Logistic Regression	
Hyper-parameter	**Values**
penalty	"l1", "l2"
dual	True, False
C	0.01, 0.1, 1.0, 1.5, 2.0, 2.5, 10, 100
max_iter	100, 110, 120, 130, 140

Table 1: Hyper-parameter range values for the Logistic Regression classifier.

Elastic Net	
Hyper-parameter	**Values**
alpha	0.0001, 0.001, 0.01, 0.1, 1, 10, 100
l1_ratio	0.0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9
max_iter	1, 5, 10

Table 2: Hyper-parameter range values for the Elastic Net classifier.

SVM with linear kernel	
Hyper-parameter	**Values**
C	0.1, 1, 10, 100, 1000

Table 3: Hyper-parameter range values for the SVM classifier with linear kernel.

SVM with RBF kernel	
Hyper-parameter	**Values**
C	0.1, 1, 10, 100
gamma	0.001, 0.01, 0.1, 1

Table 4: Hyper-parameter range values for the SVM classifier with RBF kernel.

Random Forest	
Hyper-parameter	**Values**
n_estimators	100, 300, 500, 800, 1200
criterion	"gini", "entropy"
max_depth	5, 8, 15, 25, 30
min_samples_split	2, 5, 10, 15, 100
min_samples_leaf	1, 2, 5, 10
max_features	"auto", "sqrt"
bootstrap	True, False

Table 5: Hyper-parameter range values for the Random Forest classifier.

XGBoost	
Hyper-parameter	**Values**
learning_rate	0.05, 0.10, 0.15, 0.20, 0.25, 0.30
max_depth	3, 4, 5, 6, 8, 10, 12, 15
n_estimators	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000
gamma	0.0, 0.1, 0.2 , 0.4, 0.5, 0.7, 1.0, 1.2, 1.5, 2.0
colsample_bytree	0.3, 0.4, 0.5 , 0.6, 0.7, 0.8, 0.9
min_child_weight	1, 2, 3, 4, 5, 7
subsample	0.4, 0.5, 0.6, 0.7, 0.8, 0.9

Table 6: Hyper-parameter range values for the XGBoost classifier.

Logistic Regression										
Hyper-parameter	**Pairwise correlation filter**	**PCA**							**QR decomposition**	**No filter**
		65%	**70%**	**75%**	**80%**	**85%**	**90%**	**95%**		
penalty	"l2"	"l2"	"l2"	"l2"	"l2"	"l2"	"l2"	"l2"	"l2"	"l2"
dual	False	False	False	False	False	False	False	False	False	False
C	100	0.1	10	1.5	1.0	0.01	0.1	100	100	2.0
max_iter	100	100	100	100	100	100	100	110	100	100

Table 7: Hyper-parameter values selected for the Logistic Regression classifier and for each feature selection method.

Elastic Net										
Hyper-parameter	**Pairwise correlation filter**	**PCA**							**QR decomposition**	**No filter**
		65%	**70%**	**75%**	**80%**	**85%**	**90%**	**95%**		
alpha	0.001	0.1	0.0001	1	0.1	0.1	0.1	0.01	0.001	0.001
l1_ratio	0.9	0.0	0.0	0.0	0.4	0.2	0.3	0.5	0.5	0.4
max_iter	10	5	1	5	5	1	5	1	5	10

Table 8: Hyper-parameter values selected for the Elastic Net classifier and for each feature selection method.

SVM with linear kernel										
Hyper-parameter	**Pairwise correlation filter**	**PCA**							**QR decomposition**	**No filter**
		65%	**70%**	**75%**	**80%**	**85%**	**90%**	**95%**		
C	1	0.1	100	0.1	1	10	0.1	100	100	1

Table 9: Hyper-parameter values selected for the SVM classifier with linear kernel and for each feature selection method.

SVM with RBF kernel										
Hyper-parameter	**Pairwise correlation filter**	**PCA**							**QR decomposition**	**No filter**
		65%	**70%**	**75%**	**80%**	**85%**	**90%**	**95%**		
C	1	10	10	100	10	10	10	1	10	1
gamma	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	1	0.1

Table 10: Hyper-parameter values selected for the SVM classifier with RBF kernel and for each feature selection method.

Random Forest										
Hyper-parameter	**Pairwise correlation filter**	**PCA**							**QR decomposition**	**No filter**
		65%	**70%**	**75%**	**80%**	**85%**	**90%**	**95%**		
n_estimators	800	1200	800	800	100	500	100	800	300	100
criterion	"gini"	"gini"	"gini"	"gini"	"entropy"	"entropy"	"entropy"	"gini"	"entropy"	"gini"
max_depth	8	25	15	30	30	15	25	25	25	15
min_samples_split	2	10	2	10	5	2	5	2	5	5
min_samples_leaf	2	2	1	1	1	1	1	1	1	2
max_features	"sqrt"	"sqrt"	"sqrt"	"sqrt"	"auto"	"sqrt"	"auto"	"sqrt"	"auto"	"auto"
bootstrap	False	False	True	False	False	False	False	True	False	False

Table 11: Hyper-parameter values selected for the Random Forest classifier and for each feature selection method.

XGBoost										
Hyper-parameter	**Pairwise correlation filter**	**PCA**							**QR decomposition**	**No filter**
		65%	**70%**	**75%**	**80%**	**85%**	**90%**	**95%**		
learning_rate	0.05	0.15	0.05	0.20	0.20	0.15	0.25	0.10	0.05	0.20
max_depth	3	4	4	5	3	5	5	4	4	3
n_estimators	800	400	300	600	700	500	300	700	200	400
gamma	1.5	2.0	1.5	2.0	1.0	0.7	1.0	1.2	0.7	2.0
colsample_bytree	0.4	0.4	0.9	0.9	0.6	0.6	0.5	0.4	0.3	0.8
min_child_weight	2	2	1	2	2	2	4	2	4	3
subsample	0.7	0.9	0.9	0.8	0.9	0.8	0.7	0.7	0.9	0.7

Table 12: Hyper-parameter values selected for the XGBoost classifier and for each feature selection method.

Logistic Regression				
Feature Selection Method	**AUC**	**Precision**	**Sensitivity**	**Specificity**
Pairwise correlation filter	0.688 ± 0.012	0.675 ± 0.013	0.630 ± 0.018	0.718 ± 0.095
PCA 65%	0.679 ± 0.118	0.608 ± 0.019	0.619 ± 0.019	0.695 ± 0.013
PCA 70%	0.725 ± 0.012	0.682 ± 0.099	0.699 ± 0.039	0.743 ± 0.079
PCA 75%	0.700 ± 0.102	0.683 ± 0.099	0.633 ± 0.099	0.721 ± 0.043
PCA 80%	0.689 ± 0.123	0.673 ± 0.014	0.670 ± 0.014	0.719 ± 0.095
PCA 85%	0.681 ± 0.114	0.615 ± 0.013	0.641 ± 0.013	0.754 ± 0.011
PCA 90%	0.679 ± 0.113	0.565 ± 0.015	0.521 ± 0.015	0.752 ± 0.015
PCA 95%	0.704 ± 0.127	0.644 ± 0.016	0.599 ± 0.024	0.771 ± 0.096
QR decomposition	0.549 ± 0.099	0.579 ± 0.015	0.508 ± 0.018	0.689 ± 0.019
No filter	0.677 ± 0.121	0.666 ± 0.021	0.671 ± 0.012	0.699 ± 0.011

Table 13: Performance results of the Logistic Regression classifier. The evaluation metrics AUC, precision, sensitivity and specificity are presented as mean ± standard deviation.

Elastic Net				
Feature Selection Method	**AUC**	**Precision**	**Sensitivity**	**Specificity**
Pairwise correlation filter	0.644 ± 0.015	0.625 ± 0.021	0.676 ± 0.022	0.808 ± 0.010
PCA 65%	0.679 ± 0.013	0.607 ± 0.012	0.610 ± 0.017	0.657 ± 0.011
PCA 70%	0.733 ± 0.011	0.585 ± 0.048	0.611 ± 0.033	0.715 ± 0.013
PCA 75%	0.706 ± 0.013	0.634 ± 0.014	0.634 ± 0.014	0.692 ± 0.012
PCA 80%	0.713 ± 0.012	0.664 ± 0.014	0.670 ± 0.011	0.711 ± 0.021
PCA 85%	0.718 ± 0.016	0.673 ± 0.012	0.674 ± 0.019	0.722 ± 0.010
PCA 90%	0.704 ± 0.012	0.665 ± 0.014	0.666 ± 0.015	0.754 ± 0.015
PCA 95%	0.659 ± 0.080	0.690 ± 0.011	0.569 ± 0.016	0.751 ± 0.094
QR decomposition	0.582 ± 0.014	0.580 ± 0.012	0.518 ± 0.021	0.609 ± 0.011
No filter	0.691 ± 0.110	0.689 ± 0.091	0.682 ± 0.016	0.721 ± 0.009

Table 14: Performance results of the Elastic Net classifier. The evaluation metrics AUC, precision, sensitivity and specificity are presented as mean ± standard deviation.

SVM with linear kernel				
Feature Selection Method	**AUC**	**Precision**	**Sensitivity**	**Specificity**
Pairwise correlation filter	0.665 ± 0.015	0.675 ± 0.017	0.630 ± 0.020	0.832 ± 0.063
PCA 65%	0.676 ± 0.019	0.626 ± 0.009	0.626 ± 0.009	0.674 ± 0.013
PCA 70%	0.737 ± 0.018	0.644 ± 0.012	0.615 ± 0.010	0.685 ± 0.095
PCA 75%	0.721 ± 0.012	0.635 ± 0.011	0.650 ± 0.011	0.684 ± 0.009
PCA 80%	0.729 ± 0.012	0.634 ± 0.012	0.633 ± 0.013	0.707 ± 0.011
PCA 85%	0.697 ± 0.011	0.685 ± 0.015	0.685 ± 0.015	0.715 ± 0.010
PCA 90%	0.686 ± 0.012	0.637 ± 0.013	0.637 ± 0.013	0.708 ± 0.009
PCA 95%	0.673 ± 0.013	0.633 ± 0.017	0.544 ± 0.024	0.777 ± 0.009
QR decomposition	0.606 ± 0.012	0.578 ± 0.012	0.639 ± 0.023	0.702 ± 0.011
No filter	0.697 ± 0.095	0.672 ± 0.025	0.643 ± 0.030	0.710 ± 0.015

Table 15: Performance results of the SVM classifier with linear kernel. The evaluation metrics AUC, precision, sensitivity and specificity are presented as mean ± standard deviation.

SVM with RBF kernel				
Feature Selection Method	**AUC**	**Precision**	**Sensitivity**	**Specificity**
Pairwise correlation filter	0.550 ± 0.013	0.529 ± 0.010	0.501 ± 0.013	0.623 ± 0.016
PCA 65%	0.502 ± 0.013	0.500 ± 0.019	0.524 ± 0.013	0.599 ± 0.011
PCA 70%	0.520 ± 0.009	0.633 ± 0.012	0.535 ± 0.019	0.655 ± 0.011
PCA 75%	0.583 ± 0.014	0.601 ± 0.008	0.530 ± 0.017	0.623 ± 0.009
PCA 80%	0.534 ± 0.011	0.621 ± 0.014	0.608 ± 0.018	0.622 ± 0.019
PCA 85%	0.528 ± 0.014	0.559 ± 0.014	0.589 ± 0.019	0.677 ± 0.015
PCA 90%	0.532 ± 0.013	0.543 ± 0.010	0.547 ± 0.011	0.679 ± 0.014
PCA 95%	0.543 ± 0.011	0.579 ± 0.022	0.522 ± 0.013	0.643 ± 0.018
QR decomposition	0.472 ± 0.012	0.470 ± 0.010	0.469 ± 0.011	0.522 ± 0.029
No filter	0.580 ± 0.107	0.579 ± 0.089	0.591 ± 0.022	0.693 ± 0.013

Table 16: Performance results of the SVM classifier with RBF kernel. The evaluation metrics AUC, precision, sensitivity and specificity are presented as mean ± standard deviation.

Random Forest				
Feature Selection Method	**AUC**	**Precision**	**Sensitivity**	**Specificity**
Pairwise correlation filter	0.668 ± 0.036	0.609 ± 0.031	0.659 ± 0.019	0.723 ± 0.006
PCA 65%	0.608 ± 0.019	0.647 ± 0.013	0.619 ± 0.018	0.786 ± 0.008
PCA 70%	0.663 ± 0.018	0.630 ± 0.014	0.607 ± 0.011	0.754 ± 0.011
PCA 75%	0.683 ± 0.030	0.566 ± 0.048	0.591 ± 0.021	0.753 ± 0.004
PCA 80%	0.682 ± 0.012	0.631 ± 0.018	0.631 ± 0.018	0.699 ± 0.009
PCA 85%	0.647 ± 0.011	0.641 ± 0.025	0.634 ± 0.024	0.733 ± 0.008
PCA 90%	0.633 ± 0.012	0.640 ± 0.024	0.641 ± 0.024	0.787 ± 0.007
PCA 95%	0.646 ± 0.013	0.599 ± 0.028	0.622 ± 0.019	0.691 ± 0.008
QR decomposition	0.543 ± 0.012	0.544 ± 0.012	0.593 ± 0.019	0.654 ± 0.009
No filter	0.696 ± 0.011	0.683 ± 0.090	0.688 ± 0.029	0.721 ± 0.012

Table 17: Performance results of the Random Forest classifier. The evaluation metrics AUC, precision, sensitivity and specificity are presented as mean ± standard deviation.

XGBoost				
Feature Selection Method	**AUC**	**Precision**	**Sensitivity**	**Specificity**
Pairwise correlation filter	0.676 ± 0.012	0.693 ± 0.025	0.696 ± 0.023	0.800 ± 0.006
PCA 65%	0.646 ± 0.019	0.731 ± 0.019	0.672 ± 0.018	0.794 ± 0.009
PCA 70%	0.697 ± 0.032	0.640 ± 0.036	0.632 ± 0.040	0.767 ± 0.017
PCA 75%	0.694 ± 0.010	0.649 ± 0.014	0.649 ± 0.015	0.753 ± 0.009
PCA 80%	0.660 ± 0.012	0.631 ± 0.015	0.608 ± 0.014	0.735 ± 0.008
PCA 85%	0.629 ± 0.013	0.630 ± 0.017	0.630 ± 0.017	0.795 ± 0.008
PCA 90%	0.665 ± 0.013	0.632 ± 0.020	0.631 ± 0.020	0.712 ± 0.011
PCA 95%	0.613 ± 0.015	0.675 ± 0.021	0.656 ± 0.019	0.731 ± 0.009
QR decomposition	0.541 ± 0.012	0.627 ± 0.018	0.672 ± 0.018	0.704 ± 0.009
No filter	0.632 ± 0.119	0.655 ± 0.081	0.629 ± 0.012	0.679 ± 0.029

Table 18: Performance results of the XGBoost classifier. The evaluation metrics AUC, precision, sensitivity and specificity are presented as mean ± standard deviation.