

ArtificialBeeColonyAlgorithm

March 23, 2023 7:40 PM

Without optimization and feature selection

Number of Features: 31

Weighted Average Classification Report are below.

Algorithm	Accuracy	Precision	Recall	F1-Score
Gaussian Naïve Bayes	1.0	1.0	1.0	1.0
Logistic Regression	1.0	1.0	1.0	1.0
K Nearest Neighbor	1.0	1.0	1.0	1.0
Support Vector Classifier	0.68	0.78	0.68	0.56
Decision Trees	1.0	1.0	1.0	1.0

With ArtificialBeeColony but with different parameters

max_iters = 200
population_size=10
Limit=100

Number of selected features: 2
Selected features: fractal dimension error, worst area
Subset accuracy: 0.9210526315789473
All Features Accuracy: 0.9122807017543859

Algorithm	Accuracy	Precision	recall	F1-Score
Gaussian Naïve Bayes	0.90	0.91	0.90	0.90
Logistic Regression	0.89	0.89	0.89	0.89
K Nearest Neighbor	0.89	0.89	0.89	0.89
Support Vector Classifier	0.89	0.89	0.89	0.89
Decision Trees	0.90	0.91	0.90	0.90

max_iters = 200
population_size=20
Limit = 200

Number of selected features: 7
Selected features: mean texture, mean compactness, radius error, worst radius, worst texture, worst perimeter, worst fractal dimension
Subset accuracy: 0.956140350877193
All Features Accuracy: 0.9122807017543859

--	--	--	--	--

Algorithm	Accuracy	Precision	recall	F1-Score
Gaussian Naïve Bayes	0.92	0.92	0.92	0.92
Logistic Regression	0.92	0.92	0.92	0.92
K Nearest Neighbor	0.97	0.97	0.97	0.97
Support Vector Classifier	0.93	0.93	0.93	0.93
Decision Trees	0.91	0.91	0.91	0.91

max_iters = 200
population_size=50
Limit = 300

Number of selected features: 3
Selected features: symmetry error, worst texture, worst perimeter
Subset accuracy: 0.956140350877193
All Features Accuracy: 0.9122807017543859

Algorithm	Accuracy	Precision	recall	F1-Score
Gaussian Naïve Bayes	0.94	0.94	0.94	0.94
Logistic Regression	0.97	0.97	0.97	0.97
K Nearest Neighbor	0.96	0.97	0.96	0.96
Support Vector Classifier	0.90	0.97	0.96	0.96
Decision Trees	0.95	0.95	0.95	0.95

max_iters = 400
population_size=80
Limit=500

Number of selected features: 4
Selected features: mean radius, worst texture, worst perimeter, worst smoothness
Subset accuracy: 0.956140350877193
All Features Accuracy: 0.9122807017543859

Algorithm	Accuracy	Precision	recall	F1-Score
Gaussian Naïve Bayes	1.0	1.0	1.0	1.0
Logistic Regression	1.0	1.0	1.0	1.0
K Nearest Neighbor	1.0	1.0	1.0	1.0
Support Vector Classifier	0.68	0.75	0.68	0.56
Decision Trees	1.0	1.0	1.0	1.0