2. Feature Selection Using Parallel Genetic Algorithm for the Prediction of Geometric Mean Diameter of Soil Aggregates by Machine Learning Methods (Besalatpour, Ayoubi, Hajabbasi, Jazi, & Gharipour, 2014)
- 6.3. Genetic algorithm spectral feature selection coupled with quadratic discriminant analysis for ATR-FTIR spectrometric diagnosis of basal cell carcinoma via blood sample analysis (Khanmohammadi, Ghasemi, & Garmarudi, 2014)
- 6.4. Feature Selection Using Genetic Algorithm for Face Recognition Based on PCA, Wavelet and SVM (Satone & Kharate, 2014)
- 6.5. Dominant feature selection for the fault diagnosis of rotary machines using modified genetic algorithm and empirical mode decomposition (Lu, Yan, & de Silva, 2015)
- 6.6. Feature selection and recognition of electroencephalogram signals: An extreme learning machine and genetic algorithm-based approach (Lin, Huang, Zhong, Lin, & Xue, 2015a)

- 6.7. Feature Selection and Classification of Electroencephalographic Signals An Artificial Neural Network and Genetic Algorithm Based Approach (Erguzel, Ozekes, Tan, & Gultekin, 2015)
- 6.8. A Genetic algorithm based feature selection technique for classification of multiplesubject fMRI data (Accamma, Suma, & Dakshayini, 2015)
- 6.9. Combining the genetic algorithm and successive projection algorithm for the selection of feature wavelengths to evaluate exudative features in frozen—thawed fish muscle (Cheng, Sun, & Pu, 2016)
- 6.10. Table-Based Matching Approach Using Genetic Algorithm for Feature Selection in Text Categorization (Srinivas & Govardhan, 2016)
- 6.11. A Fuzzy Parallel Island Model Multi Objective Genetic Algorithm Gene Feature Selection For Microarray Classification (Natarajan & Balasubramanian, 2016)
- 6.12. Feature Selection Based on Genetic Algorithm, Particle Swarm Optimization and Principal Component Analysis for Opinion Mining Cosmetic Product Review (Kristiyanti & Wahyudi, 2017)
- 6.13. Apple leaf disease identification using genetic algorithm and correlation based feature selection method (Chuanlei, Shanwen, Jucheng, Yancui, & Jia, 2017)
- 6.14. Feature selection for outcome prediction in oesophageal cancer using genetic algorithm and random forest classifier (Paul, Su, Romain, Sébastien, Pierre, & Isabelle, 2017)
- 6.15. A Feature Selection Algorithm for Big Data Based on Genetic Algorithm (Tian & Xiong, 2017)
- 6.16. A group incremental feature selection for classification using rough set theory based genetic algorithm (Das, Sengupta, & Bhattacharyya, 2018)
- 6.17. Automatic Image Region Annotation by Genetic Algorithm-Based Joint Classifier and Feature Selection in Ensemble System (Luong, Nguyen, Pham, Nguyen, Liew, & Stantic, 2018)
- 6.18. An Optimized Method for Segmentation and Classification of Apple Diseases Based on Strong Correlation and Genetic Algorithm Based Feature Selection (Khan, Lali, Sharif, Javed, Aurangzeb, Haider, Altamrah, & Akram, 2019)
- 6.19. Genetic Algorithm Based Feature Selection for Landslide Susceptibility Mapping in Northern Iran (Nikraftar, Rajabi-Kiasari, & Seydi, 2019)
- 6.20. A Signature Best feature selection matching using FAST and genetic algorithm (Jawad & Fadhil, 2020)
- 6.21. Comparison of Naïve Bayes Algorithm with Genetic Algorithm and Particle Swarm Optimization as Feature Selection for Sentiment Analysis Review of Digital Learning Application (Ernawati, Wati, Nuris, Marita, & Yulia, 2020)
- 6.22. A hybrid feature selection algorithm combining information gain and genetic search for intrusion detection (Liu, Liang, Fang, Zhou, Hu, Zhou, Hou, & Wang, 2020)

6.23. Genetic Algorithm Based Feature Selection With Ensemble Methods For Student Academic Performance Prediction (Farissi, Dahlan, & Samsuryadi, 2020)

7. Off-topic

- 7.1. Optimal Deep Learning LSTM Model for Electric Load Forecasting using Feature Selection and Genetic Algorithm: Comparison with Machine Learning Approaches (Desale & Ade, 2015)
- 7.2. Adaptive Feature Selection Based Improved Support Vector Machine Classifier Using Adaboost and Genetic Algorithm for Web Interaction Mining (Kaviyarasu & Kumar, 2017)
- 7.3. Waveband Selection Based Feature Extraction Using Genetic Algorithm (Li, Liang, Tang, & Gai, 2017)
- 7.4. Feature Selection for High Dimensional Data Using Weighted K-Nearest Neighbors and Genetic Algorithm (Li, Zhang, Chen, Wang, & Zhang, 2020b)

8. Spam

- 8.1. Hybrid Genetic Algorithm for Medical Image Feature Extraction and Selection (Nagarajan, Minu, Muthukumar, Vedanarayanan, & Sundarsingh, 2016)
- 8.2. An approach on multi-objective unsupervised feature selection using genetic algorithm (Khan & Mandwi, 2017)

9. Without access

- 9.1. Feature Subset Selection Using Genetic Algorithm for Intrusion Detection System (Behjat, Vatankhah, & Mustapha, 2014)
- 9.2. Wrapper Feature Selection based on Genetic Algorithm for Recognizing Objects from Satellite Imagery (Hewahi & Alashqar, 2015)
- 9.3. A Hybrid Binary Cuckoo Search and Genetic Algorithm for Feature Selection in Type-2 Diabetes (R Rajalaxmi, 2016)
- 9.4. Analyzing Software Defect Prediction Using K-Means and Expectation Maximization Clustering Algorithm Based On Genetic Feature Selection (Reena & Selvi, 2016)
- 9.5. Feature selection based on genetic algorithm and hybrid model for sentiment polarity classification (Kalaivani & Shunmuganathan, 2016)
- 9.6. Distance Based Genetic Algorithm for Feature Selection in Computer Aided Diagnosis Systems (Retmin Raj C, Nehemiah, Elizabeth, et al., 2017)

- 9.7. Feature Selection Optimization Based on Atomic Set and Genetic Algorithm in Software Product Line (Zhan, Luo, Guo, & Liu, 2017)
- 9.8. Genetic Algorithm-based Feature Selection Approach for Enhancing the Effectiveness of Similarity Searching in Ligand-based Virtual Screening (Berrhail & Belhadef, 2020)
- 9.9. Usage of ensemble model and genetic algorithm in pipeline for feature selection from cancer microarray data (Barnali, Satchidananda, & Kumar, 2020)

References

- Aalaei, S., Shahraki, H., Rowhanimanesh, A., & Eslami, S. (2016). Feature selection using genetic algorithm for breast cancer diagnosis: experiment on three different datasets. *Iranian journal of basic medical sciences*, 19(5), 476.
- Abdulghani, M. M., & Tiun, S. (2016). Feature selection in web ner using genetic algorithm approach. Journal of Theoretical & Applied Information Technology, 93(2).
- Abualigah, L. M., & Khader, A. T. (2017). Unsupervised text feature selection technique based on hybrid particle swarm optimization algorithm with genetic operators for the text clustering. *The Journal of Supercomputing*, 73(11), 4773–4795.
- Abualigah, L. M., Khader, A. T., & Al-Betar, M. A. (2016). Unsupervised feature selection technique based on genetic algorithm for improving the text clustering. In *Computer Science and Information Technology (CSIT)*, 2016 7th International Conference on, pp. 1–6. IEEE.
- Accamma, I., Suma, H., & Dakshayini, M. (2015). A genetic algorithm based feature selection technique for classification of multiple-subject fmri data. In *Advance Computing Conference (IACC)*, 2015 IEEE International, pp. 948–952. IEEE.
- Adhao, R., & Pachghare, V. (2020). Feature selection using principal component analysis and genetic algorithm. *Journal of Discrete Mathematical Sciences and Cryptography*, 23(2), 595–602.
- Ahlawat, S., & Rishi, R. (2019). A genetic algorithm based feature selection for handwritten digit recognition. *Recent Patents on Computer Science*, 12(4), 304–316.
- Ahmad, W., Khan, S. A., Kim, C. H., & Kim, J.-M. (2020). Feature selection for improving failure detection in hard disk drives using a genetic algorithm and significance scores. *Applied Sciences*, 10(9), 3200.
- Ahn, G., & Hur, S. (2020). Efficient genetic algorithm for feature selection for early time series classification. Computers & Industrial Engineering, 142, 106345.
- Akhter, N., Dabhade, S., Bansod, N., & Kale, K. (2016). Feature selection for heart rate variability based biometric recognition using genetic algorithm. In *Intelligent Systems Technologies and Applications*, pp. 91–101. Springer.
- Al Imran, A., Rifat, M. R. I., & Mohammad, R. (2020). Enhancing the classification performance of lower back pain symptoms using genetic algorithm-based feature selection.

- In Proceedings of International Joint Conference on Computational Intelligence, pp. 455–469. Springer.
- Albuquerque, I. M. R., Nguyen, B. H., Xue, B., & Zhang, M. (2020). A novel genetic algorithm approach to simultaneous feature selection and instance selection. In 2020 IEEE Symposium Series on Computational Intelligence (SSCI), pp. 616–623. IEEE.
- Ali, W., & Ahmed, A. A. (2019). Hybrid intelligent phishing website prediction using deep neural networks with genetic algorithm-based feature selection and weighting. *IET Information Security*, 13(6), 659–669.
- Aliane, A., Aliane, H., Ziane, M., & Bensaou, N. (2016). A genetic algorithm feature selection based approach for arabic sentiment classification. In *Computer Systems and Applications (AICCSA)*, 2016 IEEE/ACS 13th International Conference of, pp. 1–6. IEEE.
- Alirezazadeh, P., Fathi, A., & Abdali-Mohammadi, F. (2015). A genetic algorithm-based feature selection for kinship verification. *IEEE Signal Processing Letters*, 22(12), 2459–2463.
- Altilio, R., Liparulo, L., Proietti, A., Paoloni, M., & Panella, M. (2016). A genetic algorithm for feature selection in gait analysis. In *Evolutionary Computation (CEC)*, 2016 IEEE Congress on, pp. 4584–4591. IEEE.
- Alzubaidi, A., Cosma, G., Brown, D., & Pockley, A. G. (2016). Breast cancer diagnosis using a hybrid genetic algorithm for feature selection based on mutual information. In 2016 International Conference on Interactive Technologies and Games (ITAG), pp. 70–76. IEEE.
- Amiri, Z., Hassanpour, H., & Beghdadi, A. (2019). Feature selection for bleeding detection in capsule endoscopy images using genetic algorithm. In 2019 5th Iranian Conference on Signal Processing and Intelligent Systems (ICSPIS), pp. 1–4. IEEE.
- An, T. (2017). Application of genetic algorithm based on f-ratio rule in signal feature selection. In Computational Intelligence and Design (ISCID), 2017 10th International Symposium on, Vol. 2, pp. 492–495. IEEE.
- Anand, D., Pandey, B., & Pandey, D. K. (2018). A novel hybrid feature selection model for classification of neuromuscular dystrophies using bhattacharyya coefficient, genetic algorithm and radial basis function based support vector machine. *Interdisciplinary* Sciences: Computational Life Sciences, 10(2), 244–250.
- Anderson, I. (2015). Multivariate feature selection for predicting scour-related bridge damage using a genetic algorithm. In AGU Fall Meeting Abstracts.
- Anirudha, R., Kannan, R., & Patil, N. (2014). Genetic algorithm based wrapper feature selection on hybrid prediction model for analysis of high dimensional data. In *Industrial and Information Systems (ICIIS)*, 2014 9th International Conference on, pp. 1–6. IEEE.
- Anusha, M., & Sathiaseelan, J. (2015). Feature selection using k-means genetic algorithm for multi-objective optimization. *Procedia Computer Science*, 57, 1074–1080.

- Bai, J., Fan, Z., Zhang, L., Xu, X., & Zhang, Z. (2017). Classification of methicillin-resistant and methicillin-susceptible staphylococcus aureus using an improved genetic algorithm for feature selection based on mass spectra. In *Proceedings of the 9th International Conference on Bioinformatics and Biomedical Technology*, pp. 57–63. ACM.
- Barnali, S., Satchidananda, D., & Kumar, J. A. (2020). Usage of ensemble model and genetic algorithm in pipeline for feature selection from cancer microarray data. *International Journal of Bioinformatics Research and Applications*, 16(3), 217–244.
- Behjat, A. R., Vatankhah, N., & Mustapha, A. (2014). Feature subset selection using genetic algorithm for intrusion detection system. *Advanced Science Letters*, 20(1), 235–238.
- Benitez, I. P., Sison, A. M., & Medina, R. P. (2018). An improved genetic algorithm for feature selection in the classification of disaster-related twitter messages. In 2018 IEEE Symposium on Computer Applications & Industrial Electronics (ISCAIE), pp. 238–243. IEEE.
- Berrhail, F., & Belhadef, H. (2020). Genetic algorithm-based feature selection approach for enhancing the effectiveness of similarity searching in ligand-based virtual screening. *Current Bioinformatics*, 15(5), 431–444.
- Besalatpour, A., Ayoubi, S., Hajabbasi, M., Jazi, A. Y., & Gharipour, A. (2014). Feature selection using parallel genetic algorithm for the prediction of geometric mean diameter of soil aggregates by machine learning methods. *Arid Land Research and Management*, 28(4), 383–394.
- Bharathi, P., & Subashini, P. (2014). Differential evolution and genetic algorithm based feature subset selection for recognition of river ice types.. *Journal of Theoretical & Applied Information Technology*, 67(1).
- Bian, J., Peng, X.-g., Wang, Y., & Zhang, H. (2016). An efficient cost-sensitive feature selection using chaos genetic algorithm for class imbalance problem. *Mathematical Problems in Engineering*, 2016.
- Boubenna, H., & Lee, D. (2016). Feature selection for facial emotion recognition based on genetic algorithm. In *Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD), 2016 12th International Conference on*, pp. 511–517. IEEE.
- Bouraoui, A., Jamoussi, S., & BenAyed, Y. (2018). A multi-objective genetic algorithm for simultaneous model and feature selection for support vector machines. *Artificial Intelligence Review*, 50(2), 261–281.
- Catak, F. (2015). Genetic algorithm based feature selection in high dimensional text dataset classification. WSEAS Transactions on Information Sciences and Application, 12(1), 290–296.
- Ceylan, Z., & Atalan, A. (2020). Estimation of healthcare expenditure per capita of turkey using artificial intelligence techniques with genetic algorithm-based feature selection. Journal of Forecasting, 40(2).
- Chen, Q., Feng, J., Mittal, S., & Shukla, D. (2018). Automatic feature selection in markov state models using genetic algorithm. *Journal of Computational Science Education*, 9.

- Chen, S., & Zhou, C. (2020). Stock prediction based on genetic algorithm feature selection and long short-term memory neural network. *IEEE Access*, 9.
- Chen, Z., Lin, T., Tang, N., & Xia, X. (2016). A parallel genetic algorithm based feature selection and parameter optimization for support vector machine. *Scientific Programming*, 2016.
- Cheng, J.-H., Sun, D.-W., & Pu, H. (2016). Combining the genetic algorithm and successive projection algorithm for the selection of feature wavelengths to evaluate exudative characteristics in frozen-thawed fish muscle. *Food chemistry*, 197, 855–863.
- Chuanlei, Z., Shanwen, Z., Jucheng, Y., Yancui, S., & Jia, C. (2017). Apple leaf disease identification using genetic algorithm and correlation based feature selection method. *International Journal of Agricultural and Biological Engineering*, 10(2), 74–83.
- Cleetus, N., & Dhanya, K. (2014). Genetic algorithm with different feature selection method for intrusion detection. In *Computational Systems and Communications (ICCSC)*, 2014 First International Conference on, pp. 220–225. IEEE.
- da Silva, P. N., Plastino, A., & Freitas, A. A. (2018). A novel genetic algorithm for feature selection in hierarchical feature spaces. In *Proceedings of the 2018 SIAM International Conference on Data Mining*, pp. 738–746. SIAM.
- Dahea, W., & Fadewar, H. (2019). Feature selection based on hybrid genetic algorithm with support vector machine (ga-sym). *Int. J. Sci. Technol. Res.*, 8(12), 190–198.
- Das, A. K., Das, S., & Ghosh, A. (2017). Ensemble feature selection using bi-objective genetic algorithm. *Knowledge-Based Systems*, 123, 116–127.
- Das, A. K., Sengupta, S., & Bhattacharyya, S. (2018). A group incremental feature selection for classification using rough set theory based genetic algorithm. Applied Soft Computing, 65, 400–411.
- Das, A. K., Pati, S. K., & Ghosh, A. (2020). Relevant feature selection and ensemble classifier design using bi-objective genetic algorithm. *Knowledge and Information Systems*, 62(2), 423–455.
- Das, S., Chaudhuri, S., Ghatak, S., & Das, A. K. (2016). Simultaneous feature selection and cluster analysis using genetic algorithm. In *Information Technology (ICIT)*, 2016 International Conference on, pp. 288–293. IEEE.
- Dawel, L., Seifert, A.-K., Muma, M., & Zoubir, A. M. (2019). A robust genetic algorithm for feature selection and parameter optimization in radar-based gait analysis. In 2019 IEEE 8th International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP), pp. 674–678. IEEE.
- de Paula, L., Soares, A. S., de Lima, T. W., & Coelho, C. J. (2016). Feature selection using genetic algorithm: an analysis of the bias-property for one-point crossover. In *Proceedings of the 2016 on genetic and evolutionary computation conference companion*, pp. 1461–1462. ACM.
- De Stefano, C., Fontanella, F., & di Freca, A. S. (2017). Feature selection in high dimensional data by a filter-based genetic algorithm. In *European Conference on the Applications of Evolutionary Computation*, pp. 506–521. Springer.

- Desale, K. S., & Ade, R. (2015). Genetic algorithm based feature selection approach for effective intrusion detection system. In *Computer Communication and Informatics* (ICCCI), 2015 International Conference on, pp. 1–6. IEEE.
- Ding, Y., Zhou, K., & Bi, W. (2020). Feature selection based on hybridization of genetic algorithm and competitive swarm optimizer. *Soft Computing*, 24, 11663 11672.
- Dong, H., Li, T., Ding, R., & Sun, J. (2018). A novel hybrid genetic algorithm with granular information for feature selection and optimization. *Applied Soft Computing*, 65, 33–46.
- Erguzel, T. T., Ozekes, S., Tan, O., & Gultekin, S. (2015). Feature selection and classification of electroencephalographic signals: an artificial neural network and genetic algorithm based approach. *Clinical EEG and neuroscience*, 46(4), 321–326.
- Ernawati, S., Wati, R., Nuris, N., Marita, L. S., & Yulia, E. R. (2020). Comparison of naïve bayes algorithm with genetic algorithm and particle swarm optimization as feature selection for sentiment analysis review of digital learning application. In *Journal of Physics: Conference Series*, Vol. 1641, p. 012040. IOP Publishing.
- Eroglu, D. Y., & Kilic, K. (2017). A novel hybrid genetic local search algorithm for feature selection and weighting with an application in strategic decision making in innovation management. *Information Sciences*, 405, 18–32.
- Eskandari, A., Milimonfared, J., Aghaei, M., & Reinders, A. H. (2020). Autonomous monitoring of line-to-line faults in photovoltaic systems by feature selection and parameter optimization of support vector machine using genetic algorithm. *Applied Sciences*, 10(16), 5527.
- Farissi, A., Dahlan, H. M., & Samsuryadi (2020). Genetic algorithm based feature selection with ensemble methods for student academic performance prediction. In *Journal of Physics Conference Series*, Vol. 1500.
- Fatima, A., Maurya, R., Dutta, M. K., Burget, R., & Masek, J. (2019). Android malware detection using genetic algorithm based optimized feature selection and machine learning. In 2019 42nd International Conference on Telecommunications and Signal Processing (TSP), pp. 220–223. IEEE.
- Ferriyan, A., Thamrin, A. H., Takeda, K., & Murai, J. (2017). Feature selection using genetic algorithm to improve classification in network intrusion detection system. In *Knowledge Creation and Intelligent Computing (IES-KCIC)*, 2017 International Electronics Symposium on, pp. 46–49. IEEE.
- Ge, J., Zhang, X., Liu, G., & Sun, Y. (2019). A novel feature selection algorithm based on artificial bee colony algorithm and genetic algorithm. In 2019 IEEE International Conference on Power, Intelligent Computing and Systems (ICPICS), pp. 131–135. IEEE.
- Ghamisi, P., & Benediktsson, J. A. (2015). Feature selection based on hybridization of genetic algorithm and particle swarm optimization. *IEEE Geoscience and Remote Sensing Letters*, 12(2), 309–313.
- Gharaee, H., & Hosseinvand, H. (2016). A new feature selection ids based on genetic algorithm and svm. In *Telecommunications (IST)*, 2016 8th International Symposium on, pp. 139–144. IEEE.

- Ghareb, A. S., Bakar, A. A., & Hamdan, A. R. (2016). Hybrid feature selection based on enhanced genetic algorithm for text categorization. *Expert Systems with Applications*, 49, 31–47.
- Guha, R., Ghosh, M., Kapri, S., Shaw, S., Mutsuddi, S., Bhateja, V., & Sarkar, R. (2019). Deluge based genetic algorithm for feature selection. *Evolutionary intelligence*, *Online*, 1–11.
- Gunavathi, C., & Premalatha, K. (2014). Performance analysis of genetic algorithm with knn and svm for feature selection in tumor classification. *Int J Comput Electr Autom Control Inf Eng*, 8(8), 1490–7.
- Gupta, A., & Purohit, A. (2017). Rgap: A rough set, genetic algorithm and particle swarm optimization based feature selection approach. *International Journal of Computer* Applications, 161(6).
- Haidar, A., & Verma, B. (2016). A genetic algorithm based feature selection approach for rainfall forecasting in sugarcane areas. In Computational Intelligence (SSCI), 2016 IEEE Symposium Series on, pp. 1–8. IEEE.
- Hasnat, A., & Molla, A. U. (2016). Feature selection in cancer microarray data using multi-objective genetic algorithm combined with correlation coefficient. In *Emerging Technological Trends (ICETT)*, International Conference on, pp. 1–6. IEEE.
- He, F., Yang, H., Miao, Y., & Louis, R. (2016). A hybrid feature selection method based on genetic algorithm and information gain. In *Computer Science and Network Technology* (ICCSNT), 2016 5th International Conference on, pp. 320–323. IEEE.
- Hewahi, N. M., & Alashqar, E. A. (2015). Wrapper feature selection based on genetic algorithm for recognizing objects from satellite imagery. *Journal of Information Technology Research (JITR)*, 8(3), 1–20.
- Hilda, G. T., & Rajalaxmi, R. (2015). Effective feature selection for supervised learning using genetic algorithm. In *Electronics and Communication Systems (ICECS)*, 2015 2nd International Conference on, pp. 909–914. IEEE.
- Homsapaya, K., & Sornil, O. (2017). Improving floating search feature selection using genetic algorithm. *Journal of ICT Research and Applications*, 11(3), 299–317.
- Homsapaya, K., & Sornil, O. (2018). Modified floating search feature selection based on genetic algorithm. In *MATEC Web of Conferences*, Vol. 164, p. 01023. EDP Sciences.
- Hong, S.-S., Lee, W., & Han, M.-M. (2015). The feature selection method based on genetic algorithm for efficient of text clustering and text classification. *International Journal of Advances in Soft Computing & Its Applications*, 7(1).
- Huang, Z. (2019). A two stages algorithm for feature selection based on feature score and genetic algorithms. *Intelligent Decision Technologies*, 13(2), 139–151.
- Jadhav, S., He, H., & Jenkins, K. (2018). Information gain directed genetic algorithm wrapper feature selection for credit rating. *Applied Soft Computing*, 69, 541–553.
- Jalili-Jahani, N., Zeraatkar, E., Fatehi, A., & Gholamian, M. (2020). Pixels of chemical structures correlate to chromatographic detector responses using genetic algorithm-

- adaptive neuro-fuzzy inference system as a novel nonlinear feature selection method. Chemometrics and Intelligent Laboratory Systems, 202, 104032.
- Jawad, M. Q., & Fadhil, T. Z. (2020). A signature best feature selection matching using fast and genetic algorithm. In *Materials Science and Engineering Conference Series*, Vol. 870, p. 012132.
- Ji, Y., Bu, X., Sun, J., & Liu, Z. (2016). An improved simulated annealing genetic algorithm of eeg feature selection in sleep stage. In Signal and Information Processing Association Annual Summit and Conference (APSIPA), 2016 Asia-Pacific, pp. 1–4. IEEE.
- Jiang, S., Chin, K.-S., Wang, L., Qu, G., & Tsui, K. L. (2017). Modified genetic algorithm-based feature selection combined with pre-trained deep neural network for demand forecasting in outpatient department. *Expert Systems with Applications*, 82, 216–230.
- Jing, S.-Y. (2014). A hybrid genetic algorithm for feature subset selection in rough set theory. Soft Computing, 18(7), 1373–1382.
- Jungjit, S., & Freitas, A. (2015a). A lexicographic multi-objective genetic algorithm for multi-label correlation based feature selection. In Proceedings of the Companion Publication of the 2015 Annual Conference on Genetic and Evolutionary Computation, pp. 989–996. ACM.
- Jungjit, S., & Freitas, A. A. (2015b). A new genetic algorithm for multi-label correlation-based feature selection. In 23rd European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning, pp. 285–290.
- Kajó, M., & Nováczki, S. (2016). A genetic feature selection algorithm for anomaly classification in mobile networks. In 19th International ICIN conference-Innovations in Clouds, Internet and Networks.
- Kalaivani, P., & Shunmuganathan, K. (2016). Feature selection based on genetic algorithm and hybrid model for sentiment polarity classification. *International Journal of Data Mining, Modelling and Management*, 8(4), 315–329.
- Karkosz, S., & Jukiewicz, M. (2020). Feature selection for classification in steady state visually evoked potentials (ssvep)-based brain-computer interfaces with genetic algorithm. Bio-Algorithms and Med-Systems, 1 (ahead-of-print).
- Karthiga, R., & Mangai, S. (2019). Feature selection using multi-objective modified genetic algorithm in multimodal biometric system. *Journal of medical systems*, 43(7), 214.
- Kashyap, H., Das, S., Bhattacharjee, J., Halder, R., & Goswami, S. (2016). Multi-objective genetic algorithm setup for feature subset selection in clustering. In *Recent Advances* in *Information Technology (RAIT)*, 2016 3rd International Conference on, pp. 243– 247. IEEE.
- Kaviyarasu, B., & Kumar, A. S. (2017). Adaptive feature selection based improved support vector machine classifier using adaboost and genetic algorithm for web interaction mining. *International Journal of Applied Engineering Research*, 12(20), 10138–10144.
- Khan, A., & Baig, A. R. (2015). Multi-objective feature subset selection using non-dominated sorting genetic algorithm. *Journal of applied research and technology*, 13(1), 145–159.

- Khan, B., Bhatti, A., Johnstone, M., Hanoun, S., Creighton, D., & Nahavandi, S. (2015).
 Optimal feature subset selection for neuron spike sorting using the genetic algorithm.
 In International Conference on Neural Information Processing, pp. 364–370. Springer.
- Khan, M. A., Lali, M. I. U., Sharif, M., Javed, K., Aurangzeb, K., Haider, S. I., Altamrah, A. S., & Akram, T. (2019). An optimized method for segmentation and classification of apple diseases based on strong correlation and genetic algorithm based feature selection. *IEEE Access*, 7, 46261–46277.
- Khan, R. A., & Mandwi, I. (2017). An approach on multi-objective unsupervised feature selection using genetic algorithm. In *Innovations in Information, Embedded and Communication Systems (ICIIECS)*, 2017 International Conference on, pp. 1–5. IEEE.
- Khanmohammadi, M., Ghasemi, K., & Garmarudi, A. B. (2014). Genetic algorithm spectral feature selection coupled with quadratic discriminant analysis for atr-ftir spectrometric diagnosis of basal cell carcinoma via blood sample analysis. *RSC Advances*, 4(78), 41484–41490.
- Khehra, B. S., & Pharwaha, A. P. S. (2017). Comparison of genetic algorithm, particle swarm optimization and biogeography-based optimization for feature selection to classify clusters of microcalcifications. *Journal of The Institution of Engineers (India):* Series B, 98(2), 189–202.
- Khiabani, A., & Sabbaghi, A. (2017). Phga: Proposed hybrid genetic algorithm for feature selection in binary classification. In *Information and Knowledge Technology (IKT)*, 2017 9th International Conference on, pp. 147–154. IEEE.
- Kisler, T., Winkelmann, R., & Schiel, F. (2019). Styrian dialect classification: Comparing and fusing classifiers based on a feature selection using a genetic algorithm.. In *INTERSPEECH*, pp. 2393–2397.
- Koromyslova, A., Semenkina, M., & Sergienko, R. (2017). Feature selection for natural language call routing based on self-adaptive genetic algorithm. In *IOP Conference Series: Materials Science and Engineering*, Vol. 173, p. 012008. IOP Publishing.
- Kristiyanti, D. A., & Wahyudi, M. (2017). Feature selection based on genetic algorithm, particle swarm optimization and principal component analysis for opinion mining cosmetic product review. In *Cyber and IT Service Management (CITSM)*, 2017 5th International Conference on, pp. 1–6. IEEE.
- Kumar, L., & Rath, S. K. (2016). Application of genetic algorithm as feature selection technique in development of effective fault prediction model. In *Electrical, Computer and Electronics Engineering (UPCON)*, 2016 IEEE Uttar Pradesh Section International Conference on, pp. 432–437. IEEE.
- Kumar, N. S., & Arun, M. (2017). Genetic algorithm-based feature selection for classification of land cover changes using combined landsat and envisat images. *International Journal of Bio-Inspired Computation*, 10(3), 172–187.
- Kumar, V. V., Krishna, K. S., & Kusumavathi, S. (2019). Genetic algorithm based feature selection brain tumour segmentation and classification. *International Journal of Intelligent Engineering and Systems*, 12(5), 214–223.

- Kumari, A. C., et al. (2018). Feature selection optimization in spl using genetic algorithm. *Procedia Computer Science*, 132, 1477–1486.
- Kurzynski, M., Trajdos, P., & Krysmann, M. (2015). Dynamic feature selection with wrapper model and ensemble approach based on measures of local relevances and group diversity using genetic algorithm. In Computational Intelligence (IJCCI), 2015 7th International Joint Conference on, Vol. 1, pp. 167–173. IEEE.
- Labani, M., Moradi, P., & Jalili, M. (2020). A multi-objective genetic algorithm for text feature selection using the relative discriminative criterion. *Expert Systems with Applications*, 149, 113276.
- Lan, Y.-D. (2017). A hybrid feature selection based on mutual information and genetic algorithm. Indonesian Journal of Electrical Engineering and Computer Science, 7(1), 214–225.
- Lee, S.-J., Moon, H.-J., Kim, D.-J., & Yoon, Y. (2019). Genetic algorithm-based feature selection for depression scale prediction. In *Proceedings of the Genetic and Evolutionary Computation Conference Companion*, pp. 65–66.
- Leon, M., Ballesteros, J., Tidare, J., Xiong, N., & Astrand, E. (2019). Feature selection of eeg oscillatory activity related to motor imagery using a hierarchical genetic algorithm. In 2019 IEEE Congress on Evolutionary Computation (CEC), pp. 87–94. IEEE.
- Li, A.-D., Xue, B., & Zhang, M. (2020a). Multi-objective feature selection using hybridization of a genetic algorithm and direct multisearch for key quality characteristic selection. *Information Sciences*, 523, 245–265.
- Li, S., Zhang, K., Chen, Q., Wang, S., & Zhang, S. (2020b). Feature selection for high dimensional data using weighted k-nearest neighbors and genetic algorithm. *IEEE Access*, 8, 139512–139528.
- Li, Y., Liang, K., Tang, X., & Gai, K. (2017). Waveband selection based feature extraction using genetic algorithm. In 2017 IEEE 4th International Conference on Cyber Security and Cloud Computing (CSCloud), pp. 223–227. IEEE.
- Liang, K., Dai, W., & Du, R. (2020). A feature selection method based on improved genetic algorithm. In 2020 Global Reliability and Prognostics and Health Management (PHM-Shanghai), pp. 1–5. IEEE.
- Lin, C.-H., Chen, H.-Y., & Wu, Y.-S. (2014). Study of image retrieval and classification based on adaptive features using genetic algorithm feature selection. *Expert Systems with Applications*, 41(15), 6611–6621.
- Lin, Q., Huang, J.-B., Zhong, J., Lin, S.-D., & Xue, Y. (2015a). Feature selection and recognition of electroencephalogram signals: An extreme learning machine and genetic algorithm-based approach. In *Machine Learning and Cybernetics (ICMLC)*, 2015 International Conference on, Vol. 2, pp. 499–504. IEEE.
- Lin, X., Wang, X., Xiao, N., Huang, X., & Wang, J. (2015b). A feature selection method based on feature grouping and genetic algorithm. In *International Conference on Intelligent Science and Big Data Engineering*, pp. 150–158. Springer.

- Liu, M. L., & Liu, B. Y. (2014). State evaluation of diesel engine using genetic algorithm for the feature selection and optimize. In *Applied Mechanics and Materials*, Vol. 462, pp. 203–208. Trans Tech Publ.
- Liu, M., Ding, X., Yu, S., & Hou, R. (2017). Research on feature selection in near-infrared spectroscopy classification based on improved adaptive genetic algorithm combined with relieff. In *Intelligent Human-Machine Systems and Cybernetics (IHMSC)*, 2017 9th International Conference on, Vol. 2, pp. 403–406. IEEE.
- Liu, Y., Liang, S., Fang, W., Zhou, Z., Hu, R., Zhou, H., Hou, J., & Wang, Y. (2020). A hybrid feature selection algorithm combining information gain and genetic search for intrusion detection. In *Journal of Physics: Conference Series*, Vol. 1601, p. 032048. IOP Publishing.
- Liu, Y., Ghandar, A., & Theodoropoulos, G. (2019). Island model genetic algorithm for feature selection in non-traditional credit risk evaluation. In 2019 IEEE Congress on Evolutionary Computation (CEC), pp. 2771–2778. IEEE.
- Lu, C., Zhu, Z., & Gu, X. (2014). An intelligent system for lung cancer diagnosis using a new genetic algorithm based feature selection method. *Journal of medical systems*, 38(9), 97.
- Lu, L., Yan, J., & de Silva, C. W. (2015). Dominant feature selection for the fault diagnosis of rotary machines using modified genetic algorithm and empirical mode decomposition. *Journal of Sound and Vibration*, 344, 464–483.
- Luong, A. V., Nguyen, T. T., Pham, X. C., Nguyen, T. T. T., Liew, A. W.-C., & Stantic, B. (2018). Automatic image region annotation by genetic algorithm-based joint classifier and feature selection in ensemble system. In Asian Conference on Intelligent Information and Database Systems, pp. 599–609. Springer.
- Ma, B., & Xia, Y. (2017a). A genetic algorithm based feature selection for binary phenotype prediction using structural brain magnetic resonance imaging. In 2017 13th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD), pp. 172–177. IEEE.
- Ma, B., & Xia, Y. (2017b). A tribe competition-based genetic algorithm for feature selection in pattern classification. *Applied Soft Computing*, 58, 328–338.
- Maheshwari, R., Kumar, M., & Kumar, S. (2016). Optimization of feature selection in face recognition system using differential evolution and genetic algorithm. In *Proceedings* of fifth international conference on soft computing for problem solving, pp. 363–374. Springer.
- Mahmood, D. I., & Hameed, S. M. (2016). A feature selection model based on genetic algorithm for intrusion detection. *Iraqi Journal of Science*, 57, 168–175.
- Maini, T., Misra, R., & Singh, D. (2015). Optimal feature selection using elitist genetic algorithm. In Computational Intelligence: Theories, Applications and Future Directions (WCI), 2015 IEEE Workshop on, pp. 1–5. IEEE.
- Maleki, N., Zeinali, Y., & Niaki, S. T. A. (2020). A k-nn method for lung cancer prognosis with the use of a genetic algorithm for feature selection. Expert Systems with Applications, 164, 113981.

- Mansoori, T. K., Suman, A., & Mishra, S. K. (2014). Application of genetic algorithm for cancer diagnosis by feature selection. *International Journal of Engineering*, 3(8).
- Mao, Y., Zhang, Z., & Fan, D. (2016). Hybrid feature selection based on improved genetic algorithm for stock prediction. In *Digital Home (ICDH)*, 2016 6th International Conference on, pp. 215–220. IEEE.
- Martins, M., Costa, L., Frizera, A., Ceres, R., & Santos, C. (2014). Hybridization between multi-objective genetic algorithm and support vector machine for feature selection in walker-assisted gait. *Computer methods and programs in biomedicine*, 113(3), 736–748.
- Matel, E. C., Sison, A. M., & Medina, R. P. (2019). Optimization of network intrusion detection system using genetic algorithm with improved feature selection technique. In 2019 IEEE 11th International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management (HNICEM), pp. 1–6. IEEE.
- McClendon, J., Hodges, L., & Remy, S. (2016a). Maximizing appropriate responses returned by a conversational agent through the use of a genetic algorithm for feature selection. In *The Twenty-Ninth International Flairs Conference*.
- McClendon, J., Hodges, L., & Remy, S. (2016b). Maximizing appropriate responses returned by a conversational agent through the use of a genetic algorithm for feature selection. In *The Twenty-Ninth International Flairs Conference*.
- Mehrdad, R., Kamal, B., & Saman, F. (2020). A novel community detection based genetic algorithm for feature selection. *Journal of Big Data*, 8(1).
- Mei, Y., Nguyen, S., Xue, B., & Zhang, M. (2017). An efficient feature selection algorithm for evolving job shop scheduling rules with genetic programming. *IEEE Transactions on Emerging Topics in Computational Intelligence*, 1(5), 339–353.
- Mohammed, T. A., Bayat, O., Ucan, O. N., & Alhayali, S. (2020). Hybrid efficient genetic algorithm for big data feature selection problems. Foundations of Science, 25(4).
- Mokeddem, S., Atmani, B., & Mokaddem, M. (2016). An effective feature selection approach driven genetic algorithm wrapped bayes naïve. *International Journal of Data Analysis Techniques and Strategies*, 8(3), 220–243.
- Morade, S. S., & Patnaik, S. (2015). A genetic algorithm-based 3d feature selection for lip reading. In *Pervasive Computing (ICPC)*, 2015 International Conference on, pp. 1–6. IEEE.
- Moslehi, F., & Haeri, A. (2020). A novel hybrid wrapper–filter approach based on genetic algorithm, particle swarm optimization for feature subset selection. *Journal of Ambient Intelligence and Humanized Computing*, 11(3), 1105–1127.
- MotieGhader, H., Gharaghani, S., Masoudi-Sobhanzadeh, Y., & Masoudi-Nejad, A. (2017). Sequential and mixed genetic algorithm and learning automata (sgala, mgala) for feature selection in qsar. *Iranian journal of pharmaceutical research: IJPR*, 16(2), 533.

- Murthy, Y. S., & Koolagudi, S. G. (2018). Classification of vocal and non-vocal segments in audio clips using genetic algorithm based feature selection (gafs). *Expert Systems with Applications*, 106, 77–91.
- Nagarajan, G., Minu, R., Muthukumar, B., Vedanarayanan, V., & Sundarsingh, S. (2016). Hybrid genetic algorithm for medical image feature extraction and selection. *Procedia Computer Science*, 85, 455–462.
- Natarajan, A., & Balasubramanian, R. (2016). A fuzzy parallel island model multi objective genetic algorithm gene feature selection for microarray classification.. *International Journal of Applied Engineering Research*, 11(4), 2761–2770.
- Nedjar, I., EL HABIB DAHO, M., Settouti, N., Mahmoudi, S., & Chikh, M. A. (2015). Random forest based classification of medical x-ray images using a genetic algorithm for feature selection. *Journal of Mechanics in Medicine and Biology*, 15(02), 1540025.
- Nguyen, T. T., Liew, A. W.-C., Tran, M. T., Pham, X. C., & Nguyen, M. P. (2014). A novel genetic algorithm approach for simultaneous feature and classifier selection in multi classifier system. In *Evolutionary Computation (CEC)*, 2014 IEEE Congress on, pp. 1698–1705. IEEE.
- Nikraftar, Z., Rajabi-Kiasari, S., & Seydi, S. (2019). Genetic algorithm based feature selection for landslide susceptibility mapping in northern iran. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 42, 821–825.
- Noori, F. M., Qureshi, N. K., Khan, R. A., & Naseer, N. (2016). Feature selection based on modified genetic algorithm for optimization of functional near-infrared spectroscopy (fnirs) signals for bci. In *Robotics and Artificial Intelligence (ICRAI)*, 2016 2nd International Conference on, pp. 50–53. IEEE.
- Ooi, C. S., Lim, M. H., & Leong, M. S. (2019). Self-tune linear adaptive-genetic algorithm for feature selection. *IEEE Access*, 7, 138211–138232.
- Oreski, S., & Oreski, G. (2014). Genetic algorithm-based heuristic for feature selection in credit risk assessment. *Expert systems with applications*, 41(4), 2052–2064.
- Padmavathy, T., Kumar, M. P., Shakunthala, M., Kumar, M. V., & Saravanan, S. (2020). A novel deep learning classifier and genetic algorithm based feature selection for hybrid eeg-fnirs brain-computer interface. *NeuroQuantology*, 18(9), 125.
- Park, J., Park, M.-W., Kim, D.-W., & Lee, J. (2020). Multi-population genetic algorithm for multilabel feature selection based on label complementary communication. *Entropy*, 22(8), 876.
- Pasupa, K., Rathasamuth, W., & Tongsima, S. (2020). Discovery of significant porcine snps for swine breed identification by a hybrid of information gain, genetic algorithm, and frequency feature selection technique. *BMC Bioinformatics*, 21, 1–28.
- Paul, D., Su, R., Romain, M., Sébastien, V., Pierre, V., & Isabelle, G. (2017). Feature selection for outcome prediction in oesophageal cancer using genetic algorithm and random forest classifier. *Computerized Medical Imaging and Graphics*, 60, 42–49.
- Pragadeesh, C., Jeyaraj, R., Siranjeevi, K., Abishek, R., & Jeyakumar, G. (2019). Hybrid feature selection using micro genetic algorithm on microarray gene expression data. *Journal of Intelligent & Fuzzy Systems*, 36(3), 2241–2246.

- Prathibha, P., & Chandran, C. (2016). Feature selection for mining snp from leukaemia cancer using genetic algorithm with bco. In *Data Mining and Advanced Computing* (SAPIENCE), International Conference on, pp. 57–63. IEEE.
- Priya, R. D., & Sivaraj, R. (2017). Dynamic genetic algorithm-based feature selection and incomplete value imputation for microarray classification. *Current Science*, 112(1), 126–131.
- Priya, V. S., & Ramyachitra, D. (2019). Modified genetic algorithm (mga) based feature selection with mean weighted least squares twin support vector machine (mw-lstsvm) approach for vegetation classification. *Cluster Computing*, 22(6), 13569–13581.
- R Rajalaxmi, R. (2016). A hybrid binary cuckoo search and genetic algorithm for feature selection in type-2 diabetes. *Current Bioinformatics*, 11(4), 490–499.
- Rachmani, E., Hsu, C.-Y., Nurjanah, N., Chang, P. W., Shidik, G. F., Noersasongko, E., Jumanto, J., Fuad, A., Ningrum, D. N. A., Kurniadi, A., et al. (2019). Developing an indonesia's health literacy short-form survey questionnaire (hls-eu-sq10-idn) using the feature selection and genetic algorithm. Computer Methods and Programs in Biomedicine, 182, 105047.
- Rahmadani, S., Dongoran, A., Zarlis, M., et al. (2018). Comparison of naive bayes and decision tree on feature selection using genetic algorithm for classification problem. In *Journal of Physics: Conference Series*, Vol. 978, p. 012087. IOP Publishing.
- Raman, M. G., Somu, N., Kirthivasan, K., Liscano, R., & Sriram, V. S. (2017). An efficient intrusion detection system based on hypergraph-genetic algorithm for parameter optimization and feature selection in support vector machine. *Knowledge-Based Systems*, 134, 1–12.
- Rathee, S., & Ratnoo, S. (2020). Feature selection using multi-objective micro-chc genetic algorithm: A hybrid approach. *Indian Journal of Computer Science and Engineering*, 11(4).
- Reena, R., & Selvi, R. T. (2016). Analyzing software defect prediction using k-means and expectation maximization clustering algorithm based on genetic feature selection. *i-Manager's Journal on Software Engineering*, 11(1), 28.
- Rejer, I. (2015). Genetic algorithm with aggressive mutation for feature selection in bci feature space. *Pattern Analysis and Applications*, 18(3), 485–492.
- Retmin Raj C, S., Nehemiah, H., Elizabeth, D., et al. (2017). Distance based genetic algorithm for feature selection in computer aided diagnosis systems. *Current Medical Imaging Reviews*, 13(3), 284–298.
- Rojas, M. G., Olivera, A. C., Vidal, P. J., & Carballido, J. A. (2020). A memetic cellular genetic algorithm for cancer data microarray feature selection. *IEEE Latin America Transactions*, 100(1e).
- Rostami, M., & Moradi, P. (2014). A clustering based genetic algorithm for feature selection. In *Information and Knowledge Technology (IKT)*, 2014 6th Conference on, pp. 112–116. IEEE.

- Sachnev, V., & Kim, H. J. (2014). Binary coded genetic algorithm with ensemble classifier for feature selection in jpeg steganalysis. In *Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP)*, 2014 IEEE Ninth International Conference on, pp. 1–6. IEEE.
- Sahoo, S. R., & Gupta, B. B. (2020). Classification of spammer and nonspammer content in online social network using genetic algorithm-based feature selection. *Enterprise Information Systems*, 14(5), 710–736.
- Sahu, B., Dehuri, S., & Jagadev, A. K. (2017). An ensemble model using genetic algorithm for feature selection and rule mining using apriori and fp-growth from cancer microarray data. *International Journal of Applied Engineering Research*, 12(10), 2391–2408.
- Saidi, R., Ncir, W. B., & Essoussi, N. (2018). Feature selection using genetic algorithm for big data. In *International Conference on Advanced Machine Learning Technologies* and Applications, pp. 352–361. Springer.
- Santos, B. C., Rodrigues, M. W., Pinto, L. C., Nobre, C. N., & Zárate, L. E. (2019). Feature selection with genetic algorithm for protein function prediction. In 2019 IEEE International Conference on Systems, Man and Cybernetics (SMC), pp. 2434–2439. IEEE.
- Sathish, E., Sivakumaran, N., Simon, S. P., & Raghavan, S. (2017). Genetic algorithm based feature selection for classification of focal and non-focal intracranial electroencephalographic signals. *Journal of Scientific and Industrial Research*, 76, 614–619.
- Satone, M., & Kharate, G. (2014). Feature selection using genetic algorithm for face recognition based on pca, wavelet and svm. *International Journal on Electrical Engineering and Informatics*, 6(1), 39.
- Sayed, S., Nassef, M., Badr, A., & Farag, I. (2019). A nested genetic algorithm for feature selection in high-dimensional cancer microarray datasets. *Expert Systems with Applications*, 121, 233–243.
- Shi, L., Wan, Y., Gao, X., & Wang, M. (2018). Feature selection for object-based classification of high-resolution remote sensing images based on the combination of a genetic algorithm and tabu search. *Computational intelligence and neuroscience*, 2018.
- Shu, T., Zhang, B., & Tang, Y. (2016). Using k-nn with weights to detect diabetes mellitus based on genetic algorithm feature selection. In Wavelet Analysis and Pattern Recognition (ICWAPR), 2016 International Conference on, pp. 12–17. IEEE.
- Shukla, A. K., Singh, P., & Vardhan, M. (2019). A new hybrid feature subset selection framework based on binary genetic algorithm and information theory. *International Journal of Computational Intelligence and Applications*, 18(03), 1950020.
- Siddiqi, U. F., Sait, S. M., & Kaynak, O. (2020). Genetic algorithm for the mutual information-based feature selection in univariate time series data. *IEEE Access*, 8, 9597–9609.
- Sindhiya, S., & Gunasundari, S. (2014). A survey on genetic algorithm based feature selection for disease diagnosis system. In Computer Communication and Systems, 2014 International Conference on, pp. 164–169. IEEE.

- Singh, S., & Selvakumar, S. (2015). A hybrid feature subset selection by combining filters and genetic algorithm. In *Computing, Communication & Automation (ICCCA)*, 2015 International Conference on, pp. 283–289. IEEE.
- Soufan, O., Kleftogiannis, D., Kalnis, P., & Bajic, V. B. (2015). Dwfs: a wrapper feature selection tool based on a parallel genetic algorithm. *PloS one*, 10(2), e0117988.
- Sousa, R. S., de Lima, T. W., de Paula, L. C., Lima, R. L., Arlindo Filho, R., & Soares, A. S. (2017). Integer-based genetic algorithm for feature selection in multivariate calibration. In *Evolutionary Computation (CEC)*, 2017 IEEE Congress on, pp. 2315–2320. IEEE.
- Srinivas, B. S., & Govardhan, A. (2016). Table-based matching approach using genetic algorithm for feature selection in text categorization.. *Journal of Theoretical & Applied Information Technology*, 91(2).
- Su, B.-h., & Wang, Y.-l. (2015). Genetic algorithm based feature selection and parameter optimization for support vector regression applied to semantic textual similarity. Journal of Shanghai Jiaotong University (Science), 20(2), 143–148.
- Szenkovits, A., Meszlényi, R., Buza, K., Gaskó, N., Lung, R. I., & Suciu, M. (2017). Feature selection with a genetic algorithm for classification of brain imaging data. Advances in Feature Selection for Data and Pattern Recognition, 138, 185.
- Tahir, M., Tubaishat, A., Al-Obeidat, F., Shah, B., Halim, Z., & Waqas, M. (2020). A novel binary chaotic genetic algorithm for feature selection and its utility in affective computing and healthcare. *Neural Computing and Applications, Online*, 1–22.
- Tatwani, S., & Kumar, E. (2019). A master slave parallel genetic algorithm for feature selection in high dimensional datasets. *International Journal of Recent Technology* and Engineering, 8(3), 379–384.
- Thendral, R., & Suhasini, A. (2016). Genetic algorithm based feature selection for detection of surface defects on oranges. *Journal of Scientific and Industrial Research*, 75, 540–546.
- Tian, B., & Xiong, W. (2017). A feature selection algorithm for big data based on genetic algorithm. In *International Conference on Mechatronics and Intelligent Robotics*, pp. 159–163. Springer.
- Tian, D. (2016). A multi-objective genetic local search algorithm for optimal feature subset selection. In Computational Science and Computational Intelligence (CSCI), 2016 International Conference on, pp. 1089–1094. IEEE.
- Too, J., & Abdullah, A. R. (2020). A new and fast rival genetic algorithm for feature selection. *The Journal of Supercomputing, Online*, 1–31.
- Tosin, M. C., Bagesteiro, L. B., & Balbinot, A. (2020). Genetic algorithm application to feature selection in semg movement recognition with regularized extreme learning machine. In 2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), pp. 666–669. IEEE.
- Vanjulavalli, N., & Kovalan, A. (2015). Enhancing the performance of feature selection using a hybrid genetic algorithm. *International Journal of Computer Applications*, 124(15).

- Vieira, A. C., Garcia, G., Pabón, R. E., Cota, L. P., de Souza, P., Ueyama, J., & Pessin, G. (2020). Improving flood forecasting through feature selection by a genetic algorithm—experiments based on real data from an amazon rainforest river. Earth Science Informatics, Online, 1–14.
- Vijayanand, R., & Devaraj, D. (2020). A novel feature selection method using whale optimization algorithm and genetic operators for intrusion detection system in wireless mesh network. *IEEE Access*, 8, 56847–56854.
- Vijayanand, R., Devaraj, D., & Kannapiran, B. (2018). Intrusion detection system for wireless mesh network using multiple support vector machine classifiers with geneticalgorithm-based feature selection. *Computers & Security*, 77, 304–314.
- Walton, N. S., Sheppard, J. W., & Shaw, J. A. (2019). Using a genetic algorithm with histogram-based feature selection in hyperspectral image classification. In *Proceedings* of the Genetic and Evolutionary Computation Conference, pp. 1364–1372.
- Wang, D., Zhang, Z., Bai, R., & Mao, Y. (2018). A hybrid system with filter approach and multiple population genetic algorithm for feature selection in credit scoring. *Journal of Computational and Applied Mathematics*, 329, 307–321.
- Wang, H., He, C., & Li, Z. (2020). A new ensemble feature selection approach based on genetic algorithm. Soft Computing, 24(20), 15811–15820.
- Wang, X., & Zhou, J. (2020). Human behavior recognition based on the genetic algorithm feature selection and sensor data. In *Proceedings of the 4th International Conference on Computer Science and Application Engineering*, pp. 1–5.
- Wang, Y., Zhuo, T., Zhang, Y., & Liao, M. (2014). Hierarchical polarimetric sar image classification based on feature selection and genetic algorithm. In *Signal Processing* (ICSP), 2014 12th International Conference on, pp. 764–768. IEEE.
- Welikala, R., Fraz, M., Dehmeshki, J., Hoppe, A., Tah, V., Mann, S., & Barman, S. (2015a). Computerized medical imaging and graphics genetic algorithm based feature selection combined with dual classification for the automated detection of proliferative diabetic retinopathy. *Comput. Med. Imag. Graph.*, 43, 64–77.
- Welikala, R., Fraz, M. M., Dehmeshki, J., Hoppe, A., Tah, V., Mann, S., Williamson, T. H., & Barman, S. A. (2015b). Genetic algorithm based feature selection combined with dual classification for the automated detection of proliferative diabetic retinopathy. Computerized Medical Imaging and Graphics, 43, 64–77.
- Wong, W., Chekima, A., Mariappan, M., Khoo, B., Choo, C., & Nadarajan, M. (2014). Genetic algorithm optimization and feature selection for a support vector machine weed recognition system at critical stage of development. World Applied Sciences Journal, 30(12), 1953–1959.
- Xue, X., Yao, M., & Wu, Z. (2018). A novel ensemble-based wrapper method for feature selection using extreme learning machine and genetic algorithm. *Knowledge and Information Systems*, 57(2), 389–412.
- Yang, Q., Wang, M., Xiao, H., Yang, L., Zhu, B., Zhang, T., & Zeng, X. (2015). Feature selection using a combination of genetic algorithm and selection frequency curve analysis. Chemometrics and Intelligent Laboratory Systems, 148, 106–114.

- Yeoh, T., Zapotecas-Martínez, S., Akimoto, Y., Aguirre, H., & Tanaka, K. (2014). Genetic algorithm assisted by a sym for feature selection in gait classification. In *Intelligent* Signal Processing and Communication Systems (ISPACS), 2014 International Symposium on, pp. 191–195. IEEE.
- Yerremreddy, S., Talele, K., & Kokate, Y. (2019). Genetic algorithm for optimal feature vector selection in facial recognition. In 2019 IEEE 5th International Conference for Convergence in Technology (I2CT), pp. 1–5. IEEE.
- Yildiz, O., & Doğru, I. A. (2019). Permission-based android malware detection system using feature selection with genetic algorithm. *International Journal of Software Engineering and Knowledge Engineering*, 29(02), 245–262.
- Zaeri-Amirani, M., Afghah, F., & Mousavi, S. (2018). A feature selection method based on shapley value to false alarm reduction in icus a genetic-algorithm approach. In 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), pp. 319–323. IEEE.
- Zeng, Z., Liu, S., & Wang, L. (2019). Uwb nlos identification with feature combination selection based on genetic algorithm. In 2019 IEEE International Conference on Consumer Electronics (ICCE), pp. 1–5. IEEE.
- Zhan, Z., Luo, W., Guo, Z., & Liu, Y. (2017). Feature selection optimization based on atomic set and genetic algorithm in software product line. In *International Conference on Intelligent and Interactive Systems and Applications*, pp. 93–100. Springer.
- Zhang, R., Zhang, Z., Wang, D., & Du, M. (2020). Feature selection with multi-objective genetic algorithm based on a hybrid filter and the symmetrical complementary coefficient. *Applied Intelligence*, *Online*, 1–18.