

Additional Information of "QChi: A Faster Classification Algorithm Based On Wang-Mendel Algorithm"

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This document shows the tables relating to the experimental study with 5 and 7 labels relating to section 4.A of the paper (Tables 1 and 2). It also includes (Table 3) the table relating to the comparison between the weights obtained by the WM and QChi algorithms, a summary of which appears in the final paper in Table III.

Dataset	Test		#Rules		Training Time (secs)		Faster
	QChi	WM	QChi	WM	QChi	WM	
abalone	16.70	1.05	122.7	12.2	0.03687	0.16382	4.44
adult	63.32	64.38	19796.4	19796.4	0.69185	150.03886	216.87
australian	54.64	54.64	498.9	498.9	0.00985	0.07474	7.59
banana	79.38	80.36	19.6	19.6	0.02437	0.04136	1.70
bands	16.16	16.44	325.3	325.3	0.00905	0.02881	3.18
bupa	55.65	59.71	120.8	120.8	0.00196	0.01101	5.61
coil2000	24.27	24.27	7451.9	7455.8	0.89667	11.31296	12.62
crx	40.74	41.19	522.7	522.7	0.01236	0.06412	5.19
iris	94.67	95.33	45.5	45.5	0.00118	0.00191	1.63
letter	77.43	74.60	7488.1	4962.3	0.38233	34.05002	89.06
magic	81.63	80.80	1912.4	1912.4	0.21723	7.05275	32.47
newthyroid	95.35	91.16	48.0	48.0	0.00130	0.00542	4.17
mammogr	76.87	76.75	160.0	159.6	0.00564	0.03283	5.83
page-blocks	94.39	93.90	163.1	161.9	0.06455	0.22144	3.43
penbased	94.01	94.30	7739.0	7737.1	0.18145	10.59466	58.39
phoneme	80.59	78.66	228.2	228.2	0.03800	0.21914	5.77
pima	66.02	70.57	426.6	426.6	0.00844	0.06223	7.38
ring	54.62	53.24	5059.5	5059.5	0.17224	11.32908	65.78
saheart	60.82	62.12	354.0	354.0	0.00678	0.05100	7.53
satimage	64.83	51.24	2137.4	1859.1	0.25657	15.07542	58.76
segment	90.39	88.48	884.9	863.3	0.04983	0.40701	8.17
shuttle	92.42	84.24	71.9	70.1	0.61837	1.45169	2.35
spambase	80.66	80.66	1379.5	1379.6	0.28493	3.75509	13.18
texture	87.40	85.84	3694.8	3473.3	0.25783	10.71664	41.56
thyroid	91.96	92.10	941.2	943.9	0.13164	1.25975	9.57
twonorm	34.14	34.93	6654.2	6654.2	0.17540	11.33177	64.60
vehicle	51.89	54.49	707.8	683.2	0.01870	0.18749	10.03
vowel	93.43	93.03	649.7	638.8	0.01469	0.13457	9.16
wineq-red	56.79	59.60	763.4	614.2	0.02520	0.28823	11.44
wineq-white	49.80	53.08	1043.2	651.5	0.06547	1.70265	26.01
Average	67.37	66.37	2380.4	2255.9	0.15536	9.05555	26.45

Table 1: Results obtained by QCHI vs WM algorithms using uniformly distributed domain with 5 labels on all continuous variables

Dataset	Test		#Rules		Training Time (secs)		Faster
	QChi	WM	QChi	WM	QChi	WM	
abalone	18.83	3.07	272.1	39.6	0.034729	0.266552	7.68
adult	59.46	60.29	23543.9	23544	0.607013	143.108063	235.76
australian	44.35	45.51	571.6	571.6	0.006745	0.067386	9.99
banana	86.23	87.36	32.7	32.7	0.021274	0.045084	2.12
bands	4.11	4.11	328.5	328.5	0.007951	0.023434	2.95
bupa	54.20	58.55	186.2	186.2	0.004179	0.020969	5.02
coil2000	23.71	23.71	7455.3	7455.9	0.910875	10.609804	11.65
crx	30.78	31.24	551.6	551.6	0.00908	0.066846	7.36
iris	92.00	92.67	66.1	66.1	0.001002	0.002167	2.16
letter	82.13	82.79	13086.4	12643.9	0.371883	40.1901	108.07
magic	80.29	81.38	4517.4	4517.4	0.237756	15.002445	63.10
newthyroid	91.16	92.09	67.4	67.4	0.001202	0.003458	2.88
mammogr	73.49	74.82	183.1	183.9	0.005499	0.023199	4.22
page-blocks	94.50	94.13	292.4	289.4	0.057951	0.332775	5.74
penbased	77.49	77.52	9394.6	9394.6	0.179212	11.401409	63.62
phoneme	82.85	82.07	471.1	471.1	0.035796	0.355269	9.92
pima	60.94	62.37	599.5	599.5	0.008396	0.099735	11.88
ring	39.78	39.96	6612.4	6612.4	0.165381	10.547319	63.78
saheart	46.75	46.97	399.1	399.1	0.005524	0.040247	7.29
satimage	70.30	72.70	3237.3	2992.7	0.249837	15.094193	60.42
segment	88.57	88.53	1226.7	1217.1	0.047331	0.442371	9.35
shuttle	97.70	91.59	85.5	84.6	0.583724	1.567628	2.69
spambase	75.77	76.70	2154.8	2155.6	0.270649	4.471193	16.52
texture	75.31	75.60	4389.1	4366.3	0.289956	8.216433	28.34
thyroid	91.40	91.60	1165.3	1161.5	0.125682	1.376095	10.95
twonorm	0.26	0.26	6660	6660	0.157665	7.579011	48.07
vehicle	29.08	29.31	755.6	753.4	0.021342	0.129281	6.06
vowel	92.73	93.03	748.6	748.4	0.013008	0.16008	12.31
wineq-red	59.29	59.10	1028.2	951	0.025189	0.364136	14.46
wineq-white	54.33	55.29	2145.5	1640.2	0.081322	2.643661	32.51
Average	62.59	62.48	3074.3	3022.9	0.15124	9.14168	60.45

Table 2: Results obtained by QCHI vs WM algorithms using uniformly distributed domain with 7 labels on all continuous variables

	A (==)	B ($ \leq 10\% $)	C (\geq)
abalone	37.50	75.00	75.00
adult	79.42	84.06	95.36
australian	65.11	78.60	95.74
banana	0.00	13.93	61.43
bands	3.59	16.86	98.01
bupa	3.26	10.73	85.76
coil2000	99.98	99.99	100.00
crx	90.37	94.42	98.34
iris	6.81	34.00	93.86
letter	0.00	11.84	99.45
magic	21.45	35.36	86.13
mammogr	4.32	83.46	87.94
newthyroid	23.40	34.62	86.33
page-blocks	12.63	44.39	87.55
penbased	23.22	73.83	99.22
phoneme	0.00	14.72	66.23
pima	2.53	11.48	85.53
ring	0.09	4.55	98.06
saheart	2.46	11.21	92.72
satimage	0.00	13.54	96.60
segment	27.45	58.83	98.27
shuttle	9.82	26.64	85.45
spambase	31.44	60.25	96.11
texture	0.01	42.21	99.32
thyroid	49.81	74.09	93.59
twonorm	0.00	30.65	98.69
vehicle	0.85	10.90	96.38
vowel	1.23	8.19	99.48
wineq-red	0.87	5.84	94.86
wineq-white	2.45	3.93	96.06
Mean	20.00	38.94	91.58
Std	28.92	31.04	9.65

Table 3: Comparative between both rule weight models