

500112 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.701559	0.294118	0.019157	0.035971
0.02	25.0	25.0	25.0	0.849666	1.0	0.007353	0.014599
0.03	25.0	25.0	25.0	0.917595	0.0	0.0	0.0
0.04	25.0	25.0	25.0	0.954343	0.0	0.0	0.0
0.01	25.0	50.0	25.0	0.710468	0.666667	0.007663	0.015152
0.02	25.0	50.0	25.0	0.847439	0.4	0.014706	0.028369
0.03	25.0	50.0	25.0	0.919822	1.0	0.027027	0.052632
0.04	25.0	50.0	25.0	0.95657	1.0	0.04878	0.093023
0.01	25.0	75.0	25.0	0.700445	0.25	0.015326	0.028881
0.02	25.0	75.0	25.0	0.848552	0.5	0.022059	0.042254
0.03	25.0	75.0	25.0	0.918708	0.666667	0.027027	0.051948
0.04	25.0	75.0	25.0	0.954343	0.5	0.04878	0.088889
0.01	25.0	100.0	25.0	0.697105	0.210526	0.015326	0.028571
0.02	25.0	100.0	25.0	0.846325	0.375	0.022059	0.041667
0.03	25.0	100.0	25.0	0.917595	0.5	0.054054	0.097561
0.04	25.0	100.0	25.0	0.954343	0.5	0.04878	0.088889
0.01	32.0	25.0	25.0	0.699332	0.285714	0.022989	0.042553
0.02	32.0	25.0	25.0	0.848552	0.0	0.0	0.0
0.03	32.0	25.0	25.0	0.917595	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.954343	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.7049	0.3	0.011494	0.02214
0.02	32.0	50.0	25.0	0.849666	1.0	0.007353	0.014599
0.03	32.0	50.0	25.0	0.917595	0.0	0.0	0.0
0.04	32.0	50.0	25.0	0.954343	0.0	0.0	0.0
0.01	32.0	75.0	25.0	0.706013	0.434783	0.038314	0.070423
0.02	32.0	75.0	25.0	0.845212	0.285714	0.014706	0.027972
0.03	32.0	75.0	25.0	0.919822	1.0	0.027027	0.052632
0.04	32.0	75.0	25.0	0.954343	0.0	0.0	0.0
0.01	32.0	100.0	25.0	0.687082	0.205882	0.02682	0.047458
0.02	32.0	100.0	25.0	0.847439	0.333333	0.007353	0.014388
0.03	32.0	100.0	25.0	0.919822	0.75	0.040541	0.076923
0.04	32.0	100.0	25.0	0.953229	0.4	0.04878	0.086957
0.01	48.0	25.0	25.0	0.708241	0.454545	0.019157	0.036765
0.02	48.0	25.0	25.0	0.848552	0.0	0.0	0.0
0.03	48.0	25.0	25.0	0.917595	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.954343	0.0	0.0	0.0
0.01	48.0	50.0	25.0	0.707127	0.4	0.015326	0.02952
0.02	48.0	50.0	25.0	0.848552	0.0	0.0	0.0
0.03	48.0	50.0	25.0	0.917595	0.0	0.0	0.0
0.04	48.0	50.0	25.0	0.954343	0.0	0.0	0.0
0.01	48.0	75.0	25.0	0.701559	0.37037	0.038314	0.069444
0.02	48.0	75.0	25.0	0.847439	0.333333	0.007353	0.014388
0.03	48.0	75.0	25.0	0.918708	1.0	0.013514	0.026667
0.04	48.0	75.0	25.0	0.954343	0.0	0.0	0.0
0.01	48.0	100.0	25.0	0.694878	0.324324	0.045977	0.080537
0.02	48.0	100.0	25.0	0.849666	0.666667	0.014706	0.028777
0.03	48.0	100.0	25.0	0.917595	0.5	0.027027	0.051282
0.04	48.0	100.0	25.0	0.957684	1.0	0.073171	0.136364
0.01	64.0	25.0	25.0	0.710468	1.0	0.003831	0.007634
0.02	64.0	25.0	25.0	0.848552	0.0	0.0	0.0
0.03	64.0	25.0	25.0	0.917595	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.955457	1.0	0.02439	0.047619
0.01	64.0	50.0	25.0	0.707127	0.416667	0.019157	0.03663
0.02	64.0	50.0	25.0	0.849666	1.0	0.007353	0.014599
0.03	64.0	50.0	25.0	0.918708	1.0	0.013514	0.026667
0.04	64.0	50.0	25.0	0.955457	1.0	0.02439	0.047619
0.01	64.0	75.0	25.0	0.710468	0.666667	0.007663	0.015152
0.02	64.0	75.0	25.0	0.85078	1.0	0.014706	0.028986
0.03	64.0	75.0	25.0	0.918708	1.0	0.013514	0.026667
0.04	64.0	75.0	25.0	0.954343	0.0	0.0	0.0
0.01	64.0	100.0	25.0	0.708241	0.4	0.007663	0.015038
0.02	64.0	100.0	25.0	0.847439	0.333333	0.007353	0.014388
0.03	64.0	100.0	25.0	0.919822	1.0	0.027027	0.052632
0.04	64.0	100.0	25.0	0.954343	0.0	0.0	0.0
0.01	25.0	25.0	75.0	0.69265	0.241379	0.02682	0.048276
0.02	25.0	25.0	75.0	0.847439	0.333333	0.007353	0.014388
0.03	25.0	25.0	75.0	0.919822	1.0	0.027027	0.052632
0.04	25.0	25.0	75.0	0.954343	0.0	0.0	0.0
0.01	25.0	50.0	75.0	0.678174	0.3	0.08046	0.126888
0.02	25.0	50.0	75.0	0.842984	0.307692	0.029412	0.053691
0.03	25.0	50.0	75.0	0.918708	0.666667	0.027027	0.051948

0.04	25.0	50.0	75.0	0.953229	0.333333	0.02439	0.045455
0.01	25.0	75.0	75.0	0.668151	0.347107	0.16092	0.219895
0.02	25.0	75.0	75.0	0.836303	0.28	0.051471	0.086957
0.03	25.0	75.0	75.0	0.914254	0.363636	0.054054	0.094118
0.04	25.0	75.0	75.0	0.946548	0.111111	0.02439	0.04
0.01	25.0	100.0	75.0	0.652561	0.316547	0.168582	0.22
0.02	25.0	100.0	75.0	0.820713	0.234043	0.080882	0.120219
0.03	25.0	100.0	75.0	0.906459	0.291667	0.094595	0.142857
0.04	25.0	100.0	75.0	0.946548	0.181818	0.04878	0.076923
0.01	32.0	25.0	75.0	0.69265	0.142857	0.011494	0.021277
0.02	32.0	25.0	75.0	0.847439	0.428571	0.022059	0.041958
0.03	32.0	25.0	75.0	0.918708	1.0	0.013514	0.026667
0.04	32.0	25.0	75.0	0.954343	0.0	0.0	0.0
0.01	32.0	50.0	75.0	0.66147	0.220779	0.065134	0.100592
0.02	32.0	50.0	75.0	0.841871	0.25	0.022059	0.040541
0.03	32.0	50.0	75.0	0.916481	0.4	0.027027	0.050633
0.04	32.0	50.0	75.0	0.955457	1.0	0.02439	0.047619
0.01	32.0	75.0	75.0	0.670379	0.333333	0.1341	0.191257
0.02	32.0	75.0	75.0	0.827394	0.172414	0.036765	0.060606
0.03	32.0	75.0	75.0	0.910913	0.333333	0.081081	0.130435
0.04	32.0	75.0	75.0	0.951002	0.285714	0.04878	0.083333
0.01	32.0	100.0	75.0	0.626949	0.294444	0.203065	0.240363
0.02	32.0	100.0	75.0	0.80735	0.206349	0.095588	0.130653
0.03	32.0	100.0	75.0	0.908686	0.318182	0.094595	0.145833
0.04	32.0	100.0	75.0	0.947661	0.2	0.04878	0.078431
0.01	48.0	25.0	75.0	0.700445	0.318182	0.02682	0.04947
0.02	48.0	25.0	75.0	0.848552	0.0	0.0	0.0
0.03	48.0	25.0	75.0	0.917595	0.0	0.0	0.0
0.04	48.0	25.0	75.0	0.954343	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.702673	0.35	0.02682	0.049822
0.02	48.0	50.0	75.0	0.847439	0.333333	0.007353	0.014388
0.03	48.0	50.0	75.0	0.918708	0.666667	0.027027	0.051948
0.04	48.0	50.0	75.0	0.955457	1.0	0.02439	0.047619
0.01	48.0	75.0	75.0	0.695991	0.409091	0.103448	0.165138
0.02	48.0	75.0	75.0	0.841871	0.285714	0.029412	0.053333
0.03	48.0	75.0	75.0	0.910913	0.25	0.040541	0.069767
0.04	48.0	75.0	75.0	0.952116	0.25	0.02439	0.044444
0.01	48.0	100.0	75.0	0.671492	0.333333	0.130268	0.187328
0.02	48.0	100.0	75.0	0.828508	0.2	0.044118	0.072289
0.03	48.0	100.0	75.0	0.91314	0.375	0.081081	0.133333
0.04	48.0	100.0	75.0	0.943207	0.142857	0.04878	0.072727
0.01	64.0	25.0	75.0	0.708241	0.454545	0.019157	0.036765
0.02	64.0	25.0	75.0	0.848552	0.0	0.0	0.0
0.03	64.0	25.0	75.0	0.917595	0.0	0.0	0.0
0.04	64.0	25.0	75.0	0.954343	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.702673	0.25	0.011494	0.021978
0.02	64.0	50.0	75.0	0.849666	1.0	0.007353	0.014599
0.03	64.0	50.0	75.0	0.918708	0.666667	0.027027	0.051948
0.04	64.0	50.0	75.0	0.955457	1.0	0.02439	0.047619
0.01	64.0	75.0	75.0	0.703786	0.432432	0.061303	0.107383
0.02	64.0	75.0	75.0	0.846325	0.4	0.029412	0.054795
0.03	64.0	75.0	75.0	0.918708	0.666667	0.027027	0.051948
0.04	64.0	75.0	75.0	0.953229	0.4	0.04878	0.086957
0.01	64.0	100.0	75.0	0.690423	0.383562	0.10728	0.167665
0.02	64.0	100.0	75.0	0.837416	0.25	0.036765	0.064103
0.03	64.0	100.0	75.0	0.907572	0.263158	0.067568	0.107527
0.04	64.0	100.0	75.0	0.946548	0.181818	0.04878	0.076923
0.01	25.0	25.0	50.0	0.707127	0.25	0.003831	0.007547
0.02	25.0	25.0	50.0	0.848552	0.0	0.0	0.0
0.03	25.0	25.0	50.0	0.918708	1.0	0.013514	0.026667
0.04	25.0	25.0	50.0	0.954343	0.0	0.0	0.0
0.01	25.0	50.0	50.0	0.690423	0.242424	0.030651	0.054422
0.02	25.0	50.0	50.0	0.841871	0.2	0.014706	0.027397
0.03	25.0	50.0	50.0	0.917595	0.5	0.027027	0.051282
0.04	25.0	50.0	50.0	0.954343	0.0	0.0	0.0
0.01	25.0	75.0	50.0	0.674833	0.313253	0.099617	0.151163
0.02	25.0	75.0	50.0	0.846325	0.416667	0.036765	0.067568
0.03	25.0	75.0	50.0	0.915367	0.4	0.054054	0.095238
0.04	25.0	75.0	50.0	0.954343	0.5	0.04878	0.088889
0.01	25.0	100.0	50.0	0.658129	0.308333	0.141762	0.194226
0.02	25.0	100.0	50.0	0.826281	0.1875	0.044118	0.071429
0.03	25.0	100.0	50.0	0.9098	0.315789	0.081081	0.129032
0.04	25.0	100.0	50.0	0.952116	0.333333	0.04878	0.085106
0.01	32.0	25.0	50.0	0.708241	0.333333	0.003831	0.007576
0.02	32.0	25.0	50.0	0.848552	0.0	0.0	0.0
0.03	32.0	25.0	50.0	0.917595	0.0	0.0	0.0

0.04	32.0	25.0	50.0	0.954343	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.679287	0.22449	0.042146	0.070968
0.02	32.0	50.0	50.0	0.849666	0.6	0.022059	0.042553
0.03	32.0	50.0	50.0	0.916481	0.4	0.027027	0.050633
0.04	32.0	50.0	50.0	0.954343	0.0	0.0	0.0
0.01	32.0	75.0	50.0	0.683742	0.342466	0.095785	0.149701
0.02	32.0	75.0	50.0	0.842984	0.333333	0.036765	0.066225
0.03	32.0	75.0	50.0	0.916481	0.428571	0.040541	0.074074
0.04	32.0	75.0	50.0	0.95657	1.0	0.04878	0.093023
0.01	32.0	100.0	50.0	0.680401	0.324324	0.091954	0.143284
0.02	32.0	100.0	50.0	0.816258	0.162791	0.051471	0.078212
0.03	32.0	100.0	50.0	0.914254	0.384615	0.067568	0.114943
0.04	32.0	100.0	50.0	0.953229	0.4	0.04878	0.086957
0.01	48.0	25.0	50.0	0.709354	0.5	0.022989	0.043956
0.02	48.0	25.0	50.0	0.848552	0.0	0.0	0.0
0.03	48.0	25.0	50.0	0.917595	0.0	0.0	0.0
0.04	48.0	25.0	50.0	0.954343	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.706013	0.434783	0.038314	0.070423
0.02	48.0	50.0	50.0	0.848552	0.5	0.007353	0.014493
0.03	48.0	50.0	50.0	0.918708	1.0	0.013514	0.026667
0.04	48.0	50.0	50.0	0.955457	1.0	0.02439	0.047619
0.01	48.0	75.0	50.0	0.697105	0.351351	0.049808	0.087248
0.02	48.0	75.0	50.0	0.85078	0.666667	0.029412	0.056338
0.03	48.0	75.0	50.0	0.916481	0.4	0.027027	0.050633
0.04	48.0	75.0	50.0	0.954343	0.5	0.02439	0.046512
0.01	48.0	100.0	50.0	0.684855	0.351351	0.099617	0.155224
0.02	48.0	100.0	50.0	0.840757	0.230769	0.022059	0.040268
0.03	48.0	100.0	50.0	0.9098	0.294118	0.067568	0.10989
0.04	48.0	100.0	50.0	0.953229	0.4	0.04878	0.086957
0.01	64.0	25.0	50.0	0.709354	0.5	0.022989	0.043956
0.02	64.0	25.0	50.0	0.847439	0.0	0.0	0.0
0.03	64.0	25.0	50.0	0.917595	0.0	0.0	0.0
0.04	64.0	25.0	50.0	0.954343	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.709354	0.5	0.003831	0.007605
0.02	64.0	50.0	50.0	0.849666	0.666667	0.014706	0.028777
0.03	64.0	50.0	50.0	0.918708	1.0	0.013514	0.026667
0.04	64.0	50.0	50.0	0.955457	1.0	0.02439	0.047619
0.01	64.0	75.0	50.0	0.697105	0.351351	0.049808	0.087248
0.02	64.0	75.0	50.0	0.847439	0.4	0.014706	0.028369
0.03	64.0	75.0	50.0	0.917595	0.5	0.040541	0.075
0.04	64.0	75.0	50.0	0.95657	1.0	0.04878	0.093023
0.01	64.0	100.0	50.0	0.951002	0.285714	0.04878	0.083333
0.02	64.0	100.0	50.0	0.847439	0.428571	0.022059	0.041958
0.03	64.0	100.0	50.0	0.915367	0.375	0.040541	0.073171
0.04	64.0	100.0	50.0	0.953229	0.4	0.04878	0.086957
0.01	25.0	25.0	100.0	0.690423	0.185185	0.019157	0.034722
0.02	25.0	25.0	100.0	0.848552	0.5	0.014706	0.028571
0.03	25.0	25.0	100.0	0.919822	1.0	0.027027	0.052632
0.04	25.0	25.0	100.0	0.954343	0.0	0.0	0.0
0.01	25.0	50.0	100.0	0.691537	0.362069	0.08046	0.131661
0.02	25.0	50.0	100.0	0.83853	0.285714	0.044118	0.076433
0.03	25.0	50.0	100.0	0.918708	0.571429	0.054054	0.098765
0.04	25.0	50.0	100.0	0.954343	0.5	0.02439	0.046512
0.01	25.0	75.0	100.0	0.678174	0.4	0.214559	0.279302
0.02	25.0	75.0	100.0	0.821826	0.23913	0.080882	0.120879
0.03	25.0	75.0	100.0	0.908686	0.318182	0.094595	0.145833
0.04	25.0	75.0	100.0	0.942094	0.133333	0.04878	0.071429
0.01	25.0	100.0	100.0	0.646993	0.320513	0.191571	0.239808
0.02	25.0	100.0	100.0	0.824053	0.288462	0.110294	0.159574
0.03	25.0	100.0	100.0	0.894209	0.216216	0.108108	0.144144
0.04	25.0	100.0	100.0	0.937639	0.142857	0.073171	0.096774
0.01	32.0	25.0	100.0	0.693764	0.294118	0.038314	0.067797
0.02	32.0	25.0	100.0	0.845212	0.285714	0.014706	0.027972
0.03	32.0	25.0	100.0	0.919822	1.0	0.027027	0.052632
0.04	32.0	25.0	100.0	0.954343	0.0	0.0	0.0
0.01	32.0	50.0	100.0	0.662584	0.25	0.08046	0.121739
0.02	32.0	50.0	100.0	0.845212	0.333333	0.022059	0.041379
0.03	32.0	50.0	100.0	0.919822	0.75	0.040541	0.076923
0.04	32.0	50.0	100.0	0.953229	0.333333	0.02439	0.045455
0.01	32.0	75.0	100.0	0.665924	0.338843	0.157088	0.21466
0.02	32.0	75.0	100.0	0.804009	0.177419	0.080882	0.111111
0.03	32.0	75.0	100.0	0.91314	0.357143	0.067568	0.113636
0.04	32.0	75.0	100.0	0.948775	0.142857	0.02439	0.041667
0.01	32.0	100.0	100.0	0.639198	0.296774	0.176245	0.221154
0.02	32.0	100.0	100.0	0.819599	0.229167	0.080882	0.119565
0.03	32.0	100.0	100.0	0.903118	0.275862	0.108108	0.15534

0.04	32.0	100.0	100.0	0.94098	0.2	0.097561	0.131148
0.01	48.0	25.0	100.0	0.709354	0.5	0.02682	0.050909
0.02	48.0	25.0	100.0	0.848552	0.5	0.007353	0.014493
0.03	48.0	25.0	100.0	0.917595	0.0	0.0	0.0
0.04	48.0	25.0	100.0	0.954343	0.0	0.0	0.0
0.01	48.0	50.0	100.0	0.699332	0.408163	0.076628	0.129032
0.02	48.0	50.0	100.0	0.844098	0.25	0.014706	0.027778
0.03	48.0	50.0	100.0	0.918708	0.666667	0.027027	0.051948
0.04	48.0	50.0	100.0	0.953229	0.333333	0.02439	0.045455
0.01	48.0	75.0	100.0	0.688196	0.4	0.145594	0.213483
0.02	48.0	75.0	100.0	0.842984	0.333333	0.036765	0.066225
0.03	48.0	75.0	100.0	0.914254	0.384615	0.067568	0.114943
0.04	48.0	75.0	100.0	0.949889	0.166667	0.02439	0.042553
0.01	48.0	100.0	100.0	0.67706	0.378151	0.172414	0.236842
0.02	48.0	100.0	100.0	0.809577	0.169811	0.066176	0.095238
0.03	48.0	100.0	100.0	0.910913	0.3125	0.067568	0.111111
0.04	48.0	100.0	100.0	0.944321	0.2	0.073171	0.107143
0.01	64.0	25.0	100.0	0.707127	0.416667	0.019157	0.03663
0.02	64.0	25.0	100.0	0.848552	0.0	0.0	0.0
0.03	64.0	25.0	100.0	0.918708	1.0	0.013514	0.026667
0.04	64.0	25.0	100.0	0.954343	0.0	0.0	0.0
0.01	64.0	50.0	100.0	0.7049	0.416667	0.038314	0.070175
0.02	64.0	50.0	100.0	0.846325	0.333333	0.014706	0.028169
0.03	64.0	50.0	100.0	0.917595	0.5	0.027027	0.051282
0.04	64.0	50.0	100.0	0.95657	1.0	0.04878	0.093023
0.01	64.0	75.0	100.0	0.701559	0.440678	0.099617	0.1625
0.02	64.0	75.0	100.0	0.846325	0.416667	0.036765	0.067568
0.03	64.0	75.0	100.0	0.914254	0.363636	0.054054	0.094118
0.04	64.0	75.0	100.0	0.946548	0.181818	0.04878	0.076923
0.01	64.0	100.0	100.0	0.685969	0.387097	0.137931	0.20339
0.02	64.0	100.0	100.0	0.841871	0.35	0.051471	0.089744
0.03	64.0	100.0	100.0	0.904232	0.25	0.081081	0.122449
0.04	64.0	100.0	100.0	0.949889	0.3	0.073171	0.117647

500180 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.799331	0.333333	0.028571	0.052632
0.02	25.0	25.0	25.0	0.924192	0.0	0.0	0.0
0.03	25.0	25.0	25.0	0.960981	0.0	0.0	0.0
0.04	25.0	25.0	25.0	0.977703	0.0	0.0	0.0
0.01	25.0	50.0	25.0	0.798216	0.25	0.017143	0.032086
0.02	25.0	50.0	25.0	0.924192	0.333333	0.014925	0.028571
0.03	25.0	50.0	25.0	0.960981	0.5	0.057143	0.102564
0.04	25.0	50.0	25.0	0.977703	0.333333	0.052632	0.090909
0.01	25.0	75.0	25.0	0.797101	0.315789	0.034286	0.061856
0.02	25.0	75.0	25.0	0.924192	0.428571	0.044776	0.081081
0.03	25.0	75.0	25.0	0.959866	0.4	0.057143	0.1
0.04	25.0	75.0	25.0	0.976589	0.25	0.052632	0.086957
0.01	25.0	100.0	25.0	0.793757	0.272727	0.034286	0.060914
0.02	25.0	100.0	25.0	0.925307	0.5	0.014925	0.028986
0.03	25.0	100.0	25.0	0.960981	0.5	0.085714	0.146341
0.04	25.0	100.0	25.0	0.975474	0.2	0.052632	0.083333
0.01	32.0	25.0	25.0	0.799331	0.307692	0.022857	0.042553
0.02	32.0	25.0	25.0	0.924192	0.0	0.0	0.0
0.03	32.0	25.0	25.0	0.960981	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.977703	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.800446	0.333333	0.022857	0.042781
0.02	32.0	50.0	25.0	0.925307	0.0	0.0	0.0
0.03	32.0	50.0	25.0	0.962096	1.0	0.028571	0.055556
0.04	32.0	50.0	25.0	0.977703	0.333333	0.052632	0.090909
0.01	32.0	75.0	25.0	0.795987	0.25	0.022857	0.041885
0.02	32.0	75.0	25.0	0.924192	0.4	0.029851	0.055556
0.03	32.0	75.0	25.0	0.960981	0.5	0.057143	0.102564
0.04	32.0	75.0	25.0	0.977703	0.333333	0.052632	0.090909
0.01	32.0	100.0	25.0	0.788183	0.241379	0.04	0.068627
0.02	32.0	100.0	25.0	0.921962	0.285714	0.029851	0.054054
0.03	32.0	100.0	25.0	0.959866	0.428571	0.085714	0.142857
0.04	32.0	100.0	25.0	0.976589	0.25	0.052632	0.086957
0.01	48.0	25.0	25.0	0.800446	0.3	0.017143	0.032432
0.02	48.0	25.0	25.0	0.926421	1.0	0.014925	0.029412
0.03	48.0	25.0	25.0	0.960981	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.977703	0.0	0.0	0.0
0.01	48.0	50.0	25.0	0.800446	0.3	0.017143	0.032432
0.02	48.0	50.0	25.0	0.925307	0.0	0.0	0.0
0.03	48.0	50.0	25.0	0.960981	0.5	0.028571	0.054054
0.04	48.0	50.0	25.0	0.977703	0.333333	0.052632	0.090909
0.01	48.0	75.0	25.0	0.798216	0.285714	0.022857	0.042328
0.02	48.0	75.0	25.0	0.925307	0.5	0.014925	0.028986
0.03	48.0	75.0	25.0	0.959866	0.333333	0.028571	0.052632
0.04	48.0	75.0	25.0	0.977703	0.0	0.0	0.0
0.01	48.0	100.0	25.0	0.800446	0.3	0.017143	0.032432
0.02	48.0	100.0	25.0	0.923077	0.333333	0.029851	0.054795
0.03	48.0	100.0	25.0	0.960981	0.5	0.028571	0.054054
0.04	48.0	100.0	25.0	0.977703	0.333333	0.052632	0.090909
0.01	64.0	25.0	25.0	0.801561	0.333333	0.017143	0.032609
0.02	64.0	25.0	25.0	0.925307	0.0	0.0	0.0
0.03	64.0	25.0	25.0	0.959866	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.977703	0.0	0.0	0.0
0.01	64.0	50.0	25.0	0.801561	0.333333	0.017143	0.032609
0.02	64.0	50.0	25.0	0.925307	0.0	0.0	0.0
0.03	64.0	50.0	25.0	0.962096	0.666667	0.057143	0.105263
0.04	64.0	50.0	25.0	0.978818	0.5	0.052632	0.095238
0.01	64.0	75.0	25.0	0.807135	1.0	0.011429	0.022599
0.02	64.0	75.0	25.0	0.924192	0.333333	0.014925	0.028571
0.03	64.0	75.0	25.0	0.959866	0.333333	0.028571	0.052632
0.04	64.0	75.0	25.0	0.978818	0.5	0.052632	0.095238
0.01	64.0	100.0	25.0	0.799331	0.272727	0.017143	0.032258
0.02	64.0	100.0	25.0	0.926421	1.0	0.014925	0.029412
0.03	64.0	100.0	25.0	0.957637	0.2	0.028571	0.05
0.04	64.0	100.0	25.0	0.976589	0.25	0.052632	0.086957
0.01	25.0	25.0	75.0	0.792642	0.210526	0.022857	0.041237
0.02	25.0	25.0	75.0	0.926421	1.0	0.014925	0.029412
0.03	25.0	25.0	75.0	0.963211	0.75	0.085714	0.153846
0.04	25.0	25.0	75.0	0.977703	0.333333	0.052632	0.090909
0.01	25.0	50.0	75.0	0.785953	0.16	0.022857	0.04
0.02	25.0	50.0	75.0	0.920847	0.25	0.029851	0.053333
0.03	25.0	50.0	75.0	0.960981	0.5	0.085714	0.146341

0.04	25.0	50.0	75.0	0.975474	0.2	0.052632	0.083333
0.01	25.0	75.0	75.0	0.767001	0.16	0.045714	0.071111
0.02	25.0	75.0	75.0	0.914158	0.1875	0.044776	0.072289
0.03	25.0	75.0	75.0	0.953177	0.266667	0.114286	0.16
0.04	25.0	75.0	75.0	0.976589	0.25	0.052632	0.086957
0.01	100.0	100.0	75.0	0.762542	0.193548	0.068571	0.101266
0.02	25.0	100.0	75.0	0.90524	0.090909	0.029851	0.044944
0.03	25.0	100.0	75.0	0.950948	0.2	0.085714	0.12
0.04	25.0	100.0	75.0	0.976589	0.25	0.052632	0.086957
0.01	32.0	25.0	75.0	0.792642	0.238095	0.028571	0.05102
0.02	32.0	25.0	75.0	0.924192	0.4	0.029851	0.055556
0.03	32.0	25.0	75.0	0.962096	0.666667	0.057143	0.105263
0.04	32.0	25.0	75.0	0.977703	0.333333	0.052632	0.090909
0.01	32.0	50.0	75.0	0.793757	0.222222	0.022857	0.041451
0.02	32.0	50.0	75.0	0.919732	0.142857	0.014925	0.027027
0.03	32.0	50.0	75.0	0.959866	0.4	0.057143	0.1
0.04	32.0	50.0	75.0	0.976589	0.25	0.052632	0.086957
0.01	32.0	75.0	75.0	0.779264	0.189189	0.04	0.066038
0.02	32.0	75.0	75.0	0.911929	0.071429	0.014925	0.024691
0.03	32.0	75.0	75.0	0.947603	0.166667	0.085714	0.113208
0.04	32.0	75.0	75.0	0.975474	0.2	0.052632	0.083333
0.01	32.0	100.0	75.0	0.77146	0.173913	0.045714	0.072398
0.02	32.0	100.0	75.0	0.908584	0.142857	0.044776	0.068182
0.03	32.0	100.0	75.0	0.944259	0.173913	0.114286	0.137931
0.04	32.0	100.0	75.0	0.974359	0.166667	0.052632	0.08
0.01	48.0	25.0	75.0	0.800446	0.333333	0.022857	0.042781
0.02	48.0	25.0	75.0	0.925307	0.0	0.0	0.0
0.03	48.0	25.0	75.0	0.962096	0.666667	0.057143	0.105263
0.04	48.0	25.0	75.0	0.978818	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.797101	0.230769	0.017143	0.031915
0.02	48.0	50.0	75.0	0.925307	0.0	0.0	0.0
0.03	48.0	50.0	75.0	0.960981	0.5	0.085714	0.146341
0.04	48.0	50.0	75.0	0.976589	0.25	0.052632	0.086957
0.01	48.0	75.0	75.0	0.785953	0.185185	0.028571	0.049505
0.02	48.0	75.0	75.0	0.917503	0.111111	0.014925	0.026316
0.03	48.0	75.0	75.0	0.960981	0.5	0.085714	0.146341
0.04	48.0	75.0	75.0	0.976589	0.25	0.052632	0.086957
0.01	48.0	100.0	75.0	0.779264	0.219512	0.051429	0.083333
0.02	48.0	100.0	75.0	0.918618	0.25	0.044776	0.075949
0.03	48.0	100.0	75.0	0.954292	0.25	0.085714	0.12766
0.04	48.0	100.0	75.0	0.975474	0.2	0.052632	0.083333
0.01	64.0	25.0	75.0	0.800446	0.333333	0.022857	0.042781
0.02	64.0	25.0	75.0	0.925307	0.0	0.0	0.0
0.03	64.0	25.0	75.0	0.960981	0.5	0.028571	0.054054
0.04	64.0	25.0	75.0	0.978818	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.799331	0.307692	0.022857	0.042553
0.02	64.0	50.0	75.0	0.925307	0.0	0.0	0.0
0.03	64.0	50.0	75.0	0.960981	0.5	0.057143	0.102564
0.04	64.0	50.0	75.0	0.976589	0.25	0.052632	0.086957
0.01	64.0	75.0	75.0	0.790412	0.190476	0.022857	0.040816
0.02	64.0	75.0	75.0	0.921962	0.2	0.014925	0.027778
0.03	64.0	75.0	75.0	0.959866	0.4	0.057143	0.1
0.04	64.0	75.0	75.0	0.976589	0.25	0.052632	0.086957
0.01	64.0	100.0	75.0	0.77592	0.157895	0.034286	0.056338
0.02	64.0	100.0	75.0	0.916388	0.166667	0.029851	0.050633
0.03	64.0	100.0	75.0	0.958751	0.375	0.085714	0.139535
0.04	64.0	100.0	75.0	0.975474	0.2	0.052632	0.083333
0.01	25.0	25.0	50.0	0.797101	0.294118	0.028571	0.052083
0.02	25.0	25.0	50.0	0.926421	0.666667	0.029851	0.057143
0.03	25.0	25.0	50.0	0.960981	0.0	0.0	0.0
0.04	25.0	25.0	50.0	0.977703	0.333333	0.052632	0.090909
0.01	25.0	50.0	50.0	0.795987	0.214286	0.017143	0.031746
0.02	25.0	50.0	50.0	0.915273	0.2	0.044776	0.073171
0.03	25.0	50.0	50.0	0.959866	0.4	0.057143	0.1
0.04	25.0	50.0	50.0	0.975474	0.2	0.052632	0.083333
0.01	25.0	75.0	50.0	0.779264	0.219512	0.051429	0.083333
0.02	25.0	75.0	50.0	0.915273	0.2	0.044776	0.073171
0.03	25.0	75.0	50.0	0.956522	0.333333	0.114286	0.170213
0.04	25.0	75.0	50.0	0.977703	0.4	0.105263	0.166667
0.01	25.0	100.0	50.0	0.77592	0.204545	0.051429	0.082192
0.02	25.0	100.0	50.0	0.909699	0.181818	0.059701	0.089888
0.03	25.0	100.0	50.0	0.950948	0.2	0.085714	0.12
0.04	25.0	100.0	50.0	0.974359	0.166667	0.052632	0.08
0.01	32.0	25.0	50.0	0.799331	0.333333	0.028571	0.052632
0.02	32.0	25.0	50.0	0.926421	0.666667	0.029851	0.057143
0.03	32.0	25.0	50.0	0.962096	0.666667	0.057143	0.105263

0.04	32.0	25.0	50.0	0.978818	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.800446	0.333333	0.022857	0.042781
0.02	32.0	50.0	50.0	0.925307	0.5	0.029851	0.056338
0.03	32.0	50.0	50.0	0.960981	0.5	0.085714	0.146341
0.04	32.0	50.0	50.0	0.976589	0.25	0.052632	0.086957
0.01	32.0	75.0	50.0	0.784838	0.178571	0.028571	0.049261
0.02	32.0	75.0	50.0	0.920847	0.3	0.044776	0.077922
0.03	32.0	75.0	50.0	0.959866	0.4	0.057143	0.1
0.04	32.0	75.0	50.0	0.976589	0.25	0.052632	0.086957
0.01	32.0	100.0	50.0	0.792642	0.210526	0.022857	0.041237
0.02	32.0	100.0	50.0	0.918618	0.25	0.044776	0.075949
0.03	32.0	100.0	50.0	0.956522	0.25	0.057143	0.093023
0.04	32.0	100.0	50.0	0.977703	0.333333	0.052632	0.090909
0.01	48.0	25.0	50.0	0.800446	0.3	0.017143	0.032432
0.02	48.0	25.0	50.0	0.925307	0.0	0.0	0.0
0.03	48.0	25.0	50.0	0.963211	1.0	0.057143	0.108108
0.04	48.0	25.0	50.0	0.978818	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.792642	0.26087	0.034286	0.060606
0.02	48.0	50.0	50.0	0.924192	0.333333	0.014925	0.028571
0.03	48.0	50.0	50.0	0.960981	0.5	0.057143	0.102564
0.04	48.0	50.0	50.0	0.978818	0.5	0.052632	0.095238
0.01	48.0	75.0	50.0	0.795987	0.277778	0.028571	0.051813
0.02	48.0	75.0	50.0	0.925307	0.5	0.014925	0.028986
0.03	48.0	75.0	50.0	0.959866	0.4	0.057143	0.1
0.04	48.0	75.0	50.0	0.976589	0.25	0.052632	0.086957
0.01	48.0	100.0	50.0	0.790412	0.24	0.034286	0.06
0.02	48.0	100.0	50.0	0.921962	0.285714	0.029851	0.054054
0.03	48.0	100.0	50.0	0.960981	0.5	0.085714	0.146341
0.04	48.0	100.0	50.0	0.975474	0.2	0.052632	0.083333
0.01	64.0	25.0	50.0	0.799331	0.272727	0.017143	0.032258
0.02	64.0	25.0	50.0	0.925307	0.0	0.0	0.0
0.03	64.0	25.0	50.0	0.962096	1.0	0.028571	0.055556
0.04	64.0	25.0	50.0	0.978818	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.800446	0.3	0.017143	0.032432
0.02	64.0	50.0	50.0	0.926421	1.0	0.014925	0.029412
0.03	64.0	50.0	50.0	0.959866	0.333333	0.028571	0.052632
0.04	64.0	50.0	50.0	0.977703	0.333333	0.052632	0.090909
0.01	64.0	75.0	50.0	0.799331	0.307692	0.022857	0.042553
0.02	64.0	75.0	50.0	0.925307	0.5	0.014925	0.028986
0.03	64.0	75.0	50.0	0.959866	0.333333	0.028571	0.052632
0.04	64.0	75.0	50.0	0.975474	0.2	0.052632	0.083333
0.01	64.0	100.0	50.0	0.794872	0.304348	0.04	0.070707
0.02	64.0	100.0	50.0	0.919732	0.142857	0.014925	0.027027
0.03	64.0	100.0	50.0	0.959866	0.428571	0.085714	0.142857
0.04	64.0	100.0	50.0	0.976589	0.25	0.052632	0.086957
0.01	25.0	25.0	100.0	0.798216	0.285714	0.022857	0.042328
0.02	25.0	25.0	100.0	0.926421	1.0	0.014925	0.029412
0.03	25.0	25.0	100.0	0.958751	0.25	0.028571	0.051282
0.04	25.0	25.0	100.0	0.976589	0.25	0.052632	0.086957
0.01	25.0	50.0	100.0	0.780379	0.15625	0.028571	0.048309
0.02	25.0	50.0	100.0	0.919732	0.222222	0.029851	0.052632
0.03	25.0	50.0	100.0	0.959866	0.4	0.057143	0.1
0.04	25.0	50.0	100.0	0.976589	0.333333	0.105263	0.16
0.01	25.0	75.0	100.0	0.761427	0.190476	0.068571	0.10084
0.02	25.0	75.0	100.0	0.904125	0.12	0.044776	0.065217
0.03	25.0	75.0	100.0	0.950948	0.235294	0.114286	0.153846
0.04	25.0	75.0	100.0	0.975474	0.2	0.052632	0.083333
0.01	25.0	100.0	100.0	0.733556	0.166667	0.091429	0.118081
0.02	25.0	100.0	100.0	0.886288	0.12766	0.089552	0.105263
0.03	25.0	100.0	100.0	0.943144	0.166667	0.114286	0.135593
0.04	25.0	100.0	100.0	0.973244	0.142857	0.052632	0.076923
0.01	32.0	25.0	100.0	0.794872	0.235294	0.022857	0.041667
0.02	32.0	25.0	100.0	0.927536	1.0	0.029851	0.057971
0.03	32.0	25.0	100.0	0.962096	0.666667	0.057143	0.105263
0.04	32.0	25.0	100.0	0.977703	0.333333	0.052632	0.090909
0.01	32.0	50.0	100.0	0.787068	0.166667	0.022857	0.040201
0.02	32.0	50.0	100.0	0.921962	0.2	0.014925	0.027778
0.03	32.0	50.0	100.0	0.949833	0.1875	0.085714	0.117647
0.04	32.0	50.0	100.0	0.977703	0.333333	0.052632	0.090909
0.01	32.0	75.0	100.0	0.761427	0.145455	0.045714	0.069565
0.02	32.0	75.0	100.0	0.90524	0.178571	0.074627	0.105263
0.03	32.0	75.0	100.0	0.953177	0.181818	0.057143	0.086957
0.04	32.0	75.0	100.0	0.975474	0.2	0.052632	0.083333
0.01	32.0	100.0	100.0	0.750279	0.218391	0.108571	0.145038
0.02	32.0	100.0	100.0	0.904125	0.12	0.044776	0.065217
0.03	32.0	100.0	100.0	0.954292	0.285714	0.114286	0.163265

0.04	32.0	100.0	100.0	0.974359	0.166667	0.052632	0.08
0.01	48.0	25.0	100.0	0.799331	0.307692	0.022857	0.042553
0.02	48.0	25.0	100.0	0.925307	0.0	0.0	0.0
0.03	48.0	25.0	100.0	0.963211	0.75	0.085714	0.153846
0.04	48.0	25.0	100.0	0.977703	0.333333	0.052632	0.090909
0.01	48.0	50.0	100.0	0.797101	0.230769	0.017143	0.031915
0.02	48.0	50.0	100.0	0.923077	0.25	0.014925	0.028169
0.03	48.0	50.0	100.0	0.959866	0.4	0.057143	0.1
0.04	48.0	50.0	100.0	0.976589	0.25	0.052632	0.086957
0.01	48.0	75.0	100.0	0.774805	0.135135	0.028571	0.04717
0.02	48.0	75.0	100.0	0.919732	0.142857	0.014925	0.027027
0.03	48.0	75.0	100.0	0.953177	0.181818	0.057143	0.086957
0.04	48.0	75.0	100.0	0.976589	0.25	0.052632	0.086957
0.01	48.0	100.0	100.0	0.760312	0.166667	0.057143	0.085106
0.02	48.0	100.0	100.0	0.904125	0.086957	0.029851	0.044444
0.03	48.0	100.0	100.0	0.958751	0.375	0.085714	0.139535
0.04	48.0	100.0	100.0	0.975474	0.2	0.052632	0.083333
0.01	64.0	25.0	100.0	0.799331	0.272727	0.017143	0.032258
0.02	64.0	25.0	100.0	0.925307	0.0	0.0	0.0
0.03	64.0	25.0	100.0	0.959866	0.333333	0.028571	0.052632
0.04	64.0	25.0	100.0	0.977703	0.333333	0.052632	0.090909
0.01	64.0	50.0	100.0	0.793757	0.1875	0.017143	0.031414
0.02	64.0	50.0	100.0	0.923077	0.0	0.0	0.0
0.03	64.0	50.0	100.0	0.960981	0.5	0.057143	0.102564
0.04	64.0	50.0	100.0	0.976589	0.25	0.052632	0.086957
0.01	64.0	75.0	100.0	0.77369	0.111111	0.022857	0.037915
0.02	64.0	75.0	100.0	0.921962	0.2	0.014925	0.027778
0.03	64.0	75.0	100.0	0.959866	0.4	0.057143	0.1
0.04	64.0	75.0	100.0	0.976589	0.25	0.052632	0.086957
0.01	64.0	100.0	100.0	0.777035	0.234043	0.062857	0.099099
0.02	64.0	100.0	100.0	0.914158	0.083333	0.014925	0.025316
0.03	64.0	100.0	100.0	0.953177	0.230769	0.085714	0.125
0.04	64.0	100.0	100.0	0.975474	0.2	0.052632	0.083333



500182 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.753333	0.333333	0.004525	0.008929
0.02	25.0	25.0	25.0	0.895556	0.0	0.0	0.0
0.03	25.0	25.0	25.0	0.957778	0.0	0.0	0.0
0.04	25.0	25.0	25.0	0.977778	0.0	0.0	0.0
0.01	25.0	50.0	25.0	0.75	0.0	0.0	0.0
0.02	25.0	50.0	25.0	0.893333	0.0	0.0	0.0
0.03	25.0	50.0	25.0	0.956667	0.0	0.0	0.0
0.04	25.0	50.0	25.0	0.977778	0.0	0.0	0.0
0.01	25.0	75.0	25.0	0.743333	0.25	0.022624	0.041494
0.02	25.0	75.0	25.0	0.894444	0.0	0.0	0.0
0.03	25.0	75.0	25.0	0.953333	0.0	0.0	0.0
0.04	25.0	75.0	25.0	0.977778	0.0	0.0	0.0
0.01	25.0	100.0	25.0	0.741111	0.125	0.00905	0.016878
0.02	25.0	100.0	25.0	0.892222	0.2	0.010638	0.020202
0.03	25.0	100.0	25.0	0.952222	0.0	0.0	0.0
0.04	25.0	100.0	25.0	0.977778	0.0	0.0	0.0
0.01	32.0	25.0	25.0	0.746667	0.181818	0.00905	0.017241
0.02	32.0	25.0	25.0	0.893333	0.0	0.0	0.0
0.03	32.0	25.0	25.0	0.957778	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.977778	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.744444	0.0	0.0	0.0
0.02	32.0	50.0	25.0	0.894444	0.0	0.0	0.0
0.03	32.0	50.0	25.0	0.957778	0.0	0.0	0.0
0.04	32.0	50.0	25.0	0.976667	0.0	0.0	0.0
0.01	32.0	75.0	25.0	0.743333	0.222222	0.0181	0.033473
0.02	32.0	75.0	25.0	0.89	0.0	0.0	0.0
0.03	32.0	75.0	25.0	0.957778	0.0	0.0	0.0
0.04	32.0	75.0	25.0	0.977778	0.0	0.0	0.0
0.01	32.0	100.0	25.0	0.745556	0.166667	0.00905	0.017167
0.02	32.0	100.0	25.0	0.891111	0.166667	0.010638	0.02
0.03	32.0	100.0	25.0	0.955556	0.0	0.0	0.0
0.04	32.0	100.0	25.0	0.977778	0.0	0.0	0.0
0.01	48.0	25.0	25.0	0.752222	0.0	0.0	0.0
0.02	48.0	25.0	25.0	0.895556	0.0	0.0	0.0
0.03	48.0	25.0	25.0	0.957778	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.977778	0.0	0.0	0.0
0.01	48.0	50.0	25.0	0.75	0.166667	0.004525	0.008811
0.02	48.0	50.0	25.0	0.893333	0.0	0.0	0.0
0.03	48.0	50.0	25.0	0.956667	0.0	0.0	0.0
0.04	48.0	50.0	25.0	0.977778	0.0	0.0	0.0
0.01	48.0	75.0	25.0	0.744444	0.090909	0.004525	0.008621
0.02	48.0	75.0	25.0	0.892222	0.0	0.0	0.0
0.03	48.0	75.0	25.0	0.956667	0.0	0.0	0.0
0.04	48.0	75.0	25.0	0.977778	0.0	0.0	0.0
0.01	48.0	100.0	25.0	0.744444	0.153846	0.00905	0.017094
0.02	48.0	100.0	25.0	0.892222	0.0	0.0	0.0
0.03	48.0	100.0	25.0	0.955556	0.0	0.0	0.0
0.04	48.0	100.0	25.0	0.976667	0.0	0.0	0.0
0.01	64.0	25.0	25.0	0.751111	0.0	0.0	0.0
0.02	64.0	25.0	25.0	0.894444	0.0	0.0	0.0
0.03	64.0	25.0	25.0	0.957778	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.977778	0.0	0.0	0.0
0.01	64.0	50.0	25.0	0.747778	0.0	0.0	0.0
0.02	64.0	50.0	25.0	0.894444	0.0	0.0	0.0
0.03	64.0	50.0	25.0	0.956667	0.0	0.0	0.0
0.04	64.0	50.0	25.0	0.977778	0.0	0.0	0.0
0.01	64.0	75.0	25.0	0.75	0.25	0.00905	0.017467
0.02	64.0	75.0	25.0	0.892222	0.0	0.0	0.0
0.03	64.0	75.0	25.0	0.955556	0.0	0.0	0.0
0.04	64.0	75.0	25.0	0.977778	0.0	0.0	0.0
0.01	64.0	100.0	25.0	0.744444	0.2	0.013575	0.025424
0.02	64.0	100.0	25.0	0.892222	0.0	0.0	0.0
0.03	64.0	100.0	25.0	0.954444	0.0	0.0	0.0
0.04	64.0	100.0	25.0	0.977778	0.0	0.0	0.0
0.01	25.0	25.0	75.0	0.736667	0.214286	0.027149	0.048193
0.02	25.0	25.0	75.0	0.893333	0.0	0.0	0.0
0.03	25.0	25.0	75.0	0.956667	0.0	0.0	0.0
0.04	25.0	25.0	75.0	0.977778	0.0	0.0	0.0
0.01	25.0	50.0	75.0	0.744444	0.263158	0.022624	0.041667
0.02	25.0	50.0	75.0	0.892222	0.2	0.010638	0.020202
0.03	25.0	50.0	75.0	0.954444	0.0	0.0	0.0

0.04	25.0	50.0	75.0	0.976667	0.0	0.0	0.0
0.01	25.0	75.0	75.0	0.74	0.217391	0.022624	0.040984
0.02	25.0	75.0	75.0	0.89	0.0	0.0	0.0
0.03	25.0	75.0	75.0	0.953333	0.166667	0.026316	0.045455
0.04	25.0	75.0	75.0	0.975556	0.0	0.0	0.0
0.01	25.0	100.0	75.0	0.727778	0.26	0.058824	0.095941
0.02	25.0	100.0	75.0	0.871111	0.107143	0.031915	0.04918
0.03	25.0	100.0	75.0	0.951111	0.0	0.0	0.0
0.04	25.0	100.0	75.0	0.972222	0.0	0.0	0.0
0.01	32.0	25.0	75.0	0.75	0.0	0.0	0.0
0.02	32.0	25.0	75.0	0.893333	0.0	0.0	0.0
0.03	32.0	25.0	75.0	0.957778	0.0	0.0	0.0
0.04	32.0	25.0	75.0	0.977778	0.0	0.0	0.0
0.01	32.0	50.0	75.0	0.741111	0.166667	0.013575	0.025105
0.02	32.0	50.0	75.0	0.893333	0.0	0.0	0.0
0.03	32.0	50.0	75.0	0.953333	0.0	0.0	0.0
0.04	32.0	50.0	75.0	0.975556	0.0	0.0	0.0
0.01	32.0	75.0	75.0	0.733333	0.172414	0.022624	0.04
0.02	32.0	75.0	75.0	0.89	0.272727	0.031915	0.057143
0.03	32.0	75.0	75.0	0.951111	0.0	0.0	0.0
0.04	32.0	75.0	75.0	0.975556	0.0	0.0	0.0
0.01	32.0	100.0	75.0	0.731111	0.276596	0.058824	0.097015
0.02	32.0	100.0	75.0	0.885556	0.2	0.031915	0.055046
0.03	32.0	100.0	75.0	0.95	0.0	0.0	0.0
0.04	32.0	100.0	75.0	0.967778	0.0	0.0	0.0
0.01	48.0	25.0	75.0	0.747778	0.0	0.0	0.0
0.02	48.0	25.0	75.0	0.893333	0.0	0.0	0.0
0.03	48.0	25.0	75.0	0.956667	0.0	0.0	0.0
0.04	48.0	25.0	75.0	0.977778	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.737778	0.173913	0.0181	0.032787
0.02	48.0	50.0	75.0	0.892222	0.2	0.010638	0.020202
0.03	48.0	50.0	75.0	0.954444	0.0	0.0	0.0
0.04	48.0	50.0	75.0	0.977778	0.0	0.0	0.0
0.01	48.0	75.0	75.0	0.731111	0.230769	0.040724	0.069231
0.02	48.0	75.0	75.0	0.891111	0.0	0.0	0.0
0.03	48.0	75.0	75.0	0.955556	0.0	0.0	0.0
0.04	48.0	75.0	75.0	0.975556	0.0	0.0	0.0
0.01	48.0	100.0	75.0	0.735556	0.242424	0.036199	0.062992
0.02	48.0	100.0	75.0	0.89	0.272727	0.031915	0.057143
0.03	48.0	100.0	75.0	0.952222	0.0	0.0	0.0
0.04	48.0	100.0	75.0	0.975556	0.0	0.0	0.0
0.01	64.0	25.0	75.0	0.748889	0.0	0.0	0.0
0.02	64.0	25.0	75.0	0.893333	0.0	0.0	0.0
0.03	64.0	25.0	75.0	0.956667	0.0	0.0	0.0
0.04	64.0	25.0	75.0	0.977778	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.742222	0.133333	0.00905	0.016949
0.02	64.0	50.0	75.0	0.892222	0.0	0.0	0.0
0.03	64.0	50.0	75.0	0.956667	0.0	0.0	0.0
0.04	64.0	50.0	75.0	0.977778	0.0	0.0	0.0
0.01	64.0	75.0	75.0	0.731111	0.137931	0.0181	0.032
0.02	64.0	75.0	75.0	0.891111	0.0	0.0	0.0
0.03	64.0	75.0	75.0	0.954444	0.0	0.0	0.0
0.04	64.0	75.0	75.0	0.976667	0.0	0.0	0.0
0.01	64.0	100.0	75.0	0.711111	0.169492	0.045249	0.071429
0.02	64.0	100.0	75.0	0.88	0.0625	0.010638	0.018182
0.03	64.0	100.0	75.0	0.952222	0.0	0.0	0.0
0.04	64.0	100.0	75.0	0.975556	0.0	0.0	0.0
0.01	25.0	25.0	50.0	0.75	0.166667	0.004525	0.008811
0.02	25.0	25.0	50.0	0.894444	0.0	0.0	0.0
0.03	25.0	25.0	50.0	0.955556	0.0	0.0	0.0
0.04	25.0	25.0	50.0	0.977778	0.0	0.0	0.0
0.01	25.0	50.0	50.0	0.746667	0.181818	0.00905	0.017241
0.02	25.0	50.0	50.0	0.894444	0.0	0.0	0.0
0.03	25.0	50.0	50.0	0.954444	0.0	0.0	0.0
0.04	25.0	50.0	50.0	0.977778	0.0	0.0	0.0
0.01	25.0	75.0	50.0	0.743333	0.142857	0.00905	0.017021
0.02	25.0	75.0	50.0	0.891111	0.166667	0.010638	0.02
0.03	25.0	75.0	50.0	0.953333	0.0	0.0	0.0
0.04	25.0	75.0	50.0	0.976667	0.0	0.0	0.0
0.01	25.0	100.0	50.0	0.738889	0.208333	0.022624	0.040816
0.02	25.0	100.0	50.0	0.888889	0.0	0.0	0.0
0.03	25.0	100.0	50.0	0.952222	0.0	0.0	0.0
0.04	25.0	100.0	50.0	0.974444	0.0	0.0	0.0
0.01	32.0	25.0	50.0	0.752222	0.0	0.0	0.0
0.02	32.0	25.0	50.0	0.893333	0.25	0.010638	0.020408
0.03	32.0	25.0	50.0	0.956667	0.0	0.0	0.0

0.04	32.0	25.0	50.0	0.977778	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.744444	0.090909	0.004525	0.008621
0.02	32.0	50.0	50.0	0.891111	0.0	0.0	0.0
0.03	32.0	50.0	50.0	0.955556	0.0	0.0	0.0
0.04	32.0	50.0	50.0	0.977778	0.0	0.0	0.0
0.01	32.0	75.0	50.0	0.745556	0.277778	0.022624	0.041841
0.02	32.0	75.0	50.0	0.892222	0.0	0.0	0.0
0.03	32.0	75.0	50.0	0.954444	0.0	0.0	0.0
0.04	32.0	75.0	50.0	0.977778	0.0	0.0	0.0
0.01	32.0	100.0	50.0	0.732222	0.115385	0.013575	0.024291
0.02	32.0	100.0	50.0	0.884444	0.083333	0.010638	0.018868
0.03	32.0	100.0	50.0	0.951111	0.0	0.0	0.0
0.04	32.0	100.0	50.0	0.975556	0.0	0.0	0.0
0.01	48.0	25.0	50.0	0.751111	0.0	0.0	0.0
0.02	48.0	25.0	50.0	0.895556	0.0	0.0	0.0
0.03	48.0	25.0	50.0	0.957778	0.0	0.0	0.0
0.04	48.0	25.0	50.0	0.977778	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.751111	0.2	0.004525	0.00885
0.02	48.0	50.0	50.0	0.893333	0.0	0.0	0.0
0.03	48.0	50.0	50.0	0.956667	0.0	0.0	0.0
0.04	48.0	50.0	50.0	0.977778	0.0	0.0	0.0
0.01	48.0	75.0	50.0	0.736667	0.166667	0.0181	0.032653
0.02	48.0	75.0	50.0	0.89	0.0	0.0	0.0
0.03	48.0	75.0	50.0	0.955556	0.0	0.0	0.0
0.04	48.0	75.0	50.0	0.974444	0.0	0.0	0.0
0.01	48.0	100.0	50.0	0.735556	0.206897	0.027149	0.048
0.02	48.0	100.0	50.0	0.891111	0.0	0.0	0.0
0.03	48.0	100.0	50.0	0.951111	0.0	0.0	0.0
0.04	48.0	100.0	50.0	0.976667	0.0	0.0	0.0
0.01	64.0	25.0	50.0	0.734444	0.178571	0.022624	0.040161
0.02	64.0	25.0	50.0	0.894444	0.0	0.0	0.0
0.03	64.0	25.0	50.0	0.957778	0.0	0.0	0.0
0.04	64.0	25.0	50.0	0.977778	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.735556	0.0	0.0	0.0
0.02	64.0	50.0	50.0	0.893333	0.0	0.0	0.0
0.03	64.0	50.0	50.0	0.956667	0.0	0.0	0.0
0.04	64.0	50.0	50.0	0.977778	0.0	0.0	0.0
0.01	64.0	75.0	50.0	0.736667	0.214286	0.027149	0.048193
0.02	64.0	75.0	50.0	0.891111	0.166667	0.010638	0.02
0.03	64.0	75.0	50.0	0.953333	0.0	0.0	0.0
0.04	64.0	75.0	50.0	0.976667	0.0	0.0	0.0
0.01	64.0	100.0	50.0	0.738889	0.230769	0.027149	0.048583
0.02	64.0	100.0	50.0	0.891111	0.166667	0.010638	0.02
0.03	64.0	100.0	50.0	0.956667	0.0	0.0	0.0
0.04	64.0	100.0	50.0	0.977778	0.0	0.0	0.0
0.01	25.0	25.0	100.0	0.745556	0.0	0.0	0.0
0.02	25.0	25.0	100.0	0.894444	0.0	0.0	0.0
0.03	25.0	25.0	100.0	0.956667	0.0	0.0	0.0
0.04	25.0	25.0	100.0	0.977778	0.0	0.0	0.0
0.01	25.0	50.0	100.0	0.744444	0.153846	0.00905	0.017094
0.02	25.0	50.0	100.0	0.891111	0.166667	0.010638	0.02
0.03	25.0	50.0	100.0	0.952222	0.0	0.0	0.0
0.04	25.0	50.0	100.0	0.975556	0.0	0.0	0.0
0.01	25.0	75.0	100.0	0.713333	0.186441	0.049774	0.078571
0.02	25.0	75.0	100.0	0.886667	0.166667	0.021277	0.037736
0.03	25.0	75.0	100.0	0.953333	0.0	0.0	0.0
0.04	25.0	75.0	100.0	0.975556	0.0	0.0	0.0
0.01	25.0	100.0	100.0	0.712222	0.27381	0.104072	0.15082
0.02	25.0	100.0	100.0	0.881111	0.117647	0.021277	0.036036
0.03	25.0	100.0	100.0	0.947778	0.090909	0.026316	0.040816
0.04	25.0	100.0	100.0	0.97	0.0	0.0	0.0
0.01	32.0	25.0	100.0	0.748889	0.0	0.0	0.0
0.02	32.0	25.0	100.0	0.894444	0.0	0.0	0.0
0.03	32.0	25.0	100.0	0.955556	0.0	0.0	0.0
0.04	32.0	25.0	100.0	0.977778	0.0	0.0	0.0
0.01	32.0	50.0	100.0	0.732222	0.166667	0.022624	0.039841
0.02	32.0	50.0	100.0	0.891111	0.0	0.0	0.0
0.03	32.0	50.0	100.0	0.957778	0.0	0.0	0.0
0.04	32.0	50.0	100.0	0.976667	0.0	0.0	0.0
0.01	32.0	75.0	100.0	0.718889	0.119048	0.022624	0.038023
0.02	32.0	75.0	100.0	0.891111	0.0	0.0	0.0
0.03	32.0	75.0	100.0	0.951111	0.0	0.0	0.0
0.04	32.0	75.0	100.0	0.973333	0.0	0.0	0.0
0.01	32.0	100.0	100.0	0.717778	0.246154	0.072398	0.111888
0.02	32.0	100.0	100.0	0.883333	0.238095	0.053191	0.086957
0.03	32.0	100.0	100.0	0.95	0.0	0.0	0.0

0.04	32.0	100.0	100.0	0.976667	0.0	0.0	0.0
0.01	48.0	25.0	100.0	0.748889	0.272727	0.013575	0.025862
0.02	48.0	25.0	100.0	0.893333	0.0	0.0	0.0
0.03	48.0	25.0	100.0	0.956667	0.0	0.0	0.0
0.04	48.0	25.0	100.0	0.977778	0.0	0.0	0.0
0.01	48.0	50.0	100.0	0.74	0.157895	0.013575	0.025
0.02	48.0	50.0	100.0	0.891111	0.0	0.0	0.0
0.03	48.0	50.0	100.0	0.955556	0.0	0.0	0.0
0.04	48.0	50.0	100.0	0.976667	0.0	0.0	0.0
0.01	48.0	75.0	100.0	0.727778	0.214286	0.040724	0.068441
0.02	48.0	75.0	100.0	0.89	0.142857	0.010638	0.019802
0.03	48.0	75.0	100.0	0.953333	0.0	0.0	0.0
0.04	48.0	75.0	100.0	0.977778	0.0	0.0	0.0
0.01	48.0	100.0	100.0	0.722222	0.215686	0.049774	0.080882
0.02	48.0	100.0	100.0	0.874444	0.0	0.0	0.0
0.03	48.0	100.0	100.0	0.953333	0.0	0.0	0.0
0.04	48.0	100.0	100.0	0.975556	0.0	0.0	0.0
0.01	64.0	25.0	100.0	0.742222	0.176471	0.013575	0.02521
0.02	64.0	25.0	100.0	0.891111	0.0	0.0	0.0
0.03	64.0	25.0	100.0	0.955556	0.0	0.0	0.0
0.04	64.0	25.0	100.0	0.977778	0.0	0.0	0.0
0.01	64.0	50.0	100.0	0.738889	0.111111	0.00905	0.016736
0.02	64.0	50.0	100.0	0.89	0.0	0.0	0.0
0.03	64.0	50.0	100.0	0.953333	0.0	0.0	0.0
0.04	64.0	50.0	100.0	0.977778	0.0	0.0	0.0
0.01	64.0	75.0	100.0	0.734444	0.153846	0.0181	0.032389
0.02	64.0	75.0	100.0	0.891111	0.166667	0.010638	0.02
0.03	64.0	75.0	100.0	0.953333	0.0	0.0	0.0
0.04	64.0	75.0	100.0	0.976667	0.0	0.0	0.0
0.01	64.0	100.0	100.0	0.725556	0.259259	0.063348	0.101818
0.02	64.0	100.0	100.0	0.874444	0.086957	0.021277	0.034188
0.03	64.0	100.0	100.0	0.953333	0.0	0.0	0.0
0.04	64.0	100.0	100.0	0.976667	0.0	0.0	0.0

500209 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.783092	0.0	0.0	0.0
0.02	25.0	25.0	25.0	0.912125	0.0	0.0	0.0
0.03	25.0	25.0	25.0	0.955506	0.0	0.0	0.0
0.04	25.0	25.0	25.0	0.979978	0.0	0.0	0.0
0.01	25.0	50.0	25.0	0.787542	0.0	0.0	0.0
0.02	25.0	50.0	25.0	0.912125	0.0	0.0	0.0
0.03	25.0	50.0	25.0	0.955506	0.0	0.0	0.0
0.04	25.0	50.0	25.0	0.979978	0.0	0.0	0.0
0.01	25.0	75.0	25.0	0.784205	0.0	0.0	0.0
0.02	25.0	75.0	25.0	0.9099	0.25	0.012658	0.024096
0.03	25.0	75.0	25.0	0.955506	0.0	0.0	0.0
0.04	25.0	75.0	25.0	0.978865	0.0	0.0	0.0
0.01	25.0	100.0	25.0	0.774194	0.086957	0.01087	0.019324
0.02	25.0	100.0	25.0	0.907675	0.0	0.0	0.0
0.03	25.0	100.0	25.0	0.954394	0.0	0.0	0.0
0.04	25.0	100.0	25.0	0.978865	0.0	0.0	0.0
0.01	32.0	25.0	25.0	0.791991	0.0	0.0	0.0
0.02	32.0	25.0	25.0	0.912125	0.0	0.0	0.0
0.03	32.0	25.0	25.0	0.955506	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.979978	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.790879	0.0	0.0	0.0
0.02	32.0	50.0	25.0	0.912125	0.0	0.0	0.0
0.03	32.0	50.0	25.0	0.955506	0.0	0.0	0.0
0.04	32.0	50.0	25.0	0.979978	0.0	0.0	0.0
0.01	32.0	75.0	25.0	0.790879	0.0	0.0	0.0
0.02	32.0	75.0	25.0	0.9099	0.0	0.0	0.0
0.03	32.0	75.0	25.0	0.955506	0.0	0.0	0.0
0.04	32.0	75.0	25.0	0.979978	0.0	0.0	0.0
0.01	32.0	100.0	25.0	0.777531	0.136364	0.016304	0.029126
0.02	32.0	100.0	25.0	0.9099	0.0	0.0	0.0
0.03	32.0	100.0	25.0	0.954394	0.0	0.0	0.0
0.04	32.0	100.0	25.0	0.979978	0.0	0.0	0.0
0.01	48.0	25.0	25.0	0.790879	0.0	0.0	0.0
0.02	48.0	25.0	25.0	0.912125	0.0	0.0	0.0
0.03	48.0	25.0	25.0	0.955506	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.979978	0.0	0.0	0.0
0.01	48.0	50.0	25.0	0.791991	0.0	0.0	0.0
0.02	48.0	50.0	25.0	0.912125	0.0	0.0	0.0
0.03	48.0	50.0	25.0	0.955506	0.0	0.0	0.0
0.04	48.0	50.0	25.0	0.979978	0.0	0.0	0.0
0.01	48.0	75.0	25.0	0.786429	0.0	0.0	0.0
0.02	48.0	75.0	25.0	0.912125	0.0	0.0	0.0
0.03	48.0	75.0	25.0	0.955506	0.0	0.0	0.0
0.04	48.0	75.0	25.0	0.979978	0.0	0.0	0.0
0.01	48.0	100.0	25.0	0.794216	0.333333	0.005435	0.010695
0.02	48.0	100.0	25.0	0.908788	0.0	0.0	0.0
0.03	48.0	100.0	25.0	0.955506	0.0	0.0	0.0
0.04	48.0	100.0	25.0	0.978865	0.0	0.0	0.0
0.01	64.0	25.0	25.0	0.793103	0.0	0.0	0.0
0.02	64.0	25.0	25.0	0.912125	0.0	0.0	0.0
0.03	64.0	25.0	25.0	0.955506	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.979978	0.0	0.0	0.0
0.01	64.0	50.0	25.0	0.793103	0.0	0.0	0.0
0.02	64.0	50.0	25.0	0.912125	0.0	0.0	0.0
0.03	64.0	50.0	25.0	0.955506	0.0	0.0	0.0
0.04	64.0	50.0	25.0	0.979978	0.0	0.0	0.0
0.01	64.0	75.0	25.0	0.793103	0.0	0.0	0.0
0.02	64.0	75.0	25.0	0.912125	0.0	0.0	0.0
0.03	64.0	75.0	25.0	0.955506	0.0	0.0	0.0
0.04	64.0	75.0	25.0	0.979978	0.0	0.0	0.0
0.01	64.0	100.0	25.0	0.791991	0.0	0.0	0.0
0.02	64.0	100.0	25.0	0.9099	0.0	0.0	0.0
0.03	64.0	100.0	25.0	0.955506	0.0	0.0	0.0
0.04	64.0	100.0	25.0	0.979978	0.0	0.0	0.0
0.01	25.0	25.0	75.0	0.780868	0.0	0.0	0.0
0.02	25.0	25.0	75.0	0.912125	0.0	0.0	0.0
0.03	25.0	25.0	75.0	0.955506	0.0	0.0	0.0
0.04	25.0	25.0	75.0	0.979978	0.0	0.0	0.0
0.01	25.0	50.0	75.0	0.766407	0.09375	0.016304	0.027778
0.02	25.0	50.0	75.0	0.907675	0.166667	0.012658	0.023529
0.03	25.0	50.0	75.0	0.954394	0.0	0.0	0.0

0.04	25.0	50.0	75.0	0.977753	0.0	0.0	0.0
0.01	25.0	75.0	75.0	0.775306	0.178571	0.027174	0.04717
0.02	25.0	75.0	75.0	0.899889	0.076923	0.012658	0.021739
0.03	25.0	75.0	75.0	0.948832	0.0	0.0	0.0
0.04	25.0	75.0	75.0	0.977753	0.0	0.0	0.0
0.01	25.0	100.0	75.0	0.749722	0.184615	0.065217	0.096386
0.02	25.0	100.0	75.0	0.899889	0.210526	0.050633	0.081633
0.03	25.0	100.0	75.0	0.946607	0.166667	0.05	0.076923
0.04	25.0	100.0	75.0	0.976641	0.0	0.0	0.0
0.01	32.0	25.0	75.0	0.787542	0.0	0.0	0.0
0.02	32.0	25.0	75.0	0.9099	0.0	0.0	0.0
0.03	32.0	25.0	75.0	0.955506	0.0	0.0	0.0
0.04	32.0	25.0	75.0	0.979978	0.0	0.0	0.0
0.01	32.0	50.0	75.0	0.784205	0.083333	0.005435	0.010204
0.02	32.0	50.0	75.0	0.907675	0.166667	0.012658	0.023529
0.03	32.0	50.0	75.0	0.955506	0.0	0.0	0.0
0.04	32.0	50.0	75.0	0.978865	0.0	0.0	0.0
0.01	32.0	75.0	75.0	0.778643	0.285714	0.054348	0.091324
0.02	32.0	75.0	75.0	0.898776	0.0	0.0	0.0
0.03	32.0	75.0	75.0	0.951057	0.0	0.0	0.0
0.04	32.0	75.0	75.0	0.976641	0.0	0.0	0.0
0.01	32.0	100.0	75.0	0.76307	0.226415	0.065217	0.101266
0.02	32.0	100.0	75.0	0.89099	0.0	0.0	0.0
0.03	32.0	100.0	75.0	0.948832	0.125	0.025	0.041667
0.04	32.0	100.0	75.0	0.974416	0.0	0.0	0.0
0.01	48.0	25.0	75.0	0.789766	0.0	0.0	0.0
0.02	48.0	25.0	75.0	0.912125	0.0	0.0	0.0
0.03	48.0	25.0	75.0	0.955506	0.0	0.0	0.0
0.04	48.0	25.0	75.0	0.979978	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.789766	0.142857	0.005435	0.010471
0.02	48.0	50.0	75.0	0.911012	0.333333	0.012658	0.02439
0.03	48.0	50.0	75.0	0.955506	0.0	0.0	0.0
0.04	48.0	50.0	75.0	0.978865	0.0	0.0	0.0
0.01	48.0	75.0	75.0	0.778643	0.2	0.027174	0.047847
0.02	48.0	75.0	75.0	0.906563	0.142857	0.012658	0.023256
0.03	48.0	75.0	75.0	0.954394	0.0	0.0	0.0
0.04	48.0	75.0	75.0	0.978865	0.0	0.0	0.0
0.01	48.0	100.0	75.0	0.768632	0.269231	0.076087	0.118644
0.02	48.0	100.0	75.0	0.899889	0.176471	0.037975	0.0625
0.03	48.0	100.0	75.0	0.954394	0.333333	0.025	0.046512
0.04	48.0	100.0	75.0	0.976641	0.0	0.0	0.0
0.01	64.0	25.0	75.0	0.793103	0.0	0.0	0.0
0.02	64.0	25.0	75.0	0.912125	0.0	0.0	0.0
0.03	64.0	25.0	75.0	0.955506	0.0	0.0	0.0
0.04	64.0	25.0	75.0	0.979978	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.789766	0.0	0.0	0.0
0.02	64.0	50.0	75.0	0.911012	0.333333	0.012658	0.02439
0.03	64.0	50.0	75.0	0.955506	0.0	0.0	0.0
0.04	64.0	50.0	75.0	0.979978	0.0	0.0	0.0
0.01	64.0	75.0	75.0	0.774194	0.148148	0.021739	0.037915
0.02	64.0	75.0	75.0	0.9099	0.0	0.0	0.0
0.03	64.0	75.0	75.0	0.954394	0.0	0.0	0.0
0.04	64.0	75.0	75.0	0.978865	0.0	0.0	0.0
0.01	64.0	100.0	75.0	0.78198	0.25	0.032609	0.057692
0.02	64.0	100.0	75.0	0.904338	0.0	0.0	0.0
0.03	64.0	100.0	75.0	0.954394	0.333333	0.025	0.046512
0.04	64.0	100.0	75.0	0.978865	0.0	0.0	0.0
0.01	25.0	25.0	50.0	0.775306	0.0	0.0	0.0
0.02	25.0	25.0	50.0	0.912125	0.0	0.0	0.0
0.03	25.0	25.0	50.0	0.955506	0.0	0.0	0.0
0.04	25.0	25.0	50.0	0.979978	0.0	0.0	0.0
0.01	25.0	50.0	50.0	0.785317	0.2	0.016304	0.030151
0.02	25.0	50.0	50.0	0.911012	0.333333	0.012658	0.02439
0.03	25.0	50.0	50.0	0.955506	0.0	0.0	0.0
0.04	25.0	50.0	50.0	0.979978	0.0	0.0	0.0
0.01	25.0	75.0	50.0	0.775306	0.0	0.0	0.0
0.02	25.0	75.0	50.0	0.906563	0.142857	0.012658	0.023256
0.03	25.0	75.0	50.0	0.952169	0.0	0.0	0.0
0.04	25.0	75.0	50.0	0.976641	0.0	0.0	0.0
0.01	25.0	100.0	50.0	0.776418	0.130435	0.016304	0.028986
0.02	25.0	100.0	50.0	0.896552	0.15	0.037975	0.060606
0.03	25.0	100.0	50.0	0.949944	0.0	0.0	0.0
0.04	25.0	100.0	50.0	0.977753	0.0	0.0	0.0
0.01	32.0	25.0	50.0	0.789766	0.0	0.0	0.0
0.02	32.0	25.0	50.0	0.912125	0.0	0.0	0.0
0.03	32.0	25.0	50.0	0.955506	0.0	0.0	0.0

0.04	32.0	25.0	50.0	0.979978	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.787542	0.0	0.0	0.0
0.02	32.0	50.0	50.0	0.912125	0.5	0.012658	0.024691
0.03	32.0	50.0	50.0	0.955506	0.0	0.0	0.0
0.04	32.0	50.0	50.0	0.979978	0.0	0.0	0.0
0.01	32.0	75.0	50.0	0.777531	0.166667	0.021739	0.038462
0.02	32.0	75.0	50.0	0.905451	0.125	0.012658	0.022989
0.03	32.0	75.0	50.0	0.953281	0.0	0.0	0.0
0.04	32.0	75.0	50.0	0.979978	0.0	0.0	0.0
0.01	32.0	100.0	50.0	0.770857	0.210526	0.043478	0.072072
0.02	32.0	100.0	50.0	0.905451	0.2	0.025316	0.044944
0.03	32.0	100.0	50.0	0.949944	0.0	0.0	0.0
0.04	32.0	100.0	50.0	0.977753	0.0	0.0	0.0
0.01	48.0	25.0	50.0	0.789766	0.0	0.0	0.0
0.02	48.0	25.0	50.0	0.912125	0.0	0.0	0.0
0.03	48.0	25.0	50.0	0.955506	0.0	0.0	0.0
0.04	48.0	25.0	50.0	0.979978	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.790879	0.0	0.0	0.0
0.02	48.0	50.0	50.0	0.9099	0.0	0.0	0.0
0.03	48.0	50.0	50.0	0.955506	0.0	0.0	0.0
0.04	48.0	50.0	50.0	0.979978	0.0	0.0	0.0
0.01	48.0	75.0	50.0	0.791991	0.285714	0.01087	0.020942
0.02	48.0	75.0	50.0	0.9099	0.0	0.0	0.0
0.03	48.0	75.0	50.0	0.955506	0.5	0.025	0.047619
0.04	48.0	75.0	50.0	0.979978	0.0	0.0	0.0
0.01	48.0	100.0	50.0	0.78198	0.269231	0.038043	0.066667
0.02	48.0	100.0	50.0	0.911012	0.333333	0.012658	0.02439
0.03	48.0	100.0	50.0	0.953281	0.25	0.025	0.045455
0.04	48.0	100.0	50.0	0.977753	0.0	0.0	0.0
0.01	64.0	25.0	50.0	0.791991	0.0	0.0	0.0
0.02	64.0	25.0	50.0	0.912125	0.0	0.0	0.0
0.03	64.0	25.0	50.0	0.955506	0.0	0.0	0.0
0.04	64.0	25.0	50.0	0.979978	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.793103	0.0	0.0	0.0
0.02	64.0	50.0	50.0	0.912125	0.0	0.0	0.0
0.03	64.0	50.0	50.0	0.955506	0.0	0.0	0.0
0.04	64.0	50.0	50.0	0.979978	0.0	0.0	0.0
0.01	64.0	75.0	50.0	0.784205	0.25	0.027174	0.04902
0.02	64.0	75.0	50.0	0.912125	0.0	0.0	0.0
0.03	64.0	75.0	50.0	0.955506	0.0	0.0	0.0
0.04	64.0	75.0	50.0	0.979978	0.0	0.0	0.0
0.01	64.0	100.0	50.0	0.786429	0.1	0.005435	0.010309
0.02	64.0	100.0	50.0	0.912125	0.0	0.0	0.0
0.03	64.0	100.0	50.0	0.955506	0.0	0.0	0.0
0.04	64.0	100.0	50.0	0.976641	0.0	0.0	0.0
0.01	25.0	25.0	100.0	0.776418	0.0	0.0	0.0
0.02	25.0	25.0	100.0	0.912125	0.0	0.0	0.0
0.03	25.0	25.0	100.0	0.955506	0.0	0.0	0.0
0.04	25.0	25.0	100.0	0.978865	0.0	0.0	0.0
0.01	25.0	50.0	100.0	0.780868	0.190476	0.021739	0.039024
0.02	25.0	50.0	100.0	0.904338	0.266667	0.050633	0.085106
0.03	25.0	50.0	100.0	0.955506	0.0	0.0	0.0
0.04	25.0	50.0	100.0	0.977753	0.0	0.0	0.0
0.01	25.0	75.0	100.0	0.78198	0.323529	0.059783	0.100917
0.02	25.0	75.0	100.0	0.89099	0.12	0.037975	0.057692
0.03	25.0	75.0	100.0	0.946607	0.1	0.025	0.04
0.04	25.0	75.0	100.0	0.974416	0.0	0.0	0.0
0.01	25.0	100.0	100.0	0.747497	0.220779	0.092391	0.130268
0.02	25.0	100.0	100.0	0.893215	0.206897	0.075949	0.111111
0.03	25.0	100.0	100.0	0.937709	0.055556	0.025	0.034483
0.04	25.0	100.0	100.0	0.973304	0.125	0.055556	0.076923
0.01	32.0	25.0	100.0	0.789766	0.0	0.0	0.0
0.02	32.0	25.0	100.0	0.912125	0.0	0.0	0.0
0.03	32.0	25.0	100.0	0.955506	0.0	0.0	0.0
0.04	32.0	25.0	100.0	0.979978	0.0	0.0	0.0
0.01	32.0	50.0	100.0	0.778643	0.173913	0.021739	0.038647
0.02	32.0	50.0	100.0	0.902113	0.0	0.0	0.0
0.03	32.0	50.0	100.0	0.952169	0.0	0.0	0.0
0.04	32.0	50.0	100.0	0.978865	0.0	0.0	0.0
0.01	32.0	75.0	100.0	0.767519	0.222222	0.054348	0.087336
0.02	32.0	75.0	100.0	0.897664	0.157895	0.037975	0.061224
0.03	32.0	75.0	100.0	0.951057	0.166667	0.025	0.043478
0.04	32.0	75.0	100.0	0.975528	0.0	0.0	0.0
0.01	32.0	100.0	100.0	0.776418	0.311111	0.076087	0.122271
0.02	32.0	100.0	100.0	0.893215	0.185185	0.063291	0.09434
0.03	32.0	100.0	100.0	0.946607	0.1	0.025	0.04

0.04	32.0	100.0	100.0	0.973304	0.0	0.0	0.0
0.01	48.0	25.0	100.0	0.788654	0.0	0.0	0.0
0.02	48.0	25.0	100.0	0.912125	0.0	0.0	0.0
0.03	48.0	25.0	100.0	0.955506	0.0	0.0	0.0
0.04	48.0	25.0	100.0	0.979978	0.0	0.0	0.0
0.01	48.0	50.0	100.0	0.785317	0.235294	0.021739	0.039801
0.02	48.0	50.0	100.0	0.908788	0.285714	0.025316	0.046512
0.03	48.0	50.0	100.0	0.955506	0.0	0.0	0.0
0.04	48.0	50.0	100.0	0.978865	0.0	0.0	0.0
0.01	48.0	75.0	100.0	0.768632	0.25	0.065217	0.103448
0.02	48.0	75.0	100.0	0.903226	0.214286	0.037975	0.064516
0.03	48.0	75.0	100.0	0.952169	0.2	0.025	0.044444
0.04	48.0	75.0	100.0	0.978865	0.0	0.0	0.0
0.01	48.0	100.0	100.0	0.775306	0.304348	0.076087	0.121739
0.02	48.0	100.0	100.0	0.902113	0.263158	0.063291	0.102041
0.03	48.0	100.0	100.0	0.949944	0.142857	0.025	0.042553
0.04	48.0	100.0	100.0	0.976641	0.0	0.0	0.0
0.01	64.0	25.0	100.0	0.791991	0.0	0.0	0.0
0.02	64.0	25.0	100.0	0.912125	0.0	0.0	0.0
0.03	64.0	25.0	100.0	0.955506	0.0	0.0	0.0
0.04	64.0	25.0	100.0	0.979978	0.0	0.0	0.0
0.01	64.0	50.0	100.0	0.787542	0.0	0.0	0.0
0.02	64.0	50.0	100.0	0.911012	0.333333	0.012658	0.02439
0.03	64.0	50.0	100.0	0.955506	0.0	0.0	0.0
0.04	64.0	50.0	100.0	0.978865	0.0	0.0	0.0
0.01	64.0	75.0	100.0	0.778643	0.173913	0.021739	0.038647
0.02	64.0	75.0	100.0	0.906563	0.0	0.0	0.0
0.03	64.0	75.0	100.0	0.956618	1.0	0.025	0.04878
0.04	64.0	75.0	100.0	0.977753	0.0	0.0	0.0
0.01	64.0	100.0	100.0	0.773081	0.25	0.054348	0.089286
0.02	64.0	100.0	100.0	0.905451	0.25	0.037975	0.065934
0.03	64.0	100.0	100.0	0.954394	0.333333	0.025	0.046512
0.04	64.0	100.0	100.0	0.977753	0.0	0.0	0.0



500325 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.747497	0.0	0.0	0.0
0.02	25.0	25.0	25.0	0.898776	0.0	0.0	0.0
0.03	25.0	25.0	25.0	0.949944	0.0	0.0	0.0
0.04	25.0	25.0	25.0	0.973304	0.0	0.0	0.0
0.01	25.0	50.0	25.0	0.74416	0.333333	0.013216	0.025424
0.02	25.0	50.0	25.0	0.898776	0.0	0.0	0.0
0.03	25.0	50.0	25.0	0.951057	1.0	0.022222	0.043478
0.04	25.0	50.0	25.0	0.973304	0.0	0.0	0.0
0.01	25.0	75.0	25.0	0.74416	0.384615	0.022026	0.041667
0.02	25.0	75.0	25.0	0.897664	0.333333	0.010989	0.021277
0.03	25.0	75.0	25.0	0.952169	0.75	0.066667	0.122449
0.04	25.0	75.0	25.0	0.974416	1.0	0.041667	0.08
0.01	25.0	100.0	25.0	0.735261	0.310345	0.039648	0.070312
0.02	25.0	100.0	25.0	0.898776	0.5	0.032967	0.061856
0.03	25.0	100.0	25.0	0.948832	0.4	0.044444	0.08
0.04	25.0	100.0	25.0	0.973304	0.5	0.041667	0.076923
0.01	32.0	25.0	25.0	0.747497	0.0	0.0	0.0
0.02	32.0	25.0	25.0	0.898776	0.0	0.0	0.0
0.03	32.0	25.0	25.0	0.949944	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.973304	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.74861	1.0	0.004405	0.008772
0.02	32.0	50.0	25.0	0.901001	1.0	0.021978	0.043011
0.03	32.0	50.0	25.0	0.949944	0.0	0.0	0.0
0.04	32.0	50.0	25.0	0.973304	0.0	0.0	0.0
0.01	32.0	75.0	25.0	0.749722	0.75	0.013216	0.025974
0.02	32.0	75.0	25.0	0.898776	0.0	0.0	0.0
0.03	32.0	75.0	25.0	0.949944	0.5	0.022222	0.042553
0.04	32.0	75.0	25.0	0.972191	0.0	0.0	0.0
0.01	32.0	100.0	25.0	0.737486	0.354839	0.048458	0.085271
0.02	32.0	100.0	25.0	0.901001	1.0	0.021978	0.043011
0.03	32.0	100.0	25.0	0.949944	0.5	0.022222	0.042553
0.04	32.0	100.0	25.0	0.969967	0.0	0.0	0.0
0.01	48.0	25.0	25.0	0.747497	0.0	0.0	0.0
0.02	48.0	25.0	25.0	0.898776	0.0	0.0	0.0
0.03	48.0	25.0	25.0	0.949944	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.973304	0.0	0.0	0.0
0.01	48.0	50.0	25.0	0.74861	0.666667	0.008811	0.017391
0.02	48.0	50.0	25.0	0.897664	0.0	0.0	0.0
0.03	48.0	50.0	25.0	0.949944	0.0	0.0	0.0
0.04	48.0	50.0	25.0	0.973304	0.0	0.0	0.0
0.01	48.0	75.0	25.0	0.746385	0.4	0.008811	0.017241
0.02	48.0	75.0	25.0	0.897664	0.0	0.0	0.0
0.03	48.0	75.0	25.0	0.949944	0.5	0.022222	0.042553
0.04	48.0	75.0	25.0	0.969967	0.0	0.0	0.0
0.01	48.0	100.0	25.0	0.741935	0.368421	0.030837	0.056911
0.02	48.0	100.0	25.0	0.899889	1.0	0.010989	0.021739
0.03	48.0	100.0	25.0	0.952169	0.75	0.066667	0.122449
0.04	48.0	100.0	25.0	0.973304	0.5	0.041667	0.076923
0.01	64.0	25.0	25.0	0.747497	0.0	0.0	0.0
0.02	64.0	25.0	25.0	0.898776	0.0	0.0	0.0
0.03	64.0	25.0	25.0	0.949944	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.973304	0.0	0.0	0.0
0.01	64.0	50.0	25.0	0.746385	0.0	0.0	0.0
0.02	64.0	50.0	25.0	0.897664	0.0	0.0	0.0
0.03	64.0	50.0	25.0	0.948832	0.0	0.0	0.0
0.04	64.0	50.0	25.0	0.973304	0.0	0.0	0.0
0.01	64.0	75.0	25.0	0.750834	1.0	0.013216	0.026087
0.02	64.0	75.0	25.0	0.899889	1.0	0.010989	0.021739
0.03	64.0	75.0	25.0	0.948832	0.0	0.0	0.0
0.04	64.0	75.0	25.0	0.972191	0.0	0.0	0.0
0.01	64.0	100.0	25.0	0.741935	0.272727	0.013216	0.02521
0.02	64.0	100.0	25.0	0.898776	0.0	0.0	0.0
0.03	64.0	100.0	25.0	0.951057	1.0	0.022222	0.043478
0.04	64.0	100.0	25.0	0.973304	0.5	0.041667	0.076923
0.01	25.0	25.0	75.0	0.745273	0.0	0.0	0.0
0.02	25.0	25.0	75.0	0.898776	0.0	0.0	0.0
0.03	25.0	25.0	75.0	0.951057	1.0	0.022222	0.043478
0.04	25.0	25.0	75.0	0.972191	0.0	0.0	0.0
0.01	25.0	50.0	75.0	0.730812	0.258065	0.035242	0.062016
0.02	25.0	50.0	75.0	0.901001	0.75	0.032967	0.063158
0.03	25.0	50.0	75.0	0.946607	0.2	0.022222	0.04

0.04	25.0	50.0	75.0	0.973304	0.5	0.041667	0.076923
0.01	25.0	75.0	75.0	0.724138	0.243902	0.044053	0.074627
0.02	25.0	75.0	75.0	0.896552	0.4375	0.076923	0.130841
0.03	25.0	75.0	75.0	0.947772	0.416667	0.111111	0.175439
0.04	25.0	75.0	75.0	0.971079	0.333333	0.083333	0.133333
0.01	25.0	100.0	75.0	0.709677	0.263889	0.0837	0.12709
0.02	25.0	100.0	75.0	0.889878	0.3	0.065934	0.108108
0.03	25.0	100.0	75.0	0.936596	0.25	0.133333	0.173913
0.04	25.0	100.0	75.0	0.969967	0.333333	0.125	0.181818
0.01	32.0	25.0	75.0	0.749722	1.0	0.008811	0.017467
0.02	32.0	25.0	75.0	0.899889	1.0	0.010989	0.021739
0.03	32.0	25.0	75.0	0.949944	0.0	0.0	0.0
0.04	32.0	25.0	75.0	0.972191	0.0	0.0	0.0
0.01	32.0	50.0	75.0	0.746385	0.428571	0.013216	0.025641
0.02	32.0	50.0	75.0	0.902113	0.8	0.043956	0.083333
0.03	32.0	50.0	75.0	0.952169	0.666667	0.088889	0.156863
0.04	32.0	50.0	75.0	0.972191	0.333333	0.041667	0.074074
0.01	32.0	75.0	75.0	0.730812	0.307692	0.052863	0.090226
0.02	32.0	75.0	75.0	0.896552	0.428571	0.065934	0.114286
0.03	32.0	75.0	75.0	0.945495	0.357143	0.111111	0.169492
0.04	32.0	75.0	75.0	0.972191	0.4	0.083333	0.137931
0.01	32.0	100.0	75.0	0.711902	0.25	0.070485	0.109966
0.02	32.0	100.0	75.0	0.877642	0.228571	0.087912	0.126984
0.03	32.0	100.0	75.0	0.941046	0.214286	0.066667	0.101695
0.04	32.0	100.0	75.0	0.971079	0.375	0.125	0.1875
0.01	48.0	25.0	75.0	0.747497	0.0	0.0	0.0
0.02	48.0	25.0	75.0	0.898776	0.0	0.0	0.0
0.03	48.0	25.0	75.0	0.951057	1.0	0.022222	0.043478
0.04	48.0	25.0	75.0	0.973304	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.740823	0.285714	0.017621	0.033195
0.02	48.0	50.0	75.0	0.899889	0.666667	0.021978	0.042553
0.03	48.0	50.0	75.0	0.951057	0.666667	0.044444	0.083333
0.04	48.0	50.0	75.0	0.969967	0.0	0.0	0.0
0.01	48.0	75.0	75.0	0.737486	0.235294	0.017621	0.032787
0.02	48.0	75.0	75.0	0.898776	0.5	0.043956	0.080808
0.03	48.0	75.0	75.0	0.946607	0.285714	0.044444	0.076923
0.04	48.0	75.0	75.0	0.973304	0.5	0.083333	0.142857
0.01	48.0	100.0	75.0	0.700779	0.208333	0.066079	0.100334
0.02	48.0	100.0	75.0	0.897664	0.461538	0.065934	0.115385
0.03	48.0	100.0	75.0	0.944383	0.307692	0.088889	0.137931
0.04	48.0	100.0	75.0	0.968854	0.25	0.083333	0.125
0.01	64.0	25.0	75.0	0.747497	0.0	0.0	0.0
0.02	64.0	25.0	75.0	0.898776	0.0	0.0	0.0
0.03	64.0	25.0	75.0	0.949944	0.0	0.0	0.0
0.04	64.0	25.0	75.0	0.972191	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.743048	0.25	0.008811	0.017021
0.02	64.0	50.0	75.0	0.901001	1.0	0.021978	0.043011
0.03	64.0	50.0	75.0	0.947772	0.25	0.022222	0.040816
0.04	64.0	50.0	75.0	0.971079	0.0	0.0	0.0
0.01	64.0	75.0	75.0	0.730812	0.272727	0.039648	0.069231
0.02	64.0	75.0	75.0	0.898776	0.5	0.021978	0.042105
0.03	64.0	75.0	75.0	0.948832	0.444444	0.088889	0.148148
0.04	64.0	75.0	75.0	0.973304	0.5	0.041667	0.076923
0.01	64.0	100.0	75.0	0.72525	0.272727	0.052863	0.088561
0.02	64.0	100.0	75.0	0.901001	0.6	0.065934	0.118812
0.03	64.0	100.0	75.0	0.948832	0.454545	0.111111	0.178571
0.04	64.0	100.0	75.0	0.969967	0.285714	0.083333	0.129032
0.01	25.0	25.0	50.0	0.747497	0.0	0.0	0.0
0.02	25.0	25.0	50.0	0.898776	0.0	0.0	0.0
0.03	25.0	25.0	50.0	0.949944	0.0	0.0	0.0
0.04	25.0	25.0	50.0	0.973304	0.0	0.0	0.0
0.01	25.0	50.0	50.0	0.745273	0.4	0.017621	0.033755
0.02	25.0	50.0	50.0	0.898776	0.5	0.021978	0.042105
0.03	25.0	50.0	50.0	0.949944	0.5	0.022222	0.042553
0.04	25.0	50.0	50.0	0.974416	0.666667	0.083333	0.148148
0.01	25.0	75.0	50.0	0.72525	0.25	0.044053	0.074906
0.02	25.0	75.0	50.0	0.897664	0.454545	0.054945	0.098039
0.03	25.0	75.0	50.0	0.952169	0.666667	0.088889	0.156863
0.04	25.0	75.0	50.0	0.971079	0.333333	0.083333	0.133333
0.01	25.0	100.0	50.0	0.715239	0.289855	0.088106	0.135135
0.02	25.0	100.0	50.0	0.893215	0.272727	0.032967	0.058824
0.03	25.0	100.0	50.0	0.944383	0.333333	0.111111	0.166667
0.04	25.0	100.0	50.0	0.968854	0.0	0.0	0.0
0.01	32.0	25.0	50.0	0.747497	0.0	0.0	0.0
0.02	32.0	25.0	50.0	0.898776	0.0	0.0	0.0
0.03	32.0	25.0	50.0	0.949944	0.0	0.0	0.0

0.04	32.0	25.0	50.0	0.973304	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.750834	1.0	0.013216	0.026087
0.02	32.0	50.0	50.0	0.899889	1.0	0.010989	0.021739
0.03	32.0	50.0	50.0	0.949944	0.5	0.044444	0.081633
0.04	32.0	50.0	50.0	0.973304	0.5	0.041667	0.076923
0.01	32.0	75.0	50.0	0.74416	0.411765	0.030837	0.057377
0.02	32.0	75.0	50.0	0.897664	0.428571	0.032967	0.061224
0.03	32.0	75.0	50.0	0.951057	0.666667	0.044444	0.083333
0.04	32.0	75.0	50.0	0.973304	0.5	0.083333	0.142857
0.01	32.0	100.0	50.0	0.72525	0.205882	0.030837	0.05364
0.02	32.0	100.0	50.0	0.896552	0.4375	0.076923	0.130841
0.03	32.0	100.0	50.0	0.942158	0.266667	0.088889	0.133333
0.04	32.0	100.0	50.0	0.971079	0.25	0.041667	0.071429
0.01	48.0	25.0	50.0	0.747497	0.0	0.0	0.0
0.02	48.0	25.0	50.0	0.898776	0.0	0.0	0.0
0.03	48.0	25.0	50.0	0.949944	0.0	0.0	0.0
0.04	48.0	25.0	50.0	0.973304	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.746385	0.333333	0.004405	0.008696
0.02	48.0	50.0	50.0	0.898776	0.0	0.0	0.0
0.03	48.0	50.0	50.0	0.948832	0.0	0.0	0.0
0.04	48.0	50.0	50.0	0.973304	0.0	0.0	0.0
0.01	48.0	75.0	50.0	0.728587	0.225806	0.030837	0.054264
0.02	48.0	75.0	50.0	0.899889	0.666667	0.021978	0.042553
0.03	48.0	75.0	50.0	0.94772	0.25	0.022222	0.040816
0.04	48.0	75.0	50.0	0.973304	0.5	0.041667	0.076923
0.01	48.0	100.0	50.0	0.731924	0.305556	0.048458	0.08365
0.02	48.0	100.0	50.0	0.897664	0.461538	0.065934	0.115385
0.03	48.0	100.0	50.0	0.94327	0.25	0.066667	0.105263
0.04	48.0	100.0	50.0	0.969967	0.0	0.0	0.0
0.01	64.0	25.0	50.0	0.745273	0.0	0.0	0.0
0.02	64.0	25.0	50.0	0.898776	0.0	0.0	0.0
0.03	64.0	25.0	50.0	0.949944	0.0	0.0	0.0
0.04	64.0	25.0	50.0	0.972191	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.74416	0.2	0.004405	0.008621
0.02	64.0	50.0	50.0	0.898776	0.5	0.010989	0.021505
0.03	64.0	50.0	50.0	0.949944	0.5	0.044444	0.081633
0.04	64.0	50.0	50.0	0.972191	0.0	0.0	0.0
0.01	64.0	75.0	50.0	0.740823	0.285714	0.017621	0.033195
0.02	64.0	75.0	50.0	0.898776	0.5	0.021978	0.042105
0.03	64.0	75.0	50.0	0.94772	0.25	0.022222	0.040816
0.04	64.0	75.0	50.0	0.972191	0.0	0.0	0.0
0.01	64.0	100.0	50.0	0.734149	0.35	0.061674	0.104869
0.02	64.0	100.0	50.0	0.896552	0.0	0.0	0.0
0.03	64.0	100.0	50.0	0.946607	0.333333	0.066667	0.111111
0.04	64.0	100.0	50.0	0.972191	0.333333	0.041667	0.074074
0.01	25.0	25.0	100.0	0.750834	1.0	0.013216	0.026087
0.02	25.0	25.0	100.0	0.901001	1.0	0.021978	0.043011
0.03	25.0	25.0	100.0	0.949944	0.5	0.022222	0.042553
0.04	25.0	25.0	100.0	0.972191	0.0	0.0	0.0
0.01	25.0	50.0	100.0	0.728587	0.225806	0.030837	0.054264
0.02	25.0	50.0	100.0	0.896552	0.416667	0.054945	0.097087
0.03	25.0	50.0	100.0	0.952169	0.666667	0.088889	0.156863
0.04	25.0	50.0	100.0	0.971079	0.0	0.0	0.0
0.01	25.0	75.0	100.0	0.70634	0.25974	0.088106	0.131579
0.02	25.0	75.0	100.0	0.892102	0.35	0.076923	0.126126
0.03	25.0	75.0	100.0	0.94327	0.285714	0.088889	0.135593
0.04	25.0	75.0	100.0	0.973304	0.5	0.041667	0.076923
0.01	25.0	100.0	100.0	0.682981	0.266129	0.145374	0.188034
0.02	25.0	100.0	100.0	0.867631	0.195652	0.098901	0.131387
0.03	25.0	100.0	100.0	0.941046	0.3	0.133333	0.184615
0.04	25.0	100.0	100.0	0.971079	0.333333	0.083333	0.133333
0.01	32.0	25.0	100.0	0.74861	1.0	0.004405	0.008772
0.02	32.0	25.0	100.0	0.898776	0.0	0.0	0.0
0.03	32.0	25.0	100.0	0.951057	1.0	0.022222	0.043478
0.04	32.0	25.0	100.0	0.972191	0.0	0.0	0.0
0.01	32.0	50.0	100.0	0.727475	0.2	0.026432	0.046693
0.02	32.0	50.0	100.0	0.899889	0.6	0.032967	0.0625
0.03	32.0	50.0	100.0	0.94772	0.375	0.066667	0.113208
0.04	32.0	50.0	100.0	0.974416	0.666667	0.083333	0.148148
0.01	32.0	75.0	100.0	0.720801	0.3	0.079295	0.125436
0.02	32.0	75.0	100.0	0.886541	0.28	0.076923	0.12069
0.03	32.0	75.0	100.0	0.941046	0.25	0.088889	0.131148
0.04	32.0	75.0	100.0	0.971079	0.25	0.041667	0.071429
0.01	32.0	100.0	100.0	0.68743	0.212766	0.088106	0.124611
0.02	32.0	100.0	100.0	0.885428	0.285714	0.087912	0.134454
0.03	32.0	100.0	100.0	0.938821	0.25	0.111111	0.153846

0.04	32.0	100.0	100.0	0.968854	0.166667	0.041667	0.066667
0.01	48.0	25.0	100.0	0.74861	1.0	0.004405	0.008772
0.02	48.0	25.0	100.0	0.898776	0.0	0.0	0.0
0.03	48.0	25.0	100.0	0.951057	1.0	0.022222	0.043478
0.04	48.0	25.0	100.0	0.973304	0.0	0.0	0.0
0.01	48.0	50.0	100.0	0.731924	0.208333	0.022026	0.039841
0.02	48.0	50.0	100.0	0.902113	1.0	0.032967	0.06383
0.03	48.0	50.0	100.0	0.949944	0.5	0.066667	0.117647
0.04	48.0	50.0	100.0	0.969967	0.0	0.0	0.0
0.01	48.0	75.0	100.0	0.723026	0.26087	0.052863	0.087912
0.02	48.0	75.0	100.0	0.898776	0.5	0.076923	0.133333
0.03	48.0	75.0	100.0	0.944383	0.307692	0.088889	0.137931
0.04	48.0	75.0	100.0	0.972191	0.4	0.083333	0.137931
0.01	48.0	100.0	100.0	0.711902	0.264706	0.079295	0.122034
0.02	48.0	100.0	100.0	0.887653	0.307692	0.087912	0.136752
0.03	48.0	100.0	100.0	0.938821	0.222222	0.088889	0.126984
0.04	48.0	100.0	100.0	0.972191	0.4	0.083333	0.137931
0.01	64.0	25.0	100.0	0.747497	0.5	0.004405	0.008734
0.02	64.0	25.0	100.0	0.898776	0.0	0.0	0.0
0.03	64.0	25.0	100.0	0.949944	0.0	0.0	0.0
0.04	64.0	25.0	100.0	0.973304	0.0	0.0	0.0
0.01	64.0	50.0	100.0	0.730812	0.241379	0.030837	0.054688
0.02	64.0	50.0	100.0	0.898776	0.5	0.021978	0.042105
0.03	64.0	50.0	100.0	0.948832	0.4	0.044444	0.08
0.04	64.0	50.0	100.0	0.971079	0.25	0.041667	0.071429
0.01	64.0	75.0	100.0	0.738598	0.318182	0.030837	0.056225
0.02	64.0	75.0	100.0	0.896552	0.4	0.043956	0.079208
0.03	64.0	75.0	100.0	0.948832	0.428571	0.066667	0.115385
0.04	64.0	75.0	100.0	0.973304	0.5	0.083333	0.142857
0.01	64.0	100.0	100.0	0.721913	0.305085	0.079295	0.125874
0.02	64.0	100.0	100.0	0.894327	0.357143	0.054945	0.095238
0.03	64.0	100.0	100.0	0.942158	0.266667	0.088889	0.133333
0.04	64.0	100.0	100.0	0.968854	0.25	0.083333	0.125

500680 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.777273	0.25	0.010417	0.02
0.02	25.0	25.0	25.0	0.911364	0.0	0.0	0.0
0.03	25.0	25.0	25.0	0.973864	0.0	0.0	0.0
0.04	25.0	25.0	25.0	0.989773	0.0	0.0	0.0
0.01	25.0	50.0	25.0	0.771591	0.235294	0.020833	0.038278
0.02	25.0	50.0	25.0	0.917045	0.0	0.0	0.0
0.03	25.0	50.0	25.0	0.971591	0.0	0.0	0.0
0.04	25.0	50.0	25.0	0.989773	0.0	0.0	0.0
0.01	25.0	75.0	25.0	0.770455	0.1875	0.015625	0.028846
0.02	25.0	75.0	25.0	0.910227	0.0	0.0	0.0
0.03	25.0	75.0	25.0	0.911364	0.0	0.0	0.0
0.04	25.0	75.0	25.0	0.989773	0.0	0.0	0.0
0.01	25.0	100.0	25.0	0.770455	0.1875	0.015625	0.028846
0.02	25.0	100.0	25.0	0.907955	0.090909	0.013889	0.024096
0.03	25.0	100.0	25.0	0.973864	0.0	0.0	0.0
0.04	25.0	100.0	25.0	0.989773	0.0	0.0	0.0
0.01	32.0	25.0	25.0	0.777273	0.25	0.010417	0.02
0.02	32.0	25.0	25.0	0.915909	0.0	0.0	0.0
0.03	32.0	25.0	25.0	0.973864	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.989773	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.773864	0.230769	0.015625	0.029268
0.02	32.0	50.0	25.0	0.911364	0.0	0.0	0.0
0.03	32.0	50.0	25.0	0.973864	0.0	0.0	0.0
0.04	32.0	50.0	25.0	0.989773	0.0	0.0	0.0
0.01	32.0	75.0	25.0	0.775	0.2	0.010417	0.019802
0.02	32.0	75.0	25.0	0.913636	0.0	0.0	0.0
0.03	32.0	75.0	25.0	0.972727	0.0	0.0	0.0
0.04	32.0	75.0	25.0	0.989773	0.0	0.0	0.0
0.01	32.0	100.0	25.0	0.772727	0.25	0.020833	0.038462
0.02	32.0	100.0	25.0	0.909091	0.0	0.0	0.0
0.03	32.0	100.0	25.0	0.971591	0.0	0.0	0.0
0.04	32.0	100.0	25.0	0.989773	0.0	0.0	0.0
0.01	48.0	25.0	25.0	0.778409	0.0	0.0	0.0
0.02	48.0	25.0	25.0	0.915909	0.0	0.0	0.0
0.03	48.0	25.0	25.0	0.973864	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.989773	0.0	0.0	0.0
0.01	48.0	50.0	25.0	0.775	0.2	0.010417	0.019802
0.02	48.0	50.0	25.0	0.9125	0.0	0.0	0.0
0.03	48.0	50.0	25.0	0.973864	0.0	0.0	0.0
0.04	48.0	50.0	25.0	0.989773	0.0	0.0	0.0
0.01	48.0	75.0	25.0	0.772727	0.0	0.0	0.0
0.02	48.0	75.0	25.0	0.9125	0.0	0.0	0.0
0.03	48.0	75.0	25.0	0.973864	0.0	0.0	0.0
0.04	48.0	75.0	25.0	0.989773	0.0	0.0	0.0
0.01	48.0	100.0	25.0	0.772727	0.214286	0.015625	0.029126
0.02	48.0	100.0	25.0	0.913636	0.166667	0.013889	0.025641
0.03	48.0	100.0	25.0	0.969318	0.0	0.0	0.0
0.04	48.0	100.0	25.0	0.989773	0.0	0.0	0.0
0.01	64.0	25.0	25.0	0.781818	0.5	0.005208	0.010309
0.02	64.0	25.0	25.0	0.913636	0.0	0.0	0.0
0.03	64.0	25.0	25.0	0.973864	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.989773	0.0	0.0	0.0
0.01	64.0	50.0	25.0	0.772727	0.0	0.0	0.0
0.02	64.0	50.0	25.0	0.915909	0.0	0.0	0.0
0.03	64.0	50.0	25.0	0.973864	0.0	0.0	0.0
0.04	64.0	50.0	25.0	0.989773	0.0	0.0	0.0
0.01	64.0	75.0	25.0	0.778409	0.285714	0.010417	0.020101
0.02	64.0	75.0	25.0	0.915909	0.0	0.0	0.0
0.03	64.0	75.0	25.0	0.973864	0.0	0.0	0.0
0.04	64.0	75.0	25.0	0.989773	0.0	0.0	0.0
0.01	64.0	100.0	25.0	0.776136	0.222222	0.010417	0.0199
0.02	64.0	100.0	25.0	0.913636	0.0	0.0	0.0
0.03	64.0	100.0	25.0	0.973864	0.0	0.0	0.0
0.04	64.0	100.0	25.0	0.989773	0.0	0.0	0.0
0.01	25.0	25.0	75.0	0.765909	0.15	0.015625	0.028302
0.02	25.0	25.0	75.0	0.906818	0.0	0.0	0.0
0.03	25.0	25.0	75.0	0.973864	0.0	0.0	0.0
0.04	25.0	25.0	75.0	0.989773	0.0	0.0	0.0
0.01	25.0	50.0	75.0	0.772727	0.25	0.020833	0.038462
0.02	25.0	50.0	75.0	0.903409	0.0	0.0	0.0
0.03	25.0	50.0	75.0	0.973864	0.0	0.0	0.0

0.04	25.0	50.0	75.0	0.989773	0.0	0.0	0.0
0.01	25.0	75.0	75.0	0.772727	0.25	0.020833	0.038462
0.02	25.0	75.0	75.0	0.905682	0.133333	0.027778	0.045977
0.03	25.0	75.0	75.0	0.973864	0.0	0.0	0.0
0.04	25.0	75.0	75.0	0.988636	0.0	0.0	0.0
0.01	25.0	100.0	75.0	0.745455	0.203704	0.057292	0.089431
0.02	25.0	100.0	75.0	0.910227	0.181818	0.027778	0.048193
0.03	25.0	100.0	75.0	0.973864	0.0	0.0	0.0
0.04	25.0	100.0	75.0	0.989773	0.0	0.0	0.0
0.01	32.0	25.0	75.0	0.755682	0.074074	0.010417	0.018265
0.02	32.0	25.0	75.0	0.906818	0.0	0.0	0.0
0.03	32.0	25.0	75.0	0.973864	0.0	0.0	0.0
0.04	32.0	25.0	75.0	0.989773	0.0	0.0	0.0
0.01	32.0	50.0	75.0	0.751136	0.090909	0.015625	0.026667
0.02	32.0	50.0	75.0	0.907955	0.0	0.0	0.0
0.03	32.0	50.0	75.0	0.973864	0.0	0.0	0.0
0.04	32.0	50.0	75.0	0.989773	0.0	0.0	0.0
0.01	32.0	75.0	75.0	0.764773	0.241379	0.036458	0.063348
0.02	32.0	75.0	75.0	0.905682	0.133333	0.027778	0.045977
0.03	32.0	75.0	75.0	0.973864	0.0	0.0	0.0
0.04	32.0	75.0	75.0	0.989773	0.0	0.0	0.0
0.01	32.0	100.0	75.0	0.753409	0.222222	0.052083	0.084388
0.02	32.0	100.0	75.0	0.903409	0.117647	0.027778	0.044944
0.03	32.0	100.0	75.0	0.972727	0.0	0.0	0.0
0.04	32.0	100.0	75.0	0.989773	0.0	0.0	0.0
0.01	48.0	25.0	75.0	0.773864	0.230769	0.015625	0.029268
0.02	48.0	25.0	75.0	0.915909	0.0	0.0	0.0
0.03	48.0	25.0	75.0	0.973864	0.0	0.0	0.0
0.04	48.0	25.0	75.0	0.989773	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.770455	0.222222	0.020833	0.038095
0.02	48.0	50.0	75.0	0.913636	0.0	0.0	0.0
0.03	48.0	50.0	75.0	0.973864	0.0	0.0	0.0
0.04	48.0	50.0	75.0	0.989773	0.0	0.0	0.0
0.01	48.0	75.0	75.0	0.756818	0.133333	0.020833	0.036036
0.02	48.0	75.0	75.0	0.905682	0.0	0.0	0.0
0.03	48.0	75.0	75.0	0.973864	0.0	0.0	0.0
0.04	48.0	75.0	75.0	0.989773	0.0	0.0	0.0
0.01	48.0	100.0	75.0	0.760227	0.172414	0.026042	0.045249
0.02	48.0	100.0	75.0	0.9125	0.142857	0.013889	0.025316
0.03	48.0	100.0	75.0	0.973864	0.0	0.0	0.0
0.04	48.0	100.0	75.0	0.989773	0.0	0.0	0.0
0.01	64.0	25.0	75.0	0.778409	0.333333	0.015625	0.029851
0.02	64.0	25.0	75.0	0.914773	0.0	0.0	0.0
0.03	64.0	25.0	75.0	0.972727	0.0	0.0	0.0
0.04	64.0	25.0	75.0	0.989773	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.773864	0.230769	0.015625	0.029268
0.02	64.0	50.0	75.0	0.9125	0.0	0.0	0.0
0.03	64.0	50.0	75.0	0.972727	0.0	0.0	0.0
0.04	64.0	50.0	75.0	0.989773	0.0	0.0	0.0
0.01	64.0	75.0	75.0	0.764773	0.2	0.026042	0.046083
0.02	64.0	75.0	75.0	0.909091	0.1	0.013889	0.02439
0.03	64.0	75.0	75.0	0.971591	0.0	0.0	0.0
0.04	64.0	75.0	75.0	0.989773	0.0	0.0	0.0
0.01	64.0	100.0	75.0	0.767045	0.157895	0.015625	0.028436
0.02	64.0	100.0	75.0	0.910227	0.0	0.0	0.0
0.03	64.0	100.0	75.0	0.971591	0.0	0.0	0.0
0.04	64.0	100.0	75.0	0.989773	0.0	0.0	0.0
0.01	25.0	25.0	50.0	0.772727	0.214286	0.015625	0.029126
0.02	25.0	25.0	50.0	0.909091	0.0	0.0	0.0
0.03	25.0	25.0	50.0	0.972727	0.0	0.0	0.0
0.04	25.0	25.0	50.0	0.989773	0.0	0.0	0.0
0.01	25.0	50.0	50.0	0.776136	0.272727	0.015625	0.029557
0.02	25.0	50.0	50.0	0.905682	0.0	0.0	0.0
0.03	25.0	50.0	50.0	0.973864	0.0	0.0	0.0
0.04	25.0	50.0	50.0	0.989773	0.0	0.0	0.0
0.01	25.0	75.0	50.0	0.763636	0.166667	0.020833	0.037037
0.02	25.0	75.0	50.0	0.910227	0.0	0.0	0.0
0.03	25.0	75.0	50.0	0.973864	0.0	0.0	0.0
0.04	25.0	75.0	50.0	0.989773	0.0	0.0	0.0
0.01	25.0	100.0	50.0	0.773864	0.266667	0.020833	0.038647
0.02	25.0	100.0	50.0	0.9125	0.0	0.0	0.0
0.03	25.0	100.0	50.0	0.970455	0.0	0.0	0.0
0.04	25.0	100.0	50.0	0.989773	0.0	0.0	0.0
0.01	32.0	25.0	50.0	0.771591	0.153846	0.010417	0.019512
0.02	32.0	25.0	50.0	0.906818	0.0	0.0	0.0
0.03	32.0	25.0	50.0	0.973864	0.0	0.0	0.0

0.04	32.0	25.0	50.0	0.989773	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.769318	0.176471	0.015625	0.028708
0.02	32.0	50.0	50.0	0.906818	0.0	0.0	0.0
0.03	32.0	50.0	50.0	0.973864	0.0	0.0	0.0
0.04	32.0	50.0	50.0	0.989773	0.0	0.0	0.0
0.01	32.0	75.0	50.0	0.769318	0.176471	0.015625	0.028708
0.02	32.0	75.0	50.0	0.911364	0.0	0.0	0.0
0.03	32.0	75.0	50.0	0.973864	0.0	0.0	0.0
0.04	32.0	75.0	50.0	0.989773	0.0	0.0	0.0
0.01	32.0	100.0	50.0	0.770455	0.222222	0.020833	0.038095
0.02	32.0	100.0	50.0	0.901136	0.058824	0.013889	0.022472
0.03	32.0	100.0	50.0	0.973864	0.0	0.0	0.0
0.04	32.0	100.0	50.0	0.989773	0.0	0.0	0.0
0.01	48.0	25.0	50.0	0.781818	0.5	0.015625	0.030303
0.02	48.0	25.0	50.0	0.915909	0.0	0.0	0.0
0.03	48.0	25.0	50.0	0.973864	0.0	0.0	0.0
0.04	48.0	25.0	50.0	0.989773	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.764773	0.105263	0.010417	0.018957
0.02	48.0	50.0	50.0	0.907955	0.0	0.0	0.0
0.03	48.0	50.0	50.0	0.973864	0.0	0.0	0.0
0.04	48.0	50.0	50.0	0.989773	0.0	0.0	0.0
0.01	48.0	75.0	50.0	0.770455	0.1875	0.015625	0.028846
0.02	48.0	75.0	50.0	0.9125	0.0	0.0	0.0
0.03	48.0	75.0	50.0	0.973864	0.0	0.0	0.0
0.04	48.0	75.0	50.0	0.986364	0.0	0.0	0.0
0.01	48.0	100.0	50.0	0.763636	0.136364	0.015625	0.028037
0.02	48.0	100.0	50.0	0.904545	0.0	0.0	0.0
0.03	48.0	100.0	50.0	0.971591	0.0	0.0	0.0
0.04	48.0	100.0	50.0	0.989773	0.0	0.0	0.0
0.01	64.0	25.0	50.0	0.779545	0.0	0.0	0.0
0.02	64.0	25.0	50.0	0.918182	0.0	0.0	0.0
0.03	64.0	25.0	50.0	0.973864	0.0	0.0	0.0
0.04	64.0	25.0	50.0	0.989773	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.773864	0.111111	0.005208	0.00995
0.02	64.0	50.0	50.0	0.913636	0.0	0.0	0.0
0.03	64.0	50.0	50.0	0.972727	0.0	0.0	0.0
0.04	64.0	50.0	50.0	0.9875	0.0	0.0	0.0
0.01	64.0	75.0	50.0	0.767045	0.066667	0.005208	0.009662
0.02	64.0	75.0	50.0	0.9125	0.142857	0.013889	0.025316
0.03	64.0	75.0	50.0	0.971591	0.0	0.0	0.0
0.04	64.0	75.0	50.0	0.989773	0.0	0.0	0.0
0.01	64.0	100.0	50.0	0.775	0.3125	0.026042	0.048077
0.02	64.0	100.0	50.0	0.907955	0.0	0.0	0.0
0.03	64.0	100.0	50.0	0.972727	0.0	0.0	0.0
0.04	64.0	100.0	50.0	0.989773	0.0	0.0	0.0
0.01	25.0	25.0	100.0	0.773864	0.230769	0.015625	0.029268
0.02	25.0	25.0	100.0	0.911364	0.0	0.0	0.0
0.03	25.0	25.0	100.0	0.973864	0.0	0.0	0.0
0.04	25.0	25.0	100.0	0.989773	0.0	0.0	0.0
0.01	25.0	50.0	100.0	0.771591	0.2	0.015625	0.028986
0.02	25.0	50.0	100.0	0.898864	0.0	0.0	0.0
0.03	25.0	50.0	100.0	0.973864	0.0	0.0	0.0
0.04	25.0	50.0	100.0	0.989773	0.0	0.0	0.0
0.01	25.0	75.0	100.0	0.759091	0.236842	0.046875	0.078261
0.02	25.0	75.0	100.0	0.901136	0.105263	0.027778	0.043956
0.03	25.0	75.0	100.0	0.972727	0.0	0.0	0.0
0.04	25.0	75.0	100.0	0.989773	0.0	0.0	0.0
0.01	25.0	100.0	100.0	0.757955	0.276596	0.067708	0.108787
0.02	25.0	100.0	100.0	0.898864	0.130435	0.041667	0.063158
0.03	25.0	100.0	100.0	0.971591	0.0	0.0	0.0
0.04	25.0	100.0	100.0	0.988636	0.0	0.0	0.0
0.01	32.0	25.0	100.0	0.772727	0.166667	0.010417	0.019608
0.02	32.0	25.0	100.0	0.910227	0.0	0.0	0.0
0.03	32.0	25.0	100.0	0.973864	0.0	0.0	0.0
0.04	32.0	25.0	100.0	0.9875	0.0	0.0	0.0
0.01	32.0	50.0	100.0	0.772727	0.25	0.020833	0.038462
0.02	32.0	50.0	100.0	0.904545	0.0	0.0	0.0
0.03	32.0	50.0	100.0	0.973864	0.0	0.0	0.0
0.04	32.0	50.0	100.0	0.989773	0.0	0.0	0.0
0.01	32.0	75.0	100.0	0.75	0.15	0.03125	0.051724
0.02	32.0	75.0	100.0	0.902273	0.111111	0.027778	0.044444
0.03	32.0	75.0	100.0	0.973864	0.0	0.0	0.0
0.04	32.0	75.0	100.0	0.989773	0.0	0.0	0.0
0.01	32.0	100.0	100.0	0.752273	0.190476	0.041667	0.068376
0.02	32.0	100.0	100.0	0.911364	0.2	0.027778	0.04878
0.03	32.0	100.0	100.0	0.971591	0.0	0.0	0.0

0.04	32.0	100.0	100.0	0.989773	0.0	0.0	0.0
0.01	48.0	25.0	100.0	0.773864	0.230769	0.015625	0.029268
0.02	48.0	25.0	100.0	0.914773	0.0	0.0	0.0
0.03	48.0	25.0	100.0	0.973864	0.0	0.0	0.0
0.04	48.0	25.0	100.0	0.988636	0.0	0.0	0.0
0.01	48.0	50.0	100.0	0.771591	0.2	0.015625	0.028986
0.02	48.0	50.0	100.0	0.907955	0.0	0.0	0.0
0.03	48.0	50.0	100.0	0.973864	0.0	0.0	0.0
0.04	48.0	50.0	100.0	0.989773	0.0	0.0	0.0
0.01	48.0	75.0	100.0	0.744318	0.133333	0.03125	0.050633
0.02	48.0	75.0	100.0	0.909091	0.1	0.013889	0.02439
0.03	48.0	75.0	100.0	0.972727	0.0	0.0	0.0
0.04	48.0	75.0	100.0	0.989773	0.0	0.0	0.0
0.01	48.0	100.0	100.0	0.75	0.15	0.03125	0.051724
0.02	48.0	100.0	100.0	0.903409	0.117647	0.027778	0.044944
0.03	48.0	100.0	100.0	0.973864	0.0	0.0	0.0
0.04	48.0	100.0	100.0	0.989773	0.0	0.0	0.0
0.01	64.0	25.0	100.0	0.777273	0.25	0.010417	0.02
0.02	64.0	25.0	100.0	0.913636	0.0	0.0	0.0
0.03	64.0	25.0	100.0	0.973864	0.0	0.0	0.0
0.04	64.0	25.0	100.0	0.989773	0.0	0.0	0.0
0.01	64.0	50.0	100.0	0.772727	0.25	0.020833	0.038462
0.02	64.0	50.0	100.0	0.911364	0.0	0.0	0.0
0.03	64.0	50.0	100.0	0.972727	0.0	0.0	0.0
0.04	64.0	50.0	100.0	0.989773	0.0	0.0	0.0
0.01	64.0	75.0	100.0	0.744318	0.133333	0.03125	0.050633
0.02	64.0	75.0	100.0	0.911364	0.2	0.027778	0.04878
0.03	64.0	75.0	100.0	0.972727	0.0	0.0	0.0
0.04	64.0	75.0	100.0	0.989773	0.0	0.0	0.0
0.01	64.0	100.0	100.0	0.764773	0.2	0.026042	0.046083
0.02	64.0	100.0	100.0	0.913636	0.0	0.0	0.0
0.03	64.0	100.0	100.0	0.972727	0.0	0.0	0.0
0.04	64.0	100.0	100.0	0.988636	0.0	0.0	0.0



507685 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.784598	0.5	0.005181	0.010256
0.02	25.0	25.0	25.0	0.895089	0.0	0.0	0.0
0.03	25.0	25.0	25.0	0.944196	0.0	0.0	0.0
0.04	25.0	25.0	25.0	0.970982	0.0	0.0	0.0
0.01	25.0	50.0	25.0	0.777902	0.25	0.015544	0.029268
0.02	25.0	50.0	25.0	0.895089	0.0	0.0	0.0
0.03	25.0	50.0	25.0	0.94308	0.0	0.0	0.0
0.04	25.0	50.0	25.0	0.970982	0.333333	0.04	0.071429
0.01	25.0	75.0	25.0	0.777902	0.35	0.036269	0.065728
0.02	25.0	75.0	25.0	0.892857	0.333333	0.021277	0.04
0.03	25.0	75.0	25.0	0.941964	0.333333	0.04	0.071429
0.04	25.0	75.0	25.0	0.973214	1.0	0.04	0.076923
0.01	25.0	100.0	25.0	0.767857	0.317073	0.067358	0.111111
0.02	25.0	100.0	25.0	0.893973	0.454545	0.053191	0.095238
0.03	25.0	100.0	25.0	0.939732	0.166667	0.02	0.035714
0.04	25.0	100.0	25.0	0.965402	0.125	0.04	0.060606
0.01	32.0	25.0	25.0	0.784598	0.5	0.005181	0.010256
0.02	32.0	25.0	25.0	0.893973	0.0	0.0	0.0
0.03	32.0	25.0	25.0	0.94308	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.970982	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.783482	0.333333	0.005181	0.010204
0.02	32.0	50.0	25.0	0.893973	0.0	0.0	0.0
0.03	32.0	50.0	25.0	0.94308	0.0	0.0	0.0
0.04	32.0	50.0	25.0	0.970982	0.0	0.0	0.0
0.01	32.0	75.0	25.0	0.776786	0.37037	0.051813	0.090909
0.02	32.0	75.0	25.0	0.896205	0.666667	0.021277	0.041237
0.03	32.0	75.0	25.0	0.941964	0.25	0.02	0.037037
0.04	32.0	75.0	25.0	0.969866	0.25	0.04	0.068966
0.01	32.0	100.0	25.0	0.771205	0.3	0.046632	0.080717
0.02	32.0	100.0	25.0	0.893973	0.444444	0.042553	0.07767
0.03	32.0	100.0	25.0	0.94308	0.454545	0.1	0.163934
0.04	32.0	100.0	25.0	0.969866	0.25	0.04	0.068966
0.01	48.0	25.0	25.0	0.783482	0.0	0.0	0.0
0.02	48.0	25.0	25.0	0.892857	0.0	0.0	0.0
0.03	48.0	25.0	25.0	0.944196	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.972098	0.0	0.0	0.0
0.01	48.0	50.0	25.0	0.785714	0.666667	0.010363	0.020408
0.02	48.0	50.0	25.0	0.893973	0.0	0.0	0.0
0.03	48.0	50.0	25.0	0.944196	0.0	0.0	0.0
0.04	48.0	50.0	25.0	0.970982	0.0	0.0	0.0
0.01	48.0	75.0	25.0	0.784598	0.5	0.025907	0.049261
0.02	48.0	75.0	25.0	0.892857	0.0	0.0	0.0
0.03	48.0	75.0	25.0	0.940848	0.2	0.02	0.036364
0.04	48.0	75.0	25.0	0.972098	0.5	0.04	0.074074
0.01	48.0	100.0	25.0	0.78125	0.363636	0.020725	0.039216
0.02	48.0	100.0	25.0	0.895089	0.5	0.042553	0.078431
0.03	48.0	100.0	25.0	0.941964	0.25	0.02	0.037037
0.04	48.0	100.0	25.0	0.973214	0.666667	0.08	0.142857
0.01	64.0	25.0	25.0	0.783482	0.0	0.0	0.0
0.02	64.0	25.0	25.0	0.893973	0.0	0.0	0.0
0.03	64.0	25.0	25.0	0.944196	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.970982	0.0	0.0	0.0
0.01	64.0	50.0	25.0	0.784598	0.0	0.0	0.0
0.02	64.0	50.0	25.0	0.893973	0.0	0.0	0.0
0.03	64.0	50.0	25.0	0.94308	0.0	0.0	0.0
0.04	64.0	50.0	25.0	0.970982	0.0	0.0	0.0
0.01	64.0	75.0	25.0	0.78125	0.363636	0.020725	0.039216
0.02	64.0	75.0	25.0	0.895089	0.5	0.021277	0.040816
0.03	64.0	75.0	25.0	0.94308	0.0	0.0	0.0
0.04	64.0	75.0	25.0	0.972098	0.5	0.04	0.074074
0.01	64.0	100.0	25.0	0.785714	0.526316	0.051813	0.09434
0.02	64.0	100.0	25.0	0.895089	0.5	0.010638	0.020833
0.03	64.0	100.0	25.0	0.94308	0.4	0.04	0.072727
0.04	64.0	100.0	25.0	0.970982	0.0	0.0	0.0
0.01	25.0	25.0	75.0	0.78125	0.363636	0.020725	0.039216
0.02	25.0	25.0	75.0	0.895089	0.0	0.0	0.0
0.03	25.0	25.0	75.0	0.94308	0.0	0.0	0.0
0.04	25.0	25.0	75.0	0.970982	0.0	0.0	0.0
0.01	25.0	50.0	75.0	0.763393	0.27907	0.062176	0.101695
0.02	25.0	50.0	75.0	0.895089	0.5	0.031915	0.06
0.03	25.0	50.0	75.0	0.941964	0.333333	0.04	0.071429

0.04	25.0	50.0	75.0	0.969866	0.25	0.04	0.068966
0.01	25.0	75.0	75.0	0.756696	0.333333	0.129534	0.186567
0.02	25.0	75.0	75.0	0.892857	0.444444	0.085106	0.142857
0.03	25.0	75.0	75.0	0.936384	0.230769	0.06	0.095238
0.04	25.0	75.0	75.0	0.959821	0.176471	0.12	0.142857
0.01	25.0	100.0	75.0	0.732143	0.271845	0.145078	0.189189
0.02	25.0	100.0	75.0	0.873884	0.268293	0.117021	0.162963
0.03	25.0	100.0	75.0	0.928571	0.15	0.06	0.085714
0.04	25.0	100.0	75.0	0.960938	0.142857	0.08	0.102564
0.01	32.0	25.0	75.0	0.782366	0.0	0.0	0.0
0.02	32.0	25.0	75.0	0.893973	0.0	0.0	0.0
0.03	32.0	25.0	75.0	0.94308	0.0	0.0	0.0
0.04	32.0	25.0	75.0	0.970982	0.0	0.0	0.0
0.01	32.0	50.0	75.0	0.776786	0.4	0.072539	0.122807
0.02	32.0	50.0	75.0	0.890625	0.3	0.031915	0.057692
0.03	32.0	50.0	75.0	0.944196	0.5	0.06	0.107143
0.04	32.0	50.0	75.0	0.969866	0.333333	0.08	0.129032
0.01	32.0	75.0	75.0	0.75558	0.355556	0.165803	0.226148
0.02	32.0	75.0	75.0	0.887277	0.315789	0.06383	0.106195
0.03	32.0	75.0	75.0	0.930804	0.125	0.04	0.060606
0.04	32.0	75.0	75.0	0.962054	0.153846	0.08	0.105263
0.01	32.0	100.0	75.0	0.752232	0.306667	0.119171	0.171642
0.02	32.0	100.0	75.0	0.883929	0.34375	0.117021	0.174603
0.03	32.0	100.0	75.0	0.936384	0.266667	0.08	0.123077
0.04	32.0	100.0	75.0	0.965402	0.285714	0.16	0.205128
0.01	48.0	25.0	75.0	0.784598	0.5	0.015544	0.030151
0.02	48.0	25.0	75.0	0.893973	0.0	0.0	0.0
0.03	48.0	25.0	75.0	0.94308	0.0	0.0	0.0
0.04	48.0	25.0	75.0	0.970982	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.780134	0.409091	0.046632	0.083721
0.02	48.0	50.0	75.0	0.896205	0.6	0.031915	0.060606
0.03	48.0	50.0	75.0	0.941964	0.333333	0.04	0.071429
0.04	48.0	50.0	75.0	0.96875	0.2	0.04	0.066667
0.01	48.0	75.0	75.0	0.761161	0.243902	0.051813	0.08547
0.02	48.0	75.0	75.0	0.886161	0.3	0.06383	0.105263
0.03	48.0	75.0	75.0	0.935268	0.25	0.08	0.121212
0.04	48.0	75.0	75.0	0.965402	0.2	0.08	0.114286
0.01	48.0	100.0	75.0	0.742188	0.27381	0.119171	0.166065
0.02	48.0	100.0	75.0	0.878348	0.258065	0.085106	0.128
0.03	48.0	100.0	75.0	0.934152	0.285714	0.12	0.169014
0.04	48.0	100.0	75.0	0.960938	0.1875	0.12	0.146341
0.01	64.0	25.0	75.0	0.783482	0.0	0.0	0.0
0.02	64.0	25.0	75.0	0.892857	0.0	0.0	0.0
0.03	64.0	25.0	75.0	0.94308	0.0	0.0	0.0
0.04	64.0	25.0	75.0	0.970982	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.773438	0.333333	0.051813	0.089686
0.02	64.0	50.0	75.0	0.896205	0.666667	0.021277	0.041237
0.03	64.0	50.0	75.0	0.94308	0.333333	0.02	0.037736
0.04	64.0	50.0	75.0	0.969866	0.25	0.04	0.068966
0.01	64.0	75.0	75.0	0.75558	0.319444	0.119171	0.173585
0.02	64.0	75.0	75.0	0.896205	0.545455	0.06383	0.114286
0.03	64.0	75.0	75.0	0.939732	0.166667	0.02	0.035714
0.04	64.0	75.0	75.0	0.967634	0.25	0.08	0.121212
0.01	64.0	100.0	75.0	0.75558	0.319444	0.119171	0.173585
0.02	64.0	100.0	75.0	0.882812	0.238095	0.053191	0.086957
0.03	64.0	100.0	75.0	0.938616	0.307692	0.08	0.126984
0.04	64.0	100.0	75.0	0.96317	0.214286	0.12	0.153846
0.01	25.0	25.0	50.0	0.783482	0.0	0.0	0.0
0.02	25.0	25.0	50.0	0.893973	0.0	0.0	0.0
0.03	25.0	25.0	50.0	0.94308	0.0	0.0	0.0
0.04	25.0	25.0	50.0	0.970982	0.0	0.0	0.0
0.01	25.0	50.0	50.0	0.780134	0.433333	0.067358	0.116592
0.02	25.0	50.0	50.0	0.896205	0.666667	0.021277	0.041237
0.03	25.0	50.0	50.0	0.940848	0.2	0.02	0.036364
0.04	25.0	50.0	50.0	0.972098	0.5	0.04	0.074074
0.01	25.0	75.0	50.0	0.761161	0.230769	0.046632	0.077586
0.02	25.0	75.0	50.0	0.885045	0.235294	0.042553	0.072072
0.03	25.0	75.0	50.0	0.940848	0.333333	0.06	0.101695
0.04	25.0	75.0	50.0	0.96317	0.214286	0.12	0.153846
0.01	25.0	100.0	50.0	0.743304	0.301075	0.145078	0.195804
0.02	25.0	100.0	50.0	0.890625	0.4	0.085106	0.140351
0.03	25.0	100.0	50.0	0.935268	0.25	0.08	0.121212
0.04	25.0	100.0	50.0	0.959821	0.133333	0.08	0.1
0.01	32.0	25.0	50.0	0.784598	0.0	0.0	0.0
0.02	32.0	25.0	50.0	0.893973	0.0	0.0	0.0
0.03	32.0	25.0	50.0	0.94308	0.0	0.0	0.0

0.04	32.0	25.0	50.0	0.970982	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.77567	0.333333	0.041451	0.073733
0.02	32.0	50.0	50.0	0.892857	0.25	0.010638	0.020408
0.03	32.0	50.0	50.0	0.939732	0.0	0.0	0.0
0.04	32.0	50.0	50.0	0.970982	0.333333	0.04	0.071429
0.01	32.0	75.0	50.0	0.765625	0.311111	0.072539	0.117647
0.02	32.0	75.0	50.0	0.886161	0.166667	0.021277	0.037736
0.03	32.0	75.0	50.0	0.939732	0.3	0.06	0.1
0.04	32.0	75.0	50.0	0.96875	0.2	0.04	0.066667
0.01	32.0	100.0	50.0	0.751116	0.302632	0.119171	0.171004
0.02	32.0	100.0	50.0	0.881696	0.166667	0.031915	0.053571
0.03	32.0	100.0	50.0	0.938616	0.333333	0.1	0.153846
0.04	32.0	100.0	50.0	0.965402	0.2	0.08	0.114286
0.01	48.0	25.0	50.0	0.782366	0.0	0.0	0.0
0.02	48.0	25.0	50.0	0.893973	0.0	0.0	0.0
0.03	48.0	25.0	50.0	0.944196	0.0	0.0	0.0
0.04	48.0	25.0	50.0	0.970982	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.782366	0.45	0.046632	0.084507
0.02	48.0	50.0	50.0	0.892857	0.0	0.0	0.0
0.03	48.0	50.0	50.0	0.941964	0.25	0.02	0.037037
0.04	48.0	50.0	50.0	0.970982	0.333333	0.04	0.071429
0.01	48.0	75.0	50.0	0.765625	0.282051	0.056995	0.094828
0.02	48.0	75.0	50.0	0.889509	0.333333	0.053191	0.091743
0.03	48.0	75.0	50.0	0.941964	0.333333	0.04	0.071429
0.04	48.0	75.0	50.0	0.967634	0.0	0.0	0.0
0.01	48.0	100.0	50.0	0.756696	0.209302	0.046632	0.076271
0.02	48.0	100.0	50.0	0.888393	0.3125	0.053191	0.090909
0.03	48.0	100.0	50.0	0.939732	0.25	0.04	0.068966
0.04	48.0	100.0	50.0	0.967634	0.25	0.08	0.121212
0.01	64.0	25.0	50.0	0.784598	0.5	0.010363	0.020305
0.02	64.0	25.0	50.0	0.892857	0.0	0.0	0.0
0.03	64.0	25.0	50.0	0.94308	0.0	0.0	0.0
0.04	64.0	25.0	50.0	0.970982	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.779018	0.368421	0.036269	0.066038
0.02	64.0	50.0	50.0	0.892857	0.333333	0.021277	0.04
0.03	64.0	50.0	50.0	0.944196	0.0	0.0	0.0
0.04	64.0	50.0	50.0	0.970982	0.0	0.0	0.0
0.01	64.0	75.0	50.0	0.767857	0.325581	0.072539	0.118644
0.02	64.0	75.0	50.0	0.896205	0.571429	0.042553	0.079208
0.03	64.0	75.0	50.0	0.94308	0.4	0.04	0.072727
0.04	64.0	75.0	50.0	0.970982	0.333333	0.04	0.071429
0.01	64.0	100.0	50.0	0.762277	0.307692	0.082902	0.130612
0.02	64.0	100.0	50.0	0.890625	0.333333	0.042553	0.075472
0.03	64.0	100.0	50.0	0.940848	0.363636	0.08	0.131148
0.04	64.0	100.0	50.0	0.96875	0.2	0.04	0.066667
0.01	25.0	25.0	100.0	0.777902	0.2	0.010363	0.019704
0.02	25.0	25.0	100.0	0.893973	0.0	0.0	0.0
0.03	25.0	25.0	100.0	0.94308	0.333333	0.02	0.037736
0.04	25.0	25.0	100.0	0.969866	0.25	0.04	0.068966
0.01	25.0	50.0	100.0	0.74442	0.269231	0.108808	0.154982
0.02	25.0	50.0	100.0	0.890625	0.3	0.031915	0.057692
0.03	25.0	50.0	100.0	0.935268	0.214286	0.06	0.09375
0.04	25.0	50.0	100.0	0.96875	0.285714	0.08	0.125
0.01	25.0	75.0	100.0	0.748884	0.3	0.124352	0.175824
0.02	25.0	75.0	100.0	0.878348	0.272727	0.095745	0.141732
0.03	25.0	75.0	100.0	0.935268	0.25	0.08	0.121212
0.04	25.0	75.0	100.0	0.954241	0.136364	0.12	0.12766
0.01	25.0	100.0	100.0	0.720982	0.268293	0.170984	0.208861
0.02	25.0	100.0	100.0	0.878348	0.297297	0.117021	0.167939
0.03	25.0	100.0	100.0	0.933036	0.321429	0.18	0.230769
0.04	25.0	100.0	100.0	0.957589	0.117647	0.08	0.095238
0.01	32.0	25.0	100.0	0.783482	0.0	0.0	0.0
0.02	32.0	25.0	100.0	0.893973	0.0	0.0	0.0
0.03	32.0	25.0	100.0	0.94308	0.0	0.0	0.0
0.04	32.0	25.0	100.0	0.970982	0.0	0.0	0.0
0.01	32.0	50.0	100.0	0.765625	0.27027	0.051813	0.086957
0.02	32.0	50.0	100.0	0.891741	0.4	0.06383	0.110092
0.03	32.0	50.0	100.0	0.940848	0.363636	0.08	0.131148
0.04	32.0	50.0	100.0	0.960938	0.083333	0.04	0.054054
0.01	32.0	75.0	100.0	0.728795	0.272727	0.15544	0.19802
0.02	32.0	75.0	100.0	0.878348	0.258065	0.085106	0.128
0.03	32.0	75.0	100.0	0.935268	0.3	0.12	0.171429
0.04	32.0	75.0	100.0	0.96317	0.166667	0.08	0.108108
0.01	32.0	100.0	100.0	0.729911	0.312977	0.212435	0.253086
0.02	32.0	100.0	100.0	0.863839	0.208333	0.106383	0.140845
0.03	32.0	100.0	100.0	0.930804	0.25	0.12	0.162162

0.04	32.0	100.0	100.0	0.956473	0.111111	0.08	0.093023
0.01	48.0	25.0	100.0	0.782366	0.375	0.015544	0.029851
0.02	48.0	25.0	100.0	0.892857	0.0	0.0	0.0
0.03	48.0	25.0	100.0	0.94308	0.0	0.0	0.0
0.04	48.0	25.0	100.0	0.970982	0.0	0.0	0.0
0.01	48.0	50.0	100.0	0.772321	0.365854	0.07772	0.128205
0.02	48.0	50.0	100.0	0.892857	0.375	0.031915	0.058824
0.03	48.0	50.0	100.0	0.941964	0.333333	0.04	0.071429
0.04	48.0	50.0	100.0	0.967634	0.166667	0.04	0.064516
0.01	48.0	75.0	100.0	0.735491	0.270833	0.134715	0.179931
0.02	48.0	75.0	100.0	0.889509	0.380952	0.085106	0.13913
0.03	48.0	75.0	100.0	0.936384	0.333333	0.14	0.197183
0.04	48.0	75.0	100.0	0.960938	0.142857	0.08	0.102564
0.01	48.0	100.0	100.0	0.729911	0.283186	0.165803	0.20915
0.02	48.0	100.0	100.0	0.875	0.263158	0.106383	0.151515
0.03	48.0	100.0	100.0	0.924107	0.178571	0.1	0.128205
0.04	48.0	100.0	100.0	0.959821	0.176471	0.12	0.142857
0.01	64.0	25.0	100.0	0.782366	0.333333	0.010363	0.020101
0.02	64.0	25.0	100.0	0.892857	0.0	0.0	0.0
0.03	64.0	25.0	100.0	0.94308	0.0	0.0	0.0
0.04	64.0	25.0	100.0	0.970982	0.0	0.0	0.0
0.01	64.0	50.0	100.0	0.770089	0.333333	0.067358	0.112069
0.02	64.0	50.0	100.0	0.893973	0.444444	0.042553	0.07767
0.03	64.0	50.0	100.0	0.939732	0.166667	0.02	0.035714
0.04	64.0	50.0	100.0	0.969866	0.25	0.04	0.068966
0.01	64.0	75.0	100.0	0.748884	0.3	0.124352	0.175824
0.02	64.0	75.0	100.0	0.887277	0.315789	0.06383	0.106195
0.03	64.0	75.0	100.0	0.941964	0.428571	0.12	0.1875
0.04	64.0	75.0	100.0	0.964286	0.181818	0.08	0.111111
0.01	64.0	100.0	100.0	0.733259	0.232558	0.103627	0.143369
0.02	64.0	100.0	100.0	0.88058	0.259259	0.074468	0.115702
0.03	64.0	100.0	100.0	0.928571	0.181818	0.08	0.111111
0.04	64.0	100.0	100.0	0.962054	0.2	0.12	0.15

530965 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.732961	1.0	0.012397	0.02449
0.02	25.0	25.0	25.0	0.865922	0.0	0.0	0.0
0.03	25.0	25.0	25.0	0.930726	0.5	0.016129	0.03125
0.04	25.0	25.0	25.0	0.964246	0.0	0.0	0.0
0.01	25.0	50.0	25.0	0.727374	0.375	0.012397	0.024
0.02	25.0	50.0	25.0	0.867039	0.5	0.016807	0.03252
0.03	25.0	50.0	25.0	0.930726	0.0	0.0	0.0
0.04	25.0	50.0	25.0	0.963128	0.333333	0.03125	0.057143
0.01	25.0	75.0	25.0	0.729609	0.5	0.020661	0.039683
0.02	25.0	75.0	25.0	0.869274	0.75	0.02521	0.04878
0.03	25.0	75.0	25.0	0.931844	0.666667	0.032258	0.061538
0.04	25.0	75.0	25.0	0.965363	1.0	0.03125	0.060606
0.01	25.0	100.0	25.0	0.734078	0.666667	0.033058	0.062992
0.02	25.0	100.0	25.0	0.868156	0.666667	0.016807	0.032787
0.03	25.0	100.0	25.0	0.930726	0.5	0.016129	0.03125
0.04	25.0	100.0	25.0	0.962011	0.25	0.03125	0.055556
0.01	32.0	25.0	25.0	0.731844	0.625	0.020661	0.04
0.02	32.0	25.0	25.0	0.867039	0.0	0.0	0.0
0.03	32.0	25.0	25.0	0.930726	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.963128	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.732961	0.8	0.016529	0.032389
0.02	32.0	50.0	25.0	0.867039	0.5	0.008403	0.016529
0.03	32.0	50.0	25.0	0.931844	0.666667	0.032258	0.061538
0.04	32.0	50.0	25.0	0.963128	0.0	0.0	0.0
0.01	32.0	75.0	25.0	0.726257	0.411765	0.028926	0.054054
0.02	32.0	75.0	25.0	0.865922	0.428571	0.02521	0.047619
0.03	32.0	75.0	25.0	0.929609	0.0	0.0	0.0
0.04	32.0	75.0	25.0	0.962011	0.25	0.03125	0.055556
0.01	32.0	100.0	25.0	0.727374	0.416667	0.020661	0.03937
0.02	32.0	100.0	25.0	0.867039	0.5	0.008403	0.016529
0.03	32.0	100.0	25.0	0.931844	0.666667	0.032258	0.061538
0.04	32.0	100.0	25.0	0.963128	0.333333	0.03125	0.057143
0.01	48.0	25.0	25.0	0.731844	1.0	0.008264	0.016393
0.02	48.0	25.0	25.0	0.867039	0.0	0.0	0.0
0.03	48.0	25.0	25.0	0.929609	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.964246	0.0	0.0	0.0
0.01	48.0	50.0	25.0	0.732961	0.666667	0.024793	0.047809
0.02	48.0	50.0	25.0	0.867039	0.5	0.016807	0.03252
0.03	48.0	50.0	25.0	0.930726	0.5	0.016129	0.03125
0.04	48.0	50.0	25.0	0.964246	0.5	0.03125	0.058824
0.01	48.0	75.0	25.0	0.735196	0.666667	0.041322	0.077821
0.02	48.0	75.0	25.0	0.869274	0.666667	0.033613	0.064
0.03	48.0	75.0	25.0	0.930726	0.5	0.016129	0.03125
0.04	48.0	75.0	25.0	0.964246	0.5	0.03125	0.058824
0.01	48.0	100.0	25.0	0.739665	0.68	0.070248	0.127341
0.02	48.0	100.0	25.0	0.867039	0.5	0.02521	0.048
0.03	48.0	100.0	25.0	0.931844	0.6	0.048387	0.089552
0.04	48.0	100.0	25.0	0.960894	0.2	0.03125	0.054054
0.01	64.0	25.0	25.0	0.732961	1.0	0.012397	0.02449
0.02	64.0	25.0	25.0	0.865922	0.0	0.0	0.0
0.03	64.0	25.0	25.0	0.930726	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.964246	0.0	0.0	0.0
0.01	64.0	50.0	25.0	0.729609	0.5	0.008264	0.01626
0.02	64.0	50.0	25.0	0.867039	0.5	0.016807	0.03252
0.03	64.0	50.0	25.0	0.930726	0.0	0.0	0.0
0.04	64.0	50.0	25.0	0.964246	0.0	0.0	0.0
0.01	64.0	75.0	25.0	0.713966	0.294118	0.041322	0.072464
0.02	64.0	75.0	25.0	0.865922	0.333333	0.008403	0.016393
0.03	64.0	75.0	25.0	0.931844	0.666667	0.032258	0.061538
0.04	64.0	75.0	25.0	0.964246	0.5	0.03125	0.058824
0.01	64.0	100.0	25.0	0.715084	0.355556	0.066116	0.111498
0.02	64.0	100.0	25.0	0.869274	0.625	0.042017	0.07874
0.03	64.0	100.0	25.0	0.929609	0.333333	0.016129	0.030769
0.04	64.0	100.0	25.0	0.964246	0.5	0.03125	0.058824
0.01	25.0	25.0	75.0	0.728492	0.333333	0.004132	0.008163
0.02	25.0	25.0	75.0	0.867039	0.5	0.008403	0.016529
0.03	25.0	25.0	75.0	0.929609	0.0	0.0	0.0
0.04	25.0	25.0	75.0	0.963128	0.0	0.0	0.0
0.01	25.0	50.0	75.0	0.730726	0.555556	0.020661	0.039841
0.02	25.0	50.0	75.0	0.870391	0.8	0.033613	0.064516
0.03	25.0	50.0	75.0	0.931844	0.6	0.048387	0.089552

0.04	25.0	50.0	75.0	0.960894	0.2	0.03125	0.054054
0.01	25.0	75.0	75.0	0.727374	0.470588	0.066116	0.115942
0.02	25.0	75.0	75.0	0.860335	0.285714	0.033613	0.06015
0.03	25.0	75.0	75.0	0.929609	0.428571	0.048387	0.086957
0.04	25.0	75.0	75.0	0.964246	0.5	0.09375	0.157895
0.01	25.0	100.0	75.0	0.728492	0.490196	0.103306	0.170648
0.02	25.0	100.0	75.0	0.865922	0.470588	0.067227	0.117647
0.03	25.0	100.0	75.0	0.929609	0.444444	0.064516	0.112676
0.04	25.0	100.0	75.0	0.959777	0.333333	0.125	0.181818
0.01	32.0	25.0	75.0	0.724022	0.391304	0.03719	0.067925
0.02	32.0	25.0	75.0	0.867039	0.5	0.008403	0.016529
0.03	32.0	25.0	75.0	0.929609	0.0	0.0	0.0
0.04	32.0	25.0	75.0	0.964246	0.5	0.03125	0.058824
0.01	32.0	50.0	75.0	0.735196	0.727273	0.033058	0.063241
0.02	32.0	50.0	75.0	0.869274	0.666667	0.033613	0.064
0.03	32.0	50.0	75.0	0.930726	0.5	0.032258	0.060606
0.04	32.0	50.0	75.0	0.960894	0.0	0.0	0.0
0.01	32.0	75.0	75.0	0.719553	0.378378	0.057851	0.100358
0.02	32.0	75.0	75.0	0.865922	0.428571	0.02521	0.047619
0.03	32.0	75.0	75.0	0.930726	0.5	0.064516	0.114286
0.04	32.0	75.0	75.0	0.963128	0.428571	0.09375	0.153846
0.01	32.0	100.0	75.0	0.726257	0.465116	0.082645	0.140351
0.02	32.0	100.0	75.0	0.864804	0.428571	0.05042	0.090226
0.03	32.0	100.0	75.0	0.927374	0.363636	0.064516	0.109589
0.04	32.0	100.0	75.0	0.956425	0.111111	0.03125	0.04878
0.01	48.0	25.0	75.0	0.730726	0.571429	0.016529	0.032129
0.02	48.0	25.0	75.0	0.867039	0.5	0.008403	0.016529
0.03	48.0	25.0	75.0	0.929609	0.0	0.0	0.0
0.04	48.0	25.0	75.0	0.963128	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.731844	0.545455	0.049587	0.090909
0.02	48.0	50.0	75.0	0.86257	0.25	0.016807	0.031496
0.03	48.0	50.0	75.0	0.930726	0.5	0.048387	0.088235
0.04	48.0	50.0	75.0	0.964246	0.5	0.03125	0.058824
0.01	48.0	75.0	75.0	0.718436	0.391304	0.07438	0.125
0.02	48.0	75.0	75.0	0.864804	0.4	0.033613	0.062016
0.03	48.0	75.0	75.0	0.931844	0.555556	0.080645	0.140845
0.04	48.0	75.0	75.0	0.965363	0.666667	0.0625	0.114286
0.01	48.0	100.0	75.0	0.716201	0.369565	0.070248	0.118056
0.02	48.0	100.0	75.0	0.867039	0.5	0.033613	0.062992
0.03	48.0	100.0	75.0	0.930726	0.5	0.080645	0.138889
0.04	48.0	100.0	75.0	0.965363	0.6	0.09375	0.162162
0.01	64.0	25.0	75.0	0.732961	0.666667	0.024793	0.047809
0.02	64.0	25.0	75.0	0.868156	1.0	0.008403	0.016667
0.03	64.0	25.0	75.0	0.930726	0.0	0.0	0.0
0.04	64.0	25.0	75.0	0.964246	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.734078	0.6	0.049587	0.091603
0.02	64.0	50.0	75.0	0.869274	0.666667	0.033613	0.064
0.03	64.0	50.0	75.0	0.930726	0.5	0.032258	0.060606
0.04	64.0	50.0	75.0	0.963128	0.333333	0.03125	0.057143
0.01	64.0	75.0	75.0	0.722905	0.421053	0.066116	0.114286
0.02	64.0	75.0	75.0	0.868156	0.529412	0.07563	0.132353
0.03	64.0	75.0	75.0	0.930726	0.5	0.032258	0.060606
0.04	64.0	75.0	75.0	0.964246	0.5	0.0625	0.111111
0.01	64.0	100.0	75.0	0.728492	0.487179	0.078512	0.135231
0.02	64.0	100.0	75.0	0.868156	0.538462	0.058824	0.106061
0.03	64.0	100.0	75.0	0.928492	0.4	0.064516	0.111111
0.04	64.0	100.0	75.0	0.964246	0.5	0.0625	0.111111
0.01	25.0	25.0	50.0	0.732961	1.0	0.012397	0.02449
0.02	25.0	25.0	50.0	0.867039	0.0	0.0	0.0
0.03	25.0	25.0	50.0	0.929609	0.0	0.0	0.0
0.04	25.0	25.0	50.0	0.958659	0.142857	0.03125	0.051282
0.01	25.0	50.0	50.0	0.732961	0.714286	0.020661	0.040161
0.02	25.0	50.0	50.0	0.865922	0.333333	0.008403	0.016393
0.03	25.0	50.0	50.0	0.930726	0.5	0.016129	0.03125
0.04	25.0	50.0	50.0	0.962011	0.25	0.03125	0.055556
0.01	25.0	75.0	50.0	0.726257	0.448276	0.053719	0.095941
0.02	25.0	75.0	50.0	0.865922	0.428571	0.02521	0.047619
0.03	25.0	75.0	50.0	0.931844	0.555556	0.080645	0.140845
0.04	25.0	75.0	50.0	0.965363	0.666667	0.0625	0.114286
0.01	25.0	100.0	50.0	0.727374	0.461538	0.049587	0.089552
0.02	25.0	100.0	50.0	0.870391	0.714286	0.042017	0.079365
0.03	25.0	100.0	50.0	0.929609	0.428571	0.048387	0.086957
0.04	25.0	100.0	50.0	0.959777	0.25	0.0625	0.1
0.01	32.0	25.0	50.0	0.731844	1.0	0.008264	0.016393
0.02	32.0	25.0	50.0	0.867039	0.0	0.0	0.0
0.03	32.0	25.0	50.0	0.930726	0.0	0.0	0.0

0.04	32.0	25.0	50.0	0.963128	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.727374	0.464286	0.053719	0.096296
0.02	32.0	50.0	50.0	0.867039	0.5	0.016807	0.03252
0.03	32.0	50.0	50.0	0.931844	0.666667	0.032258	0.061538
0.04	32.0	50.0	50.0	0.963128	0.333333	0.03125	0.057143
0.01	32.0	75.0	50.0	0.735196	0.608696	0.057851	0.10566
0.02	32.0	75.0	50.0	0.869274	0.625	0.042017	0.07874
0.03	32.0	75.0	50.0	0.930726	0.5	0.016129	0.03125
0.04	32.0	75.0	50.0	0.964246	0.5	0.03125	0.058824
0.01	32.0	100.0	50.0	0.739665	0.666667	0.07438	0.133829
0.02	32.0	100.0	50.0	0.869274	0.6	0.05042	0.093023
0.03	32.0	100.0	50.0	0.930726	0.5	0.080645	0.138889
0.04	32.0	100.0	50.0	0.962011	0.375	0.09375	0.15
0.01	48.0	25.0	50.0	0.735196	0.727273	0.033058	0.063241
0.02	48.0	25.0	50.0	0.864804	0.0	0.0	0.0
0.03	48.0	25.0	50.0	0.929609	0.0	0.0	0.0
0.04	48.0	25.0	50.0	0.964246	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.732961	0.6	0.03719	0.070039
0.02	48.0	50.0	50.0	0.868156	0.6	0.02521	0.048387
0.03	48.0	50.0	50.0	0.931844	0.666667	0.032258	0.061538
0.04	48.0	50.0	50.0	0.964246	0.5	0.03125	0.058824
0.01	48.0	75.0	50.0	0.726257	0.463415	0.078512	0.134276
0.02	48.0	75.0	50.0	0.867039	0.5	0.042017	0.077519
0.03	48.0	75.0	50.0	0.931844	0.571429	0.064516	0.115942
0.04	48.0	75.0	50.0	0.964246	0.5	0.03125	0.058824
0.01	48.0	100.0	50.0	0.728492	0.489362	0.095041	0.15917
0.02	48.0	100.0	50.0	0.865922	0.461538	0.05042	0.090909
0.03	48.0	100.0	50.0	0.931844	0.538462	0.112903	0.186667
0.04	48.0	100.0	50.0	0.958659	0.222222	0.0625	0.097561
0.01	64.0	25.0	50.0	0.731844	1.0	0.008264	0.016393
0.02	64.0	25.0	50.0	0.865922	0.0	0.0	0.0
0.03	64.0	25.0	50.0	0.929609	0.0	0.0	0.0
0.04	64.0	25.0	50.0	0.963128	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.730726	0.538462	0.028926	0.054902
0.02	64.0	50.0	50.0	0.865922	0.333333	0.008403	0.016393
0.03	64.0	50.0	50.0	0.931844	0.666667	0.032258	0.061538
0.04	64.0	50.0	50.0	0.962011	0.25	0.03125	0.055556
0.01	64.0	75.0	50.0	0.727374	0.454545	0.041322	0.075758
0.02	64.0	75.0	50.0	0.869274	0.666667	0.033613	0.064
0.03	64.0	75.0	50.0	0.931844	0.6	0.048387	0.089552
0.04	64.0	75.0	50.0	0.962011	0.25	0.03125	0.055556
0.01	64.0	100.0	50.0	0.722905	0.416667	0.061983	0.107914
0.02	64.0	100.0	50.0	0.864804	0.4	0.033613	0.062016
0.03	64.0	100.0	50.0	0.931844	0.6	0.048387	0.089552
0.04	64.0	100.0	50.0	0.964246	0.5	0.0625	0.111111
0.01	25.0	25.0	100.0	0.721788	0.315789	0.024793	0.045977
0.02	25.0	25.0	100.0	0.867039	0.5	0.008403	0.016529
0.03	25.0	25.0	100.0	0.929609	0.0	0.0	0.0
0.04	25.0	25.0	100.0	0.963128	0.333333	0.03125	0.057143
0.01	25.0	50.0	100.0	0.732961	0.571429	0.049587	0.091255
0.02	25.0	50.0	100.0	0.869274	0.75	0.02521	0.04878
0.03	25.0	50.0	100.0	0.929609	0.428571	0.048387	0.086957
0.04	25.0	50.0	100.0	0.963128	0.444444	0.125	0.195122
0.01	25.0	75.0	100.0	0.712849	0.372881	0.090909	0.146179
0.02	25.0	75.0	100.0	0.868156	0.571429	0.033613	0.063492
0.03	25.0	75.0	100.0	0.928492	0.4	0.064516	0.111111
0.04	25.0	75.0	100.0	0.96648	0.625	0.15625	0.25
0.01	25.0	100.0	100.0	0.699441	0.32	0.099174	0.15142
0.02	25.0	100.0	100.0	0.865922	0.466667	0.058824	0.104478
0.03	25.0	100.0	100.0	0.924022	0.285714	0.064516	0.105263
0.04	25.0	100.0	100.0	0.957542	0.285714	0.125	0.173913
0.01	32.0	25.0	100.0	0.728492	0.481481	0.053719	0.096654
0.02	32.0	25.0	100.0	0.868156	0.666667	0.016807	0.032787
0.03	32.0	25.0	100.0	0.930726	0.5	0.016129	0.03125
0.04	32.0	25.0	100.0	0.964246	0.5	0.03125	0.058824
0.01	32.0	50.0	100.0	0.72514	0.423077	0.045455	0.08209
0.02	32.0	50.0	100.0	0.869274	0.666667	0.033613	0.064
0.03	32.0	50.0	100.0	0.931844	0.666667	0.032258	0.061538
0.04	32.0	50.0	100.0	0.962011	0.333333	0.0625	0.105263
0.01	32.0	75.0	100.0	0.721788	0.393939	0.053719	0.094545
0.02	32.0	75.0	100.0	0.868156	0.545455	0.05042	0.092308
0.03	32.0	75.0	100.0	0.929609	0.428571	0.048387	0.086957
0.04	32.0	75.0	100.0	0.965363	0.6	0.09375	0.162162
0.01	32.0	100.0	100.0	0.707263	0.327586	0.078512	0.126667
0.02	32.0	100.0	100.0	0.864804	0.454545	0.084034	0.141844
0.03	32.0	100.0	100.0	0.927374	0.363636	0.064516	0.109589

0.04	32.0	100.0	100.0	0.958659	0.307692	0.125	0.177778
0.01	48.0	25.0	100.0	0.731844	0.666667	0.016529	0.032258
0.02	48.0	25.0	100.0	0.864804	0.0	0.0	0.0
0.03	48.0	25.0	100.0	0.931844	1.0	0.016129	0.031746
0.04	48.0	25.0	100.0	0.963128	0.0	0.0	0.0
0.01	48.0	50.0	100.0	0.729609	0.5	0.041322	0.076336
0.02	48.0	50.0	100.0	0.865922	0.4	0.016807	0.032258
0.03	48.0	50.0	100.0	0.929609	0.4	0.032258	0.059701
0.04	48.0	50.0	100.0	0.963128	0.333333	0.03125	0.057143
0.01	48.0	75.0	100.0	0.716201	0.388889	0.086777	0.141892
0.02	48.0	75.0	100.0	0.868156	0.526316	0.084034	0.144928
0.03	48.0	75.0	100.0	0.928492	0.416667	0.080645	0.135135
0.04	48.0	75.0	100.0	0.963128	0.4	0.0625	0.108108
0.01	48.0	100.0	100.0	0.70838	0.388235	0.136364	0.201835
0.02	48.0	100.0	100.0	0.863687	0.363636	0.033613	0.061538
0.03	48.0	100.0	100.0	0.929609	0.454545	0.080645	0.136986
0.04	48.0	100.0	100.0	0.960894	0.285714	0.0625	0.102564
0.01	64.0	25.0	100.0	0.730726	0.6	0.012397	0.024291
0.02	64.0	25.0	100.0	0.867039	0.5	0.008403	0.016529
0.03	64.0	25.0	100.0	0.929609	0.0	0.0	0.0
0.04	64.0	25.0	100.0	0.963128	0.0	0.0	0.0
0.01	64.0	50.0	100.0	0.72514	0.4	0.033058	0.061069
0.02	64.0	50.0	100.0	0.864804	0.25	0.008403	0.01626
0.03	64.0	50.0	100.0	0.932961	0.75	0.048387	0.090909
0.04	64.0	50.0	100.0	0.964246	0.5	0.03125	0.058824
0.01	64.0	75.0	100.0	0.701676	0.328767	0.099174	0.152381
0.02	64.0	75.0	100.0	0.865922	0.454545	0.042017	0.076923
0.03	64.0	75.0	100.0	0.928492	0.375	0.048387	0.085714
0.04	64.0	75.0	100.0	0.965363	0.666667	0.0625	0.114286
0.01	64.0	100.0	100.0	0.730726	0.511628	0.090909	0.154386
0.02	64.0	100.0	100.0	0.86257	0.333333	0.033613	0.061069
0.03	64.0	100.0	100.0	0.930726	0.5	0.096774	0.162162
0.04	64.0	100.0	100.0	0.964246	0.5	0.0625	0.111111



532174 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.709354	0.666667	0.007634	0.015094
0.02	25.0	25.0	25.0	0.836303	0.5	0.006803	0.013423
0.03	25.0	25.0	25.0	0.906459	0.0	0.0	0.0
0.04	25.0	25.0	25.0	0.946548	0.5	0.020833	0.04
0.01	25.0	50.0	25.0	0.7049	0.285714	0.007634	0.01487
0.02	25.0	50.0	25.0	0.831849	0.166667	0.006803	0.013072
0.03	25.0	50.0	25.0	0.907572	0.5	0.012048	0.023529
0.04	25.0	50.0	25.0	0.945434	0.0	0.0	0.0
0.01	25.0	75.0	25.0	0.703786	0.357143	0.019084	0.036232
0.02	25.0	75.0	25.0	0.834076	0.333333	0.013605	0.026144
0.03	25.0	75.0	25.0	0.9098	0.75	0.036145	0.068966
0.04	25.0	75.0	25.0	0.947661	0.666667	0.041667	0.078431
0.01	25.0	100.0	25.0	0.699332	0.318182	0.026718	0.049296
0.02	25.0	100.0	25.0	0.831849	0.166667	0.006803	0.013072
0.03	25.0	100.0	25.0	0.905345	0.333333	0.024096	0.044944
0.04	25.0	100.0	25.0	0.944321	0.25	0.020833	0.038462
0.01	32.0	25.0	25.0	0.709354	0.666667	0.007634	0.015094
0.02	32.0	25.0	25.0	0.835189	0.333333	0.006803	0.013333
0.03	32.0	25.0	25.0	0.906459	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.945434	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.709354	0.666667	0.007634	0.015094
0.02	32.0	50.0	25.0	0.834076	0.0	0.0	0.0
0.03	32.0	50.0	25.0	0.906459	0.333333	0.012048	0.023256
0.04	32.0	50.0	25.0	0.946548	0.5	0.020833	0.04
0.01	32.0	75.0	25.0	0.701559	0.333333	0.022901	0.042857
0.02	32.0	75.0	25.0	0.832962	0.0	0.0	0.0
0.03	32.0	75.0	25.0	0.908686	0.666667	0.024096	0.046512
0.04	32.0	75.0	25.0	0.946548	0.5	0.041667	0.076923
0.01	32.0	100.0	25.0	0.697105	0.380952	0.061069	0.105263
0.02	32.0	100.0	25.0	0.831849	0.0	0.0	0.0
0.03	32.0	100.0	25.0	0.906459	0.333333	0.012048	0.023256
0.04	32.0	100.0	25.0	0.947661	0.666667	0.041667	0.078431
0.01	48.0	25.0	25.0	0.709354	1.0	0.003817	0.007605
0.02	48.0	25.0	25.0	0.835189	0.0	0.0	0.0
0.03	48.0	25.0	25.0	0.906459	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.946548	0.5	0.020833	0.04
0.01	48.0	50.0	25.0	0.709354	0.666667	0.007634	0.015094
0.02	48.0	50.0	25.0	0.835189	0.333333	0.006803	0.013333
0.03	48.0	50.0	25.0	0.907572	0.5	0.012048	0.023529
0.04	48.0	50.0	25.0	0.946548	0.5	0.020833	0.04
0.01	48.0	75.0	25.0	0.708241	0.5	0.007634	0.015038
0.02	48.0	75.0	25.0	0.830735	0.0	0.0	0.0
0.03	48.0	75.0	25.0	0.905345	0.0	0.0	0.0
0.04	48.0	75.0	25.0	0.946548	0.5	0.020833	0.04
0.01	48.0	100.0	25.0	0.703786	0.357143	0.019084	0.036232
0.02	48.0	100.0	25.0	0.830735	0.0	0.0	0.0
0.03	48.0	100.0	25.0	0.908686	0.666667	0.024096	0.046512
0.04	48.0	100.0	25.0	0.946548	0.5	0.020833	0.04
0.01	64.0	25.0	25.0	0.708241	0.5	0.007634	0.015038
0.02	64.0	25.0	25.0	0.835189	0.333333	0.006803	0.013333
0.03	64.0	25.0	25.0	0.906459	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.945434	0.0	0.0	0.0
0.01	64.0	50.0	25.0	0.708241	0.5	0.007634	0.015038
0.02	64.0	50.0	25.0	0.832962	0.0	0.0	0.0
0.03	64.0	50.0	25.0	0.906459	0.333333	0.012048	0.023256
0.04	64.0	50.0	25.0	0.946548	0.5	0.020833	0.04
0.01	64.0	75.0	25.0	0.708241	0.5	0.022901	0.043796
0.02	64.0	75.0	25.0	0.835189	0.0	0.0	0.0
0.03	64.0	75.0	25.0	0.906459	0.333333	0.012048	0.023256
0.04	64.0	75.0	25.0	0.946548	0.5	0.020833	0.04
0.01	64.0	100.0	25.0	0.708241	0.5	0.019084	0.036765
0.02	64.0	100.0	25.0	0.835189	0.333333	0.006803	0.013333
0.03	64.0	100.0	25.0	0.907572	0.5	0.024096	0.045977
0.04	64.0	100.0	25.0	0.946548	0.5	0.020833	0.04
0.01	25.0	25.0	75.0	0.706013	0.333333	0.007634	0.014925
0.02	25.0	25.0	75.0	0.834076	0.25	0.006803	0.013245
0.03	25.0	25.0	75.0	0.905345	0.0	0.0	0.0
0.04	25.0	25.0	75.0	0.946548	0.5	0.020833	0.04
0.01	25.0	50.0	75.0	0.697105	0.380952	0.061069	0.105263
0.02	25.0	50.0	75.0	0.834076	0.25	0.006803	0.013245
0.03	25.0	50.0	75.0	0.904232	0.285714	0.024096	0.044444

0.04	25.0	50.0	75.0	0.946548	0.5	0.041667	0.076923
0.01	25.0	75.0	75.0	0.678174	0.324675	0.09542	0.147493
0.02	25.0	75.0	75.0	0.825167	0.222222	0.027211	0.048485
0.03	25.0	75.0	75.0	0.908686	0.571429	0.048193	0.088889
0.04	25.0	75.0	75.0	0.946548	0.5	0.041667	0.076923
0.01	25.0	100.0	75.0	0.670379	0.322917	0.118321	0.173184
0.02	25.0	100.0	75.0	0.818486	0.309524	0.088435	0.137566
0.03	25.0	100.0	75.0	0.900891	0.285714	0.048193	0.082474
0.04	25.0	100.0	75.0	0.946548	0.5	0.083333	0.142857
0.01	32.0	25.0	75.0	0.707127	0.4	0.007634	0.014981
0.02	32.0	25.0	75.0	0.832962	0.0	0.0	0.0
0.03	32.0	25.0	75.0	0.906459	0.333333	0.012048	0.023256
0.04	32.0	25.0	75.0	0.945434	0.0	0.0	0.0
0.01	32.0	50.0	75.0	0.703786	0.4	0.030534	0.056738
0.02	32.0	50.0	75.0	0.828508	0.111111	0.006803	0.012821
0.03	32.0	50.0	75.0	0.907572	0.5	0.024096	0.045977
0.04	32.0	50.0	75.0	0.947661	0.666667	0.041667	0.078431
0.01	32.0	75.0	75.0	0.687082	0.376623	0.110687	0.171091
0.02	32.0	75.0	75.0	0.832962	0.285714	0.013605	0.025974
0.03	32.0	75.0	75.0	0.905345	0.375	0.036145	0.065934
0.04	32.0	75.0	75.0	0.948775	0.75	0.0625	0.115385
0.01	32.0	100.0	75.0	0.669265	0.323232	0.122137	0.177285
0.02	32.0	100.0	75.0	0.828508	0.294118	0.034014	0.060976
0.03	32.0	100.0	75.0	0.907572	0.5	0.036145	0.067416
0.04	32.0	100.0	75.0	0.948775	0.75	0.0625	0.115385
0.01	48.0	25.0	75.0	0.709354	0.666667	0.007634	0.015094
0.02	48.0	25.0	75.0	0.834076	0.0	0.0	0.0
0.03	48.0	25.0	75.0	0.905345	0.0	0.0	0.0
0.04	48.0	25.0	75.0	0.945434	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.710468	0.5625	0.034351	0.064748
0.02	48.0	50.0	75.0	0.831849	0.0	0.0	0.0
0.03	48.0	50.0	75.0	0.904232	0.0	0.0	0.0
0.04	48.0	50.0	75.0	0.947661	0.666667	0.041667	0.078431
0.01	48.0	75.0	75.0	0.694878	0.38	0.072519	0.121795
0.02	48.0	75.0	75.0	0.829621	0.125	0.006803	0.012903
0.03	48.0	75.0	75.0	0.906459	0.444444	0.048193	0.086957
0.04	48.0	75.0	75.0	0.947661	0.666667	0.041667	0.078431
0.01	48.0	100.0	75.0	0.683742	0.342857	0.091603	0.144578
0.02	48.0	100.0	75.0	0.826281	0.235294	0.027211	0.04878
0.03	48.0	100.0	75.0	0.907572	0.5	0.036145	0.067416
0.04	48.0	100.0	75.0	0.947661	0.666667	0.041667	0.078431
0.01	64.0	25.0	75.0	0.709354	0.666667	0.007634	0.015094
0.02	64.0	25.0	75.0	0.835189	0.333333	0.006803	0.013333
0.03	64.0	25.0	75.0	0.905345	0.0	0.0	0.0
0.04	64.0	25.0	75.0	0.945434	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.710468	0.571429	0.030534	0.057971
0.02	64.0	50.0	75.0	0.834076	0.25	0.006803	0.013245
0.03	64.0	50.0	75.0	0.906459	0.333333	0.012048	0.023256
0.04	64.0	50.0	75.0	0.946548	0.5	0.020833	0.04
0.01	64.0	75.0	75.0	0.7049	0.454545	0.057252	0.101695
0.02	64.0	75.0	75.0	0.832962	0.285714	0.013605	0.025974
0.03	64.0	75.0	75.0	0.907572	0.5	0.024096	0.045977
0.04	64.0	75.0	75.0	0.946548	0.5	0.041667	0.076923
0.01	64.0	100.0	75.0	0.675947	0.311688	0.091603	0.141593
0.02	64.0	100.0	75.0	0.827394	0.166667	0.013605	0.025157
0.03	64.0	100.0	75.0	0.9098	0.666667	0.048193	0.089888
0.04	64.0	100.0	75.0	0.947661	0.6	0.0625	0.113208
0.01	25.0	25.0	50.0	0.708241	0.5	0.007634	0.015038
0.02	25.0	25.0	50.0	0.832962	0.0	0.0	0.0
0.03	25.0	25.0	50.0	0.906459	0.333333	0.012048	0.023256
0.04	25.0	25.0	50.0	0.945434	0.0	0.0	0.0
0.01	25.0	50.0	50.0	0.69265	0.305556	0.041985	0.073826
0.02	25.0	50.0	50.0	0.834076	0.25	0.006803	0.013245
0.03	25.0	50.0	50.0	0.905345	0.0	0.0	0.0
0.04	25.0	50.0	50.0	0.947661	0.666667	0.041667	0.078431
0.01	25.0	75.0	50.0	0.699332	0.409091	0.068702	0.117647
0.02	25.0	75.0	50.0	0.829621	0.285714	0.027211	0.049689
0.03	25.0	75.0	50.0	0.907572	0.5	0.048193	0.087912
0.04	25.0	75.0	50.0	0.946548	0.5	0.041667	0.076923
0.01	25.0	100.0	50.0	0.671492	0.329897	0.122137	0.178273
0.02	25.0	100.0	50.0	0.828508	0.294118	0.034014	0.060976
0.03	25.0	100.0	50.0	0.904232	0.333333	0.036145	0.065217
0.04	25.0	100.0	50.0	0.944321	0.25	0.020833	0.038462
0.01	32.0	25.0	50.0	0.707127	0.4	0.007634	0.014981
0.02	32.0	25.0	50.0	0.834076	0.25	0.006803	0.013245
0.03	32.0	25.0	50.0	0.905345	0.0	0.0	0.0

0.04	32.0	25.0	50.0	0.945434	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.7049	0.411765	0.026718	0.050179
0.02	32.0	50.0	50.0	0.834076	0.25	0.006803	0.013245
0.03	32.0	50.0	50.0	0.906459	0.333333	0.012048	0.023256
0.04	32.0	50.0	50.0	0.945434	0.333333	0.020833	0.039216
0.01	32.0	75.0	50.0	0.703786	0.441176	0.057252	0.101351
0.02	32.0	75.0	50.0	0.830735	0.142857	0.006803	0.012987
0.03	32.0	75.0	50.0	0.904232	0.333333	0.036145	0.065217
0.04	32.0	75.0	50.0	0.946548	0.5	0.041667	0.076923
0.01	32.0	100.0	50.0	0.678174	0.337349	0.10687	0.162319
0.02	32.0	100.0	50.0	0.819599	0.173913	0.027211	0.047059
0.03	32.0	100.0	50.0	0.906459	0.428571	0.036145	0.066667
0.04	32.0	100.0	50.0	0.945434	0.4	0.041667	0.075472
0.01	48.0	25.0	50.0	0.708241	0.5	0.007634	0.015038
0.02	48.0	25.0	50.0	0.835189	0.333333	0.006803	0.013333
0.03	48.0	25.0	50.0	0.906459	0.0	0.0	0.0
0.04	48.0	25.0	50.0	0.945434	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.710468	0.666667	0.015267	0.029851
0.02	48.0	50.0	50.0	0.832962	0.0	0.0	0.0
0.03	48.0	50.0	50.0	0.906459	0.333333	0.012048	0.023256
0.04	48.0	50.0	50.0	0.946548	0.5	0.020833	0.04
0.01	48.0	75.0	50.0	0.708241	0.5	0.034351	0.064286
0.02	48.0	75.0	50.0	0.832962	0.2	0.006803	0.013158
0.03	48.0	75.0	50.0	0.907572	0.5	0.024096	0.045977
0.04	48.0	75.0	50.0	0.947661	0.666667	0.041667	0.078431
0.01	48.0	100.0	50.0	0.7049	0.457143	0.061069	0.107744
0.02	48.0	100.0	50.0	0.831849	0.166667	0.006803	0.013072
0.03	48.0	100.0	50.0	0.908686	0.6	0.036145	0.068182
0.04	48.0	100.0	50.0	0.946548	0.5	0.020833	0.04
0.01	64.0	25.0	50.0	0.709354	0.666667	0.007634	0.015094
0.02	64.0	25.0	50.0	0.835189	0.333333	0.006803	0.013333
0.03	64.0	25.0	50.0	0.906459	0.0	0.0	0.0
0.04	64.0	25.0	50.0	0.945434	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.709354	0.6	0.01145	0.022472
0.02	64.0	50.0	50.0	0.835189	0.333333	0.006803	0.013333
0.03	64.0	50.0	50.0	0.905345	0.0	0.0	0.0
0.04	64.0	50.0	50.0	0.946548	0.5	0.020833	0.04
0.01	64.0	75.0	50.0	0.707127	0.478261	0.041985	0.077193
0.02	64.0	75.0	50.0	0.832962	0.0	0.0	0.0
0.03	64.0	75.0	50.0	0.906459	0.333333	0.012048	0.023256
0.04	64.0	75.0	50.0	0.947661	0.666667	0.041667	0.078431
0.01	64.0	100.0	50.0	0.690423	0.346154	0.068702	0.11465
0.02	64.0	100.0	50.0	0.831849	0.166667	0.006803	0.013072
0.03	64.0	100.0	50.0	0.907572	0.5	0.024096	0.045977
0.04	64.0	100.0	50.0	0.946548	0.5	0.020833	0.04
0.01	25.0	25.0	100.0	0.710468	0.75	0.01145	0.022556
0.02	25.0	25.0	100.0	0.831849	0.0	0.0	0.0
0.03	25.0	25.0	100.0	0.905345	0.0	0.0	0.0
0.04	25.0	25.0	100.0	0.946548	0.5	0.020833	0.04
0.01	25.0	50.0	100.0	0.688196	0.333333	0.068702	0.113924
0.02	25.0	50.0	100.0	0.830735	0.0	0.0	0.0
0.03	25.0	50.0	100.0	0.903118	0.166667	0.012048	0.022472
0.04	25.0	50.0	100.0	0.947661	0.6	0.0625	0.113208
0.01	25.0	75.0	100.0	0.664811	0.327434	0.141221	0.197333
0.02	25.0	75.0	100.0	0.811804	0.176471	0.040816	0.066298
0.03	25.0	75.0	100.0	0.898664	0.214286	0.036145	0.061856
0.04	25.0	75.0	100.0	0.948775	0.75	0.0625	0.115385
0.01	25.0	100.0	100.0	0.654788	0.315385	0.156489	0.209184
0.02	25.0	100.0	100.0	0.806236	0.22449	0.07483	0.112245
0.03	25.0	100.0	100.0	0.907572	0.5	0.060241	0.107527
0.04	25.0	100.0	100.0	0.942094	0.388889	0.145833	0.212121
0.01	32.0	25.0	100.0	0.708241	0.5	0.01145	0.022388
0.02	32.0	25.0	100.0	0.832962	0.0	0.0	0.0
0.03	32.0	25.0	100.0	0.906459	0.333333	0.012048	0.023256
0.04	32.0	25.0	100.0	0.946548	0.5	0.020833	0.04
0.01	32.0	50.0	100.0	0.695991	0.387755	0.072519	0.122186
0.02	32.0	50.0	100.0	0.829621	0.0	0.0	0.0
0.03	32.0	50.0	100.0	0.904232	0.2	0.012048	0.022727
0.04	32.0	50.0	100.0	0.947661	0.666667	0.041667	0.078431
0.01	32.0	75.0	100.0	0.669265	0.319588	0.118321	0.172702
0.02	32.0	75.0	100.0	0.819599	0.241379	0.047619	0.079545
0.03	32.0	75.0	100.0	0.904232	0.363636	0.048193	0.085106
0.04	32.0	75.0	100.0	0.939866	0.125	0.020833	0.035714
0.01	32.0	100.0	100.0	0.652561	0.331081	0.187023	0.239024
0.02	32.0	100.0	100.0	0.819599	0.272727	0.061224	0.1
0.03	32.0	100.0	100.0	0.905345	0.4	0.048193	0.086022

0.04	32.0	100.0	100.0	0.945434	0.428571	0.0625	0.109091
0.01	48.0	25.0	100.0	0.708241	0.5	0.007634	0.015038
0.02	48.0	25.0	100.0	0.834076	0.0	0.0	0.0
0.03	48.0	25.0	100.0	0.905345	0.0	0.0	0.0
0.04	48.0	25.0	100.0	0.945434	0.0	0.0	0.0
0.01	48.0	50.0	100.0	0.702673	0.435897	0.064885	0.112957
0.02	48.0	50.0	100.0	0.832962	0.2	0.006803	0.013158
0.03	48.0	50.0	100.0	0.906459	0.333333	0.012048	0.023256
0.04	48.0	50.0	100.0	0.946548	0.5	0.020833	0.04
0.01	48.0	75.0	100.0	0.668151	0.316327	0.118321	0.172222
0.02	48.0	75.0	100.0	0.821826	0.066667	0.006803	0.012346
0.03	48.0	75.0	100.0	0.906459	0.444444	0.048193	0.086957
0.04	48.0	75.0	100.0	0.948775	0.75	0.0625	0.115385
0.01	48.0	100.0	100.0	0.669265	0.342342	0.145038	0.203753
0.02	48.0	100.0	100.0	0.809577	0.147059	0.034014	0.055249
0.03	48.0	100.0	100.0	0.903118	0.3	0.036145	0.064516
0.04	48.0	100.0	100.0	0.948775	0.666667	0.083333	0.148148
0.01	64.0	25.0	100.0	0.707127	0.4	0.007634	0.014981
0.02	64.0	25.0	100.0	0.834076	0.0	0.0	0.0
0.03	64.0	25.0	100.0	0.905345	0.0	0.0	0.0
0.04	64.0	25.0	100.0	0.945434	0.0	0.0	0.0
0.01	64.0	50.0	100.0	0.707127	0.466667	0.026718	0.050542
0.02	64.0	50.0	100.0	0.834076	0.0	0.0	0.0
0.03	64.0	50.0	100.0	0.906459	0.4	0.024096	0.045455
0.04	64.0	50.0	100.0	0.946548	0.5	0.020833	0.04
0.01	64.0	75.0	100.0	0.695991	0.396226	0.080153	0.133333
0.02	64.0	75.0	100.0	0.830735	0.222222	0.013605	0.025641
0.03	64.0	75.0	100.0	0.906459	0.4	0.024096	0.045455
0.04	64.0	75.0	100.0	0.946548	0.5	0.020833	0.04
0.01	64.0	100.0	100.0	0.671492	0.345794	0.141221	0.200542
0.02	64.0	100.0	100.0	0.821826	0.117647	0.013605	0.02439
0.03	64.0	100.0	100.0	0.905345	0.4	0.048193	0.086022
0.04	64.0	100.0	100.0	0.951002	0.833333	0.104167	0.185185

532210 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.761521	0.0	0.0	0.0
0.02	25.0	25.0	25.0	0.879032	0.0	0.0	0.0
0.03	25.0	25.0	25.0	0.942396	0.0	0.0	0.0
0.04	25.0	25.0	25.0	0.970046	0.0	0.0	0.0
0.01	25.0	50.0	25.0	0.758065	0.0	0.0	0.0
0.02	25.0	50.0	25.0	0.87788	0.25	0.009615	0.018519
0.03	25.0	50.0	25.0	0.942396	0.0	0.0	0.0
0.04	25.0	50.0	25.0	0.968894	0.0	0.0	0.0
0.01	25.0	75.0	25.0	0.75576	0.3125	0.024272	0.045045
0.02	25.0	75.0	25.0	0.875576	0.166667	0.009615	0.018182
0.03	25.0	75.0	25.0	0.943548	0.0	0.0	0.0
0.04	25.0	75.0	25.0	0.968894	0.0	0.0	0.0
0.01	25.0	100.0	25.0	0.738479	0.276596	0.063107	0.102767
0.02	25.0	100.0	25.0	0.873272	0.25	0.028846	0.051724
0.03	25.0	100.0	25.0	0.942396	0.25	0.020833	0.038462
0.04	25.0	100.0	25.0	0.964286	0.0	0.0	0.0
0.01	32.0	25.0	25.0	0.762673	0.5	0.004854	0.009615
0.02	32.0	25.0	25.0	0.880184	0.0	0.0	0.0
0.03	32.0	25.0	25.0	0.9447	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.968894	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.761521	0.428571	0.014563	0.028169
0.02	32.0	50.0	25.0	0.880184	0.0	0.0	0.0
0.03	32.0	50.0	25.0	0.943548	0.0	0.0	0.0
0.04	32.0	50.0	25.0	0.968894	0.0	0.0	0.0
0.01	32.0	75.0	25.0	0.753456	0.1	0.004854	0.009259
0.02	32.0	75.0	25.0	0.879032	0.0	0.0	0.0
0.03	32.0	75.0	25.0	0.9447	0.5	0.020833	0.04
0.04	32.0	75.0	25.0	0.968894	0.333333	0.038462	0.068966
0.01	32.0	100.0	25.0	0.754608	0.230769	0.014563	0.027397
0.02	32.0	100.0	25.0	0.87788	0.333333	0.019231	0.036364
0.03	32.0	100.0	25.0	0.9447	0.5	0.020833	0.04
0.04	32.0	100.0	25.0	0.967742	0.0	0.0	0.0
0.01	48.0	25.0	25.0	0.760369	0.0	0.0	0.0
0.02	48.0	25.0	25.0	0.880184	0.0	0.0	0.0
0.03	48.0	25.0	25.0	0.9447	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.970046	0.0	0.0	0.0
0.01	48.0	50.0	25.0	0.759217	0.2	0.004854	0.009479
0.02	48.0	50.0	25.0	0.880184	0.0	0.0	0.0
0.03	48.0	50.0	25.0	0.943548	0.0	0.0	0.0
0.04	48.0	50.0	25.0	0.968894	0.0	0.0	0.0
0.01	48.0	75.0	25.0	0.758065	0.0	0.0	0.0
0.02	48.0	75.0	25.0	0.879032	0.4	0.019231	0.036697
0.03	48.0	75.0	25.0	0.943548	0.0	0.0	0.0
0.04	48.0	75.0	25.0	0.967742	0.0	0.0	0.0
0.01	48.0	100.0	25.0	0.762673	0.5	0.024272	0.046296
0.02	48.0	100.0	25.0	0.873272	0.0	0.0	0.0
0.03	48.0	100.0	25.0	0.943548	0.0	0.0	0.0
0.04	48.0	100.0	25.0	0.968894	0.333333	0.038462	0.068966
0.01	64.0	25.0	25.0	0.760369	0.0	0.0	0.0
0.02	64.0	25.0	25.0	0.879032	0.0	0.0	0.0
0.03	64.0	25.0	25.0	0.943548	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.968894	0.0	0.0	0.0
0.01	64.0	50.0	25.0	0.759217	0.2	0.004854	0.009479
0.02	64.0	50.0	25.0	0.879032	0.0	0.0	0.0
0.03	64.0	50.0	25.0	0.943548	0.0	0.0	0.0
0.04	64.0	50.0	25.0	0.968894	0.0	0.0	0.0
0.01	64.0	75.0	25.0	0.758065	0.25	0.009709	0.018692
0.02	64.0	75.0	25.0	0.879032	0.0	0.0	0.0
0.03	64.0	75.0	25.0	0.943548	0.0	0.0	0.0
0.04	64.0	75.0	25.0	0.968894	0.0	0.0	0.0
0.01	64.0	100.0	25.0	0.754608	0.333333	0.033981	0.061674
0.02	64.0	100.0	25.0	0.879032	0.0	0.0	0.0
0.03	64.0	100.0	25.0	0.943548	0.0	0.0	0.0
0.04	64.0	100.0	25.0	0.968894	0.0	0.0	0.0
0.01	25.0	25.0	75.0	0.759217	0.0	0.0	0.0
0.02	25.0	25.0	75.0	0.879032	0.0	0.0	0.0
0.03	25.0	25.0	75.0	0.943548	0.0	0.0	0.0
0.04	25.0	25.0	75.0	0.968894	0.0	0.0	0.0
0.01	25.0	50.0	75.0	0.761521	0.470588	0.038835	0.071749
0.02	25.0	50.0	75.0	0.874424	0.272727	0.028846	0.052174
0.03	25.0	50.0	75.0	0.9447	0.5	0.020833	0.04

0.04	25.0	50.0	75.0	0.967742	0.0	0.0	0.0
0.01	25.0	75.0	75.0	0.743088	0.350877	0.097087	0.152091
0.02	25.0	75.0	75.0	0.874424	0.368421	0.067308	0.113821
0.03	25.0	75.0	75.0	0.93894	0.272727	0.0625	0.101695
0.04	25.0	75.0	75.0	0.970046	0.5	0.076923	0.133333
0.01	25.0	100.0	75.0	0.718894	0.288889	0.126214	0.175676
0.02	25.0	100.0	75.0	0.847926	0.15	0.057692	0.083333
0.03	25.0	100.0	75.0	0.937788	0.2	0.041667	0.068966
0.04	25.0	100.0	75.0	0.965438	0.0	0.0	0.0
0.01	32.0	25.0	75.0	0.760369	0.0	0.0	0.0
0.02	32.0	25.0	75.0	0.879032	0.333333	0.009615	0.018692
0.03	32.0	25.0	75.0	0.942396	0.0	0.0	0.0
0.04	32.0	25.0	75.0	0.968894	0.0	0.0	0.0
0.01	32.0	50.0	75.0	0.751152	0.272727	0.029126	0.052632
0.02	32.0	50.0	75.0	0.87212	0.111111	0.009615	0.017699
0.03	32.0	50.0	75.0	0.942396	0.25	0.020833	0.038462
0.04	32.0	50.0	75.0	0.967742	0.25	0.038462	0.066667
0.01	32.0	75.0	75.0	0.74424	0.34	0.082524	0.132812
0.02	32.0	75.0	75.0	0.87788	0.4375	0.067308	0.116667
0.03	32.0	75.0	75.0	0.936636	0.181818	0.041667	0.067797
0.04	32.0	75.0	75.0	0.965438	0.166667	0.038462	0.0625
0.01	32.0	100.0	75.0	0.745392	0.372881	0.106796	0.166038
0.02	32.0	100.0	75.0	0.861751	0.136364	0.028846	0.047619
0.03	32.0	100.0	75.0	0.941244	0.285714	0.041667	0.072727
0.04	32.0	100.0	75.0	0.96659	0.0	0.0	0.0
0.01	48.0	25.0	75.0	0.760369	0.0	0.0	0.0
0.02	48.0	25.0	75.0	0.879032	0.0	0.0	0.0
0.03	48.0	25.0	75.0	0.943548	0.0	0.0	0.0
0.04	48.0	25.0	75.0	0.968894	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.75	0.176471	0.014563	0.026906
0.02	48.0	50.0	75.0	0.876728	0.2	0.009615	0.018349
0.03	48.0	50.0	75.0	0.940092	0.0	0.0	0.0
0.04	48.0	50.0	75.0	0.968894	0.0	0.0	0.0
0.01	48.0	75.0	75.0	0.756912	0.4	0.048544	0.08658
0.02	48.0	75.0	75.0	0.869816	0.235294	0.038462	0.066116
0.03	48.0	75.0	75.0	0.9447	0.5	0.041667	0.076923
0.04	48.0	75.0	75.0	0.96659	0.2	0.038462	0.064516
0.01	48.0	100.0	75.0	0.739631	0.314815	0.082524	0.130769
0.02	48.0	100.0	75.0	0.860599	0.185185	0.048077	0.076336
0.03	48.0	100.0	75.0	0.937788	0.333333	0.125	0.181818
0.04	48.0	100.0	75.0	0.96659	0.0	0.0	0.0
0.01	64.0	25.0	75.0	0.760369	0.25	0.004854	0.009524
0.02	64.0	25.0	75.0	0.879032	0.0	0.0	0.0
0.03	64.0	25.0	75.0	0.943548	0.0	0.0	0.0
0.04	64.0	25.0	75.0	0.970046	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.758065	0.4	0.038835	0.070796
0.02	64.0	50.0	75.0	0.879032	0.333333	0.009615	0.018692
0.03	64.0	50.0	75.0	0.9447	0.0	0.0	0.0
0.04	64.0	50.0	75.0	0.967742	0.0	0.0	0.0
0.01	64.0	75.0	75.0	0.740783	0.243243	0.043689	0.074074
0.02	64.0	75.0	75.0	0.874424	0.142857	0.009615	0.018018
0.03	64.0	75.0	75.0	0.942396	0.333333	0.041667	0.074074
0.04	64.0	75.0	75.0	0.967742	0.25	0.038462	0.066667
0.01	64.0	100.0	75.0	0.736175	0.338028	0.116505	0.173285
0.02	64.0	100.0	75.0	0.873272	0.35	0.067308	0.112903
0.03	64.0	100.0	75.0	0.941244	0.285714	0.041667	0.072727
0.04	64.0	100.0	75.0	0.967742	0.25	0.038462	0.066667
0.01	25.0	25.0	50.0	0.761521	0.0	0.0	0.0
0.02	25.0	25.0	50.0	0.879032	0.0	0.0	0.0
0.03	25.0	25.0	50.0	0.942396	0.0	0.0	0.0
0.04	25.0	25.0	50.0	0.970046	0.0	0.0	0.0
0.01	25.0	50.0	50.0	0.758065	0.3	0.014563	0.027778
0.02	25.0	50.0	50.0	0.876728	0.0	0.0	0.0
0.03	25.0	50.0	50.0	0.940092	0.0	0.0	0.0
0.04	25.0	50.0	50.0	0.96659	0.0	0.0	0.0
0.01	25.0	75.0	50.0	0.760369	0.466667	0.067961	0.118644
0.02	25.0	75.0	50.0	0.870968	0.166667	0.019231	0.034483
0.03	25.0	75.0	50.0	0.9447	0.5	0.020833	0.04
0.04	25.0	75.0	50.0	0.965438	0.166667	0.038462	0.0625
0.01	25.0	100.0	50.0	0.748848	0.342105	0.063107	0.106557
0.02	25.0	100.0	50.0	0.867512	0.238095	0.048077	0.08
0.03	25.0	100.0	50.0	0.940092	0.3	0.0625	0.103448
0.04	25.0	100.0	50.0	0.963134	0.0	0.0	0.0
0.01	32.0	25.0	50.0	0.761521	0.0	0.0	0.0
0.02	32.0	25.0	50.0	0.879032	0.0	0.0	0.0
0.03	32.0	25.0	50.0	0.943548	0.0	0.0	0.0

0.04	32.0	25.0	50.0	0.968894	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.747696	0.117647	0.009709	0.017937
0.02	32.0	50.0	50.0	0.876728	0.0	0.0	0.0
0.03	32.0	50.0	50.0	0.943548	0.0	0.0	0.0
0.04	32.0	50.0	50.0	0.96659	0.0	0.0	0.0
0.01	32.0	75.0	50.0	0.75576	0.333333	0.029126	0.053571
0.02	32.0	75.0	50.0	0.875576	0.166667	0.009615	0.018182
0.03	32.0	75.0	50.0	0.942396	0.25	0.020833	0.038462
0.04	32.0	75.0	50.0	0.967742	0.333333	0.076923	0.125
0.01	32.0	100.0	50.0	0.736175	0.333333	0.11165	0.167273
0.02	32.0	100.0	50.0	0.87212	0.315789	0.057692	0.097561
0.03	32.0	100.0	50.0	0.945853	0.571429	0.083333	0.145455
0.04	32.0	100.0	50.0	0.964286	0.142857	0.038462	0.060606
0.01	48.0	25.0	50.0	0.760369	0.0	0.0	0.0
0.02	48.0	25.0	50.0	0.879032	0.0	0.0	0.0
0.03	48.0	25.0	50.0	0.9447	0.0	0.0	0.0
0.04	48.0	25.0	50.0	0.968894	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.75576	0.25	0.014563	0.027523
0.02	48.0	50.0	50.0	0.87788	0.25	0.009615	0.018519
0.03	48.0	50.0	50.0	0.943548	0.0	0.0	0.0
0.04	48.0	50.0	50.0	0.968894	0.0	0.0	0.0
0.01	48.0	75.0	50.0	0.758065	0.416667	0.048544	0.086957
0.02	48.0	75.0	50.0	0.876728	0.0	0.0	0.0
0.03	48.0	75.0	50.0	0.937788	0.0	0.0	0.0
0.04	48.0	75.0	50.0	0.96659	0.0	0.0	0.0
0.01	48.0	100.0	50.0	0.75	0.377778	0.082524	0.135458
0.02	48.0	100.0	50.0	0.874424	0.391304	0.086538	0.141732
0.03	48.0	100.0	50.0	0.940092	0.166667	0.020833	0.037037
0.04	48.0	100.0	50.0	0.968894	0.333333	0.038462	0.068966
0.01	64.0	25.0	50.0	0.759217	0.0	0.0	0.0
0.02	64.0	25.0	50.0	0.880184	0.0	0.0	0.0
0.03	64.0	25.0	50.0	0.9447	0.0	0.0	0.0
0.04	64.0	25.0	50.0	0.968894	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.761521	0.444444	0.019417	0.037209
0.02	64.0	50.0	50.0	0.87788	0.0	0.0	0.0
0.03	64.0	50.0	50.0	0.943548	0.0	0.0	0.0
0.04	64.0	50.0	50.0	0.968894	0.0	0.0	0.0
0.01	64.0	75.0	50.0	0.754608	0.0	0.0	0.0
0.02	64.0	75.0	50.0	0.875576	0.166667	0.009615	0.018182
0.03	64.0	75.0	50.0	0.943548	0.0	0.0	0.0
0.04	64.0	75.0	50.0	0.968894	0.0	0.0	0.0
0.01	64.0	100.0	50.0	0.736175	0.265306	0.063107	0.101961
0.02	64.0	100.0	50.0	0.879032	0.4	0.019231	0.036697
0.03	64.0	100.0	50.0	0.942396	0.0	0.0	0.0
0.04	64.0	100.0	50.0	0.96659	0.0	0.0	0.0
0.01	25.0	25.0	100.0	0.760369	0.0	0.0	0.0
0.02	25.0	25.0	100.0	0.875576	0.0	0.0	0.0
0.03	25.0	25.0	100.0	0.943548	0.0	0.0	0.0
0.04	25.0	25.0	100.0	0.967742	0.0	0.0	0.0
0.01	25.0	50.0	100.0	0.752304	0.285714	0.029126	0.052863
0.02	25.0	50.0	100.0	0.870968	0.25	0.038462	0.066667
0.03	25.0	50.0	100.0	0.943548	0.4	0.041667	0.075472
0.04	25.0	50.0	100.0	0.965438	0.0	0.0	0.0
0.01	25.0	75.0	100.0	0.747696	0.377358	0.097087	0.15444
0.02	25.0	75.0	100.0	0.851382	0.179487	0.067308	0.097902
0.03	25.0	75.0	100.0	0.940092	0.25	0.041667	0.071429
0.04	25.0	75.0	100.0	0.968894	0.333333	0.038462	0.068966
0.01	25.0	100.0	100.0	0.723502	0.336538	0.169903	0.225806
0.02	25.0	100.0	100.0	0.837558	0.137255	0.067308	0.090323
0.03	25.0	100.0	100.0	0.941244	0.363636	0.083333	0.135593
0.04	25.0	100.0	100.0	0.961982	0.111111	0.038462	0.057143
0.01	32.0	25.0	100.0	0.760369	0.0	0.0	0.0
0.02	32.0	25.0	100.0	0.879032	0.0	0.0	0.0
0.03	32.0	25.0	100.0	0.943548	0.0	0.0	0.0
0.04	32.0	25.0	100.0	0.968894	0.0	0.0	0.0
0.01	32.0	50.0	100.0	0.748848	0.3125	0.048544	0.084034
0.02	32.0	50.0	100.0	0.87212	0.0	0.0	0.0
0.03	32.0	50.0	100.0	0.941244	0.2	0.020833	0.037736
0.04	32.0	50.0	100.0	0.967742	0.333333	0.076923	0.125
0.01	32.0	75.0	100.0	0.736175	0.35443	0.135922	0.196491
0.02	32.0	75.0	100.0	0.865207	0.24	0.057692	0.093023
0.03	32.0	75.0	100.0	0.93894	0.142857	0.020833	0.036364
0.04	32.0	75.0	100.0	0.963134	0.0	0.0	0.0
0.01	32.0	100.0	100.0	0.721198	0.3125	0.145631	0.198675
0.02	32.0	100.0	100.0	0.85023	0.175	0.067308	0.097222
0.03	32.0	100.0	100.0	0.934332	0.090909	0.020833	0.033898

0.04	32.0	100.0	100.0	0.965438	0.166667	0.038462	0.0625
0.01	48.0	25.0	100.0	0.761521	0.333333	0.004854	0.009569
0.02	48.0	25.0	100.0	0.879032	0.0	0.0	0.0
0.03	48.0	25.0	100.0	0.942396	0.0	0.0	0.0
0.04	48.0	25.0	100.0	0.968894	0.0	0.0	0.0
0.01	48.0	50.0	100.0	0.752304	0.235294	0.019417	0.035874
0.02	48.0	50.0	100.0	0.874424	0.142857	0.009615	0.018018
0.03	48.0	50.0	100.0	0.943548	0.0	0.0	0.0
0.04	48.0	50.0	100.0	0.967742	0.0	0.0	0.0
0.01	48.0	75.0	100.0	0.753456	0.4	0.07767	0.130081
0.02	48.0	75.0	100.0	0.860599	0.185185	0.048077	0.076336
0.03	48.0	75.0	100.0	0.937788	0.0	0.0	0.0
0.04	48.0	75.0	100.0	0.967742	0.25	0.038462	0.066667
0.01	48.0	100.0	100.0	0.730415	0.320513	0.121359	0.176056
0.02	48.0	100.0	100.0	0.852535	0.184211	0.067308	0.098592
0.03	48.0	100.0	100.0	0.942396	0.416667	0.104167	0.166667
0.04	48.0	100.0	100.0	0.965438	0.166667	0.038462	0.0625
0.01	64.0	25.0	100.0	0.763825	0.6	0.014563	0.028436
0.02	64.0	25.0	100.0	0.879032	0.0	0.0	0.0
0.03	64.0	25.0	100.0	0.9447	0.5	0.020833	0.04
0.04	64.0	25.0	100.0	0.968894	0.0	0.0	0.0
0.01	64.0	50.0	100.0	0.752304	0.263158	0.024272	0.044444
0.02	64.0	50.0	100.0	0.876728	0.2	0.009615	0.018349
0.03	64.0	50.0	100.0	0.943548	0.0	0.0	0.0
0.04	64.0	50.0	100.0	0.96659	0.0	0.0	0.0
0.01	64.0	75.0	100.0	0.745392	0.358491	0.092233	0.146718
0.02	64.0	75.0	100.0	0.87212	0.266667	0.038462	0.067227
0.03	64.0	75.0	100.0	0.943548	0.428571	0.0625	0.109091
0.04	64.0	75.0	100.0	0.963134	0.0	0.0	0.0
0.01	64.0	100.0	100.0	0.733871	0.345679	0.135922	0.195122
0.02	64.0	100.0	100.0	0.867512	0.238095	0.048077	0.08
0.03	64.0	100.0	100.0	0.934332	0.153846	0.041667	0.065574
0.04	64.0	100.0	100.0	0.965438	0.0	0.0	0.0



532540 bpnn classification							
threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
0.01	25.0	25.0	25.0	0.760817	0.166667	0.005128	0.00995
0.02	25.0	25.0	25.0	0.884615	0.0	0.0	0.0
0.03	25.0	25.0	25.0	0.944712	0.0	0.0	0.0
0.04	25.0	25.0	25.0	0.973558	0.0	0.0	0.0
0.01	25.0	50.0	25.0	0.762019	0.2	0.005128	0.01
0.02	25.0	50.0	25.0	0.887019	0.0	0.0	0.0
0.03	25.0	50.0	25.0	0.945913	0.0	0.0	0.0
0.04	25.0	50.0	25.0	0.97476	0.0	0.0	0.0
0.01	25.0	75.0	25.0	0.753606	0.083333	0.005128	0.009662
0.02	25.0	75.0	25.0	0.884615	0.0	0.0	0.0
0.03	25.0	75.0	25.0	0.945913	0.0	0.0	0.0
0.04	25.0	75.0	25.0	0.975962	0.5	0.05	0.090909
0.01	25.0	100.0	25.0	0.75	0.157895	0.015385	0.028037
0.02	25.0	100.0	25.0	0.887019	0.0	0.0	0.0
0.03	25.0	100.0	25.0	0.944712	0.25	0.022727	0.041667
0.04	25.0	100.0	25.0	0.975962	0.0	0.0	0.0
0.01	32.0	25.0	25.0	0.765625	0.5	0.005128	0.010152
0.02	32.0	25.0	25.0	0.885817	0.0	0.0	0.0
0.03	32.0	25.0	25.0	0.945913	0.0	0.0	0.0
0.04	32.0	25.0	25.0	0.973558	0.0	0.0	0.0
0.01	32.0	50.0	25.0	0.758413	0.125	0.005128	0.009852
0.02	32.0	50.0	25.0	0.887019	0.0	0.0	0.0
0.03	32.0	50.0	25.0	0.945913	0.0	0.0	0.0
0.04	32.0	50.0	25.0	0.975962	0.0	0.0	0.0
0.01	32.0	75.0	25.0	0.754808	0.153846	0.010256	0.019231
0.02	32.0	75.0	25.0	0.887019	0.0	0.0	0.0
0.03	32.0	75.0	25.0	0.945913	0.0	0.0	0.0
0.04	32.0	75.0	25.0	0.973558	0.0	0.0	0.0
0.01	32.0	100.0	25.0	0.742788	0.172414	0.025641	0.044643
0.02	32.0	100.0	25.0	0.888221	1.0	0.010638	0.021053
0.03	32.0	100.0	25.0	0.944712	0.25	0.022727	0.041667
0.04	32.0	100.0	25.0	0.975962	0.0	0.0	0.0
0.01	48.0	25.0	25.0	0.765625	0.5	0.005128	0.010152
0.02	48.0	25.0	25.0	0.887019	0.0	0.0	0.0
0.03	48.0	25.0	25.0	0.945913	0.0	0.0	0.0
0.04	48.0	25.0	25.0	0.975962	0.0	0.0	0.0
0.01	48.0	50.0	25.0	0.760817	0.0	0.0	0.0
0.02	48.0	50.0	25.0	0.887019	0.0	0.0	0.0
0.03	48.0	50.0	25.0	0.947115	0.0	0.0	0.0
0.04	48.0	50.0	25.0	0.97476	0.0	0.0	0.0
0.01	48.0	75.0	25.0	0.757212	0.0	0.0	0.0
0.02	48.0	75.0	25.0	0.887019	0.0	0.0	0.0
0.03	48.0	75.0	25.0	0.944712	0.0	0.0	0.0
0.04	48.0	75.0	25.0	0.97476	0.0	0.0	0.0
0.01	48.0	100.0	25.0	0.760817	0.3	0.015385	0.029268
0.02	48.0	100.0	25.0	0.887019	0.0	0.0	0.0
0.03	48.0	100.0	25.0	0.947115	0.0	0.0	0.0
0.04	48.0	100.0	25.0	0.975962	0.0	0.0	0.0
0.01	64.0	25.0	25.0	0.765625	0.0	0.0	0.0
0.02	64.0	25.0	25.0	0.887019	0.0	0.0	0.0
0.03	64.0	25.0	25.0	0.947115	0.0	0.0	0.0
0.04	64.0	25.0	25.0	0.97476	0.0	0.0	0.0
0.01	64.0	50.0	25.0	0.763221	0.0	0.0	0.0
0.02	64.0	50.0	25.0	0.887019	0.0	0.0	0.0
0.03	64.0	50.0	25.0	0.945913	0.0	0.0	0.0
0.04	64.0	50.0	25.0	0.975962	0.0	0.0	0.0
0.01	64.0	75.0	25.0	0.763221	0.0	0.0	0.0
0.02	64.0	75.0	25.0	0.887019	0.0	0.0	0.0
0.03	64.0	75.0	25.0	0.947115	0.0	0.0	0.0
0.04	64.0	75.0	25.0	0.975962	0.0	0.0	0.0
0.01	64.0	100.0	25.0	0.760817	0.25	0.010256	0.019704
0.02	64.0	100.0	25.0	0.885817	0.0	0.0	0.0
0.03	64.0	100.0	25.0	0.945913	0.0	0.0	0.0
0.04	64.0	100.0	25.0	0.975962	0.0	0.0	0.0
0.01	25.0	25.0	75.0	0.747596	0.105263	0.010256	0.018692
0.02	25.0	25.0	75.0	0.883413	0.0	0.0	0.0
0.03	25.0	25.0	75.0	0.944712	0.0	0.0	0.0
0.04	25.0	25.0	75.0	0.973558	0.0	0.0	0.0
0.01	25.0	50.0	75.0	0.740385	0.08	0.010256	0.018182
0.02	25.0	50.0	75.0	0.885817	0.333333	0.010638	0.020619
0.03	25.0	50.0	75.0	0.94351	0.2	0.022727	0.040816

0.04	25.0	50.0	75.0	0.973558	0.0	0.0	0.0
0.01	25.0	75.0	75.0	0.733173	0.135135	0.025641	0.043103
0.02	25.0	75.0	75.0	0.883413	0.285714	0.021277	0.039604
0.03	25.0	75.0	75.0	0.944712	0.333333	0.045455	0.08
0.04	25.0	75.0	75.0	0.975962	0.5	0.05	0.090909
0.01	25.0	100.0	75.0	0.734375	0.267857	0.076923	0.119522
0.02	25.0	100.0	75.0	0.877404	0.166667	0.021277	0.037736
0.03	25.0	100.0	75.0	0.941106	0.222222	0.045455	0.075472
0.04	25.0	100.0	75.0	0.97476	0.4	0.1	0.16
0.01	32.0	25.0	75.0	0.754808	0.090909	0.005128	0.009709
0.02	32.0	25.0	75.0	0.883413	0.0	0.0	0.0
0.03	32.0	25.0	75.0	0.945913	0.0	0.0	0.0
0.04	32.0	25.0	75.0	0.973558	0.0	0.0	0.0
0.01	32.0	50.0	75.0	0.75	0.066667	0.005128	0.009524
0.02	32.0	50.0	75.0	0.884615	0.0	0.0	0.0
0.03	32.0	50.0	75.0	0.944712	0.0	0.0	0.0
0.04	32.0	50.0	75.0	0.97476	0.0	0.0	0.0
0.01	32.0	75.0	75.0	0.75	0.290323	0.046154	0.079646
0.02	32.0	75.0	75.0	0.88101	0.142857	0.010638	0.019802
0.03	32.0	75.0	75.0	0.945913	0.333333	0.022727	0.042553
0.04	32.0	75.0	75.0	0.975962	0.0	0.0	0.0
0.01	32.0	100.0	75.0	0.735577	0.142857	0.025641	0.043478
0.02	32.0	100.0	75.0	0.879808	0.3125	0.053191	0.090909
0.03	32.0	100.0	75.0	0.944712	0.25	0.022727	0.041667
0.04	32.0	100.0	75.0	0.97476	0.4	0.1	0.16
0.01	48.0	25.0	75.0	0.763221	0.0	0.0	0.0
0.02	48.0	25.0	75.0	0.887019	0.0	0.0	0.0
0.03	48.0	25.0	75.0	0.945913	0.0	0.0	0.0
0.04	48.0	25.0	75.0	0.97476	0.0	0.0	0.0
0.01	48.0	50.0	75.0	0.754808	0.090909	0.005128	0.009709
0.02	48.0	50.0	75.0	0.884615	0.0	0.0	0.0
0.03	48.0	50.0	75.0	0.945913	0.0	0.0	0.0
0.04	48.0	50.0	75.0	0.975962	0.0	0.0	0.0
0.01	48.0	75.0	75.0	0.747596	0.173913	0.020513	0.036697
0.02	48.0	75.0	75.0	0.883413	0.2	0.010638	0.020202
0.03	48.0	75.0	75.0	0.944712	0.25	0.022727	0.041667
0.04	48.0	75.0	75.0	0.97476	0.0	0.0	0.0
0.01	48.0	100.0	75.0	0.747596	0.317073	0.066667	0.110169
0.02	48.0	100.0	75.0	0.887019	0.5	0.031915	0.06
0.03	48.0	100.0	75.0	0.94351	0.2	0.022727	0.040816
0.04	48.0	100.0	75.0	0.975962	0.5	0.05	0.090909
0.01	64.0	25.0	75.0	0.765625	0.0	0.0	0.0
0.02	64.0	25.0	75.0	0.887019	0.0	0.0	0.0
0.03	64.0	25.0	75.0	0.945913	0.0	0.0	0.0
0.04	64.0	25.0	75.0	0.973558	0.0	0.0	0.0
0.01	64.0	50.0	75.0	0.759615	0.0	0.0	0.0
0.02	64.0	50.0	75.0	0.887019	0.0	0.0	0.0
0.03	64.0	50.0	75.0	0.947115	0.0	0.0	0.0
0.04	64.0	50.0	75.0	0.975962	0.0	0.0	0.0
0.01	64.0	75.0	75.0	0.745192	0.095238	0.010256	0.018519
0.02	64.0	75.0	75.0	0.884615	0.0	0.0	0.0
0.03	64.0	75.0	75.0	0.947115	0.0	0.0	0.0
0.04	64.0	75.0	75.0	0.97476	0.0	0.0	0.0
0.01	64.0	100.0	75.0	0.733173	0.2	0.046154	0.075
0.02	64.0	100.0	75.0	0.888221	0.666667	0.021277	0.041237
0.03	64.0	100.0	75.0	0.948317	1.0	0.022727	0.044444
0.04	64.0	100.0	75.0	0.975962	0.0	0.0	0.0
0.01	25.0	25.0	50.0	0.75601	0.1	0.005128	0.009756
0.02	25.0	25.0	50.0	0.883413	0.0	0.0	0.0
0.03	25.0	25.0	50.0	0.944712	0.0	0.0	0.0
0.04	25.0	25.0	50.0	0.973558	0.0	0.0	0.0
0.01	25.0	50.0	50.0	0.759615	0.222222	0.010256	0.019608
0.02	25.0	50.0	50.0	0.884615	0.0	0.0	0.0
0.03	25.0	50.0	50.0	0.944712	0.0	0.0	0.0
0.04	25.0	50.0	50.0	0.973558	0.0	0.0	0.0
0.01	25.0	75.0	50.0	0.751202	0.227273	0.025641	0.046083
0.02	25.0	75.0	50.0	0.884615	0.0	0.0	0.0
0.03	25.0	75.0	50.0	0.945913	0.333333	0.022727	0.042553
0.04	25.0	75.0	50.0	0.973558	0.0	0.0	0.0
0.01	25.0	100.0	50.0	0.747596	0.272727	0.046154	0.078947
0.02	25.0	100.0	50.0	0.883413	0.333333	0.031915	0.058252
0.03	25.0	100.0	50.0	0.944712	0.333333	0.045455	0.08
0.04	25.0	100.0	50.0	0.977163	0.666667	0.1	0.173913
0.01	32.0	25.0	50.0	0.760817	0.166667	0.005128	0.00995
0.02	32.0	25.0	50.0	0.883413	0.0	0.0	0.0
0.03	32.0	25.0	50.0	0.945913	0.0	0.0	0.0

0.04	32.0	25.0	50.0	0.97476	0.0	0.0	0.0
0.01	32.0	50.0	50.0	0.752404	0.076923	0.005128	0.009615
0.02	32.0	50.0	50.0	0.885817	0.0	0.0	0.0
0.03	32.0	50.0	50.0	0.945913	0.0	0.0	0.0
0.04	32.0	50.0	50.0	0.973558	0.0	0.0	0.0
0.01	32.0	75.0	50.0	0.745192	0.130435	0.015385	0.027523
0.02	32.0	75.0	50.0	0.887019	0.5	0.010638	0.020833
0.03	32.0	75.0	50.0	0.948317	0.666667	0.045455	0.085106
0.04	32.0	75.0	50.0	0.975962	0.0	0.0	0.0
0.01	32.0	100.0	50.0	0.729567	0.2	0.051282	0.081633
0.02	32.0	100.0	50.0	0.882212	0.25	0.021277	0.039216
0.03	32.0	100.0	50.0	0.945913	0.4	0.045455	0.081633
0.04	32.0	100.0	50.0	0.97476	0.333333	0.05	0.086957
0.01	48.0	25.0	50.0	0.762019	0.0	0.0	0.0
0.02	48.0	25.0	50.0	0.887019	0.0	0.0	0.0
0.03	48.0	25.0	50.0	0.947115	0.0	0.0	0.0
0.04	48.0	25.0	50.0	0.97476	0.0	0.0	0.0
0.01	48.0	50.0	50.0	0.764423	0.0	0.0	0.0
0.02	48.0	50.0	50.0	0.887019	0.0	0.0	0.0
0.03	48.0	50.0	50.0	0.945913	0.0	0.0	0.0
0.04	48.0	50.0	50.0	0.975962	0.0	0.0	0.0
0.01	48.0	75.0	50.0	0.747596	0.105263	0.010256	0.018692
0.02	48.0	75.0	50.0	0.884615	0.0	0.0	0.0
0.03	48.0	75.0	50.0	0.945913	0.0	0.0	0.0
0.04	48.0	75.0	50.0	0.975962	0.0	0.0	0.0
0.01	48.0	100.0	50.0	0.75601	0.25	0.020513	0.037915
0.02	48.0	100.0	50.0	0.887019	0.5	0.021277	0.040816
0.03	48.0	100.0	50.0	0.945913	0.0	0.0	0.0
0.04	48.0	100.0	50.0	0.97476	0.0	0.0	0.0
0.01	64.0	25.0	50.0	0.765625	0.0	0.0	0.0
0.02	64.0	25.0	50.0	0.887019	0.0	0.0	0.0
0.03	64.0	25.0	50.0	0.947115	0.0	0.0	0.0
0.04	64.0	25.0	50.0	0.97476	0.0	0.0	0.0
0.01	64.0	50.0	50.0	0.764423	0.333333	0.005128	0.010101
0.02	64.0	50.0	50.0	0.887019	0.0	0.0	0.0
0.03	64.0	50.0	50.0	0.947115	0.0	0.0	0.0
0.04	64.0	50.0	50.0	0.975962	0.0	0.0	0.0
0.01	64.0	75.0	50.0	0.757212	0.181818	0.010256	0.019417
0.02	64.0	75.0	50.0	0.887019	0.0	0.0	0.0
0.03	64.0	75.0	50.0	0.947115	0.0	0.0	0.0
0.04	64.0	75.0	50.0	0.97476	0.0	0.0	0.0
0.01	64.0	100.0	50.0	0.75601	0.277778	0.025641	0.046948
0.02	64.0	100.0	50.0	0.885817	0.0	0.0	0.0
0.03	64.0	100.0	50.0	0.947115	0.0	0.0	0.0
0.04	64.0	100.0	50.0	0.97476	0.0	0.0	0.0
0.01	25.0	25.0	100.0	0.753606	0.083333	0.005128	0.009662
0.02	25.0	25.0	100.0	0.883413	0.0	0.0	0.0
0.03	25.0	25.0	100.0	0.944712	0.0	0.0	0.0
0.04	25.0	25.0	100.0	0.973558	0.0	0.0	0.0
0.01	25.0	50.0	100.0	0.740385	0.137931	0.020513	0.035714
0.02	25.0	50.0	100.0	0.882212	0.166667	0.010638	0.02
0.03	25.0	50.0	100.0	0.944712	0.333333	0.045455	0.08
0.04	25.0	50.0	100.0	0.972356	0.0	0.0	0.0
0.01	25.0	75.0	100.0	0.729567	0.2	0.051282	0.081633
0.02	25.0	75.0	100.0	0.88101	0.333333	0.053191	0.091743
0.03	25.0	75.0	100.0	0.94351	0.285714	0.045455	0.078431
0.04	25.0	75.0	100.0	0.972356	0.2	0.05	0.08
0.01	25.0	100.0	100.0	0.711538	0.191781	0.071795	0.104478
0.02	25.0	100.0	100.0	0.883413	0.428571	0.095745	0.156522
0.03	25.0	100.0	100.0	0.941106	0.222222	0.045455	0.075472
0.04	25.0	100.0	100.0	0.97476	0.4	0.1	0.16
0.01	32.0	25.0	100.0	0.75601	0.1	0.005128	0.009756
0.02	32.0	25.0	100.0	0.882212	0.0	0.0	0.0
0.03	32.0	25.0	100.0	0.945913	0.0	0.0	0.0
0.04	32.0	25.0	100.0	0.973558	0.0	0.0	0.0
0.01	32.0	50.0	100.0	0.748798	0.181818	0.020513	0.036866
0.02	32.0	50.0	100.0	0.882212	0.166667	0.010638	0.02
0.03	32.0	50.0	100.0	0.942308	0.166667	0.022727	0.04
0.04	32.0	50.0	100.0	0.973558	0.0	0.0	0.0
0.01	32.0	75.0	100.0	0.740385	0.243902	0.051282	0.084746
0.02	32.0	75.0	100.0	0.88101	0.333333	0.053191	0.091743
0.03	32.0	75.0	100.0	0.94351	0.333333	0.068182	0.113208
0.04	32.0	75.0	100.0	0.971154	0.166667	0.05	0.076923
0.01	32.0	100.0	100.0	0.733173	0.278689	0.087179	0.132812
0.02	32.0	100.0	100.0	0.878606	0.294118	0.053191	0.09009
0.03	32.0	100.0	100.0	0.94351	0.285714	0.045455	0.078431

0.04	32.0	100.0	100.0	0.97476	0.4	0.1	0.16
0.01	48.0	25.0	100.0	0.759615	0.0	0.0	0.0
0.02	48.0	25.0	100.0	0.884615	0.0	0.0	0.0
0.03	48.0	25.0	100.0	0.945913	0.0	0.0	0.0
0.04	48.0	25.0	100.0	0.97476	0.0	0.0	0.0
0.01	48.0	50.0	100.0	0.752404	0.133333	0.010256	0.019048
0.02	48.0	50.0	100.0	0.885817	0.0	0.0	0.0
0.03	48.0	50.0	100.0	0.945913	0.333333	0.022727	0.042553
0.04	48.0	50.0	100.0	0.975962	0.0	0.0	0.0
0.01	48.0	75.0	100.0	0.719952	0.183333	0.05641	0.086275
0.02	48.0	75.0	100.0	0.885817	0.333333	0.010638	0.020619
0.03	48.0	75.0	100.0	0.94351	0.2	0.022727	0.040816
0.04	48.0	75.0	100.0	0.973558	0.25	0.05	0.083333
0.01	48.0	100.0	100.0	0.733173	0.212766	0.051282	0.082645
0.02	48.0	100.0	100.0	0.884615	0.428571	0.06383	0.111111
0.03	48.0	100.0	100.0	0.941106	0.222222	0.045455	0.075472
0.04	48.0	100.0	100.0	0.973558	0.25	0.05	0.083333
0.01	64.0	25.0	100.0	0.764423	0.0	0.0	0.0
0.02	64.0	25.0	100.0	0.887019	0.0	0.0	0.0
0.03	64.0	25.0	100.0	0.945913	0.0	0.0	0.0
0.04	64.0	25.0	100.0	0.97476	0.0	0.0	0.0
0.01	64.0	50.0	100.0	0.759615	0.0	0.0	0.0
0.02	64.0	50.0	100.0	0.887019	0.0	0.0	0.0
0.03	64.0	50.0	100.0	0.947115	0.0	0.0	0.0
0.04	64.0	50.0	100.0	0.975962	0.0	0.0	0.0
0.01	64.0	75.0	100.0	0.75601	0.277778	0.025641	0.046948
0.02	64.0	75.0	100.0	0.884615	0.25	0.010638	0.020408
0.03	64.0	75.0	100.0	0.948317	1.0	0.022727	0.044444
0.04	64.0	75.0	100.0	0.975962	0.0	0.0	0.0
0.01	64.0	100.0	100.0	0.740385	0.16129	0.025641	0.044248
0.02	64.0	100.0	100.0	0.883413	0.333333	0.031915	0.058252
0.03	64.0	100.0	100.0	0.945913	0.4	0.045455	0.081633
0.04	64.0	100.0	100.0	0.97476	0.0	0.0	0.0

best bpnn classification								
security id	threshold	batch_size	epochs	units	accuracy	precision	recall	f1_score
50001112	0.01	25	75	100	0.678174	0.4	0.214559	0.279302
50001112	0.02	25	100	100	0.824053	0.288462	0.110294	0.159574
50001112	0.03	25	100	100	0.903118	0.275862	0.108108	0.15534
50001112	0.04	25	100	25	0.957684	1.0	0.073171	0.136364
50001112	0.01	25	100	100	0.850270	0.218391	0.108571	0.145038
50001112	0.02	25	100	100	0.886288	0.127666	0.089552	0.105268
50001112	0.03	25	75	50	0.956522	0.333333	0.105286	0.170213
50001112	0.04	25	75	50	0.977703	0.4	0.105263	0.166667
50001112	0.01	25	100	100	0.712222	0.27381	0.104072	0.15082
50001112	0.02	25	100	100	0.883333	0.238095	0.053491	0.086957
50001112	0.03	25	75	75	0.933333	0.166667	0.026316	0.045455
50001112	0.04	25	25	25	0.977778	0.0	0.0	0.0
50001112	0.01	25	100	100	0.747497	0.220779	0.092391	0.130268
50001112	0.02	25	100	100	0.893215	0.208897	0.075949	0.111111
50001112	0.03	25	100	75	0.946607	0.166667	0.055956	0.076923
50001112	0.04	25	100	100	0.973304	0.125	0.055356	0.076923
50001112	0.01	25	100	100	0.682981	0.266129	0.145374	0.188034
50001112	0.02	25	100	100	0.887653	0.307692	0.087912	0.136752
50001112	0.03	25	100	100	0.941046	0.3	0.133333	0.184615
50001112	0.04	25	75	75	0.971079	0.375	0.125	0.1875
50001112	0.01	25	100	100	0.757955	0.276596	0.067708	0.108787
50001112	0.02	25	100	100	0.898864	0.130435	0.041667	0.063158
50001112	0.03	25	25	25	0.973864	0.0	0.0	0.0
50001112	0.04	25	25	25	0.997773	0.0	0.0	0.0
50768855	0.01	32	100	100	0.729911	0.312977	0.212435	0.253086
50768855	0.02	32	100	75	0.883929	0.34375	0.117021	0.174603
50768855	0.03	32	100	100	0.933036	0.321429	0.018	0.230769
50768855	0.04	32	75	75	0.965402	0.388714	0.16	0.205128
53096655	0.01	48	100	100	0.70838	0.288235	0.13	0.201835
53096655	0.02	48	75	100	0.868156	0.526316	0.084034	0.144928
53096655	0.03	48	100	50	0.931844	0.538462	0.112903	0.186667
53096655	0.04	48	75	100	0.96648	0.0	0.15	0.25
53221174	0.01	22	100	100	0.652561	0.3315	0.088703	0.239024
53221174	0.02	22	100	75	0.818486	0.3309524	0.088703	0.137566
53221174	0.03	22	100	100	0.907572	0.5	0.060241	0.107527
53221174	0.04	22	100	100	0.942094	0.388888	0.145033	0.212121
53221174	0.01	22	100	100	0.723502	0.336938	0.166938	0.225806
53221174	0.02	22	100	100	0.874424	0.391304	0.086508	0.141732
53221174	0.03	22	100	75	0.937788	0.333333	0.125	0.181818
53221174	0.04	22	75	75	0.970046	0.0	0.076923	0.133333
53221174	0.01	22	100	100	0.733173	0.275	0.087175	0.132812
53221174	0.02	22	100	100	0.883413	0.428889	0.090871	0.156525
53221174	0.03	22	100	100	0.94351	0.333333	0.087175	0.113208
532540	0.04	25	75	50	0.977163	0.666667	0.182	0.173913