Table containing the AUC results of our proposal for selecting contrast patterns, using different k values, and other contrast pattern selection methods of the state-of-the-art.

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February 17, 2017

Abstract

In this document we show supplementary material for the paper entitled "A Novel Contrast Pattern Selection Method for Class Imbalance Problems" submitted to the 9^{th} Mexican Conference on Pattern Recognition (MCPR2017).

1 AUC Results

Table 1: Average AUC results obtained by all the contrast patterns selection methods reported in the state-of-the-art and our proposal using different k values.

Databases	Best[1]	Cover[2]	Best K			Our Proposal											All CPs
			10	50	80	5	10	15	20	25	30	35	40	45	50	80	
abalone17vs78910	0.5	0.6636	0.7437	0.8288	0.8259	0.8006	0.8007	0.8181	0.8186	0.8186	0.8181	0.8175	0.8175	0.8175	0.8173	0.8164	0.8162
abalone19	0.5	0.5094	0.5867	0.6418	0.6520	0.6505	0.6500	0.6492	0.6493	0.6491	0.6486	0.6485	0.6485	0.6482	0.6482	0.6475	0.6475
abalone19vs10111213	0.5	0.5419	0.5867	0.6467	0.6392	0.6329	0.6376	0.6395	0.6382	0.6373	0.6370	0.6367	0.6360	0.6357	0.6348	0.6326	0.6316
abalone20vs8910	0.5	0.6295	0.7028	0.7634	0.7972	0.7980	0.7983	0.7983	0.7980	0.7983	0.7980	0.7980	0.7977	0.7975	0.7969	0.7967	0.7964
abalone21vs8	0.5	0.7579	0.8561	0.8411	0.8639	0.8288	0.8314	0.8314	0.8639	0.8648	0.8648	0.8648	0.8648	0.8648	0.8648	0.8648	0.8630
abalone3vs11	0.5	0.9990	0.5000	0.9990	0.9990	0.5000	0.5000	0.6990	0.9990	0.9990	0.9990	0.9990	0.9990	0.9990	0.9990	0.9990	0.9990
abalone9vs18	0.5	0.7524	0.7630	0.7923	0.7908	0.8028	0.8123	0.8041	0.8034	0.8056	0.8041	0.8027	0.8019	0.8019	0.8012	0.7998	0.7998
cargood	0.5	0.9573	0.9210	0.9157	0.9099	0.8957	0.9096	0.9120	0.9120	0.9105	0.9111	0.9105	0.9102	0.9093	0.9090	0.9084	0.9084
carvgood	0.5	0.9850	0.9801	0.9669	0.9555	0.9492	0.9528	0.9549	0.9552	0.9561	0.9558	0.9561	0.9561	0.9555	0.9555	0.9546	0.9546
cleveland0vs4	0.5	0.8615	0.8797	0.8797	0.9036	0.9163	0.9131	0.9099	0.9099	0.9099	0.9099	0.9099	0.9099	0.9067	0.9067	0.9067	0.9067
dermatology6	0.5	0.9735	0.9926	0.9793	0.9808	0.9823	0.9808	0.9808	0.9808	0.9808	0.9808	0.9808	0.9808	0.9808	0.9808	0.9808	0.9808
ecoli0vs1	0.5	0.9761	0.9831	0.9795	0.9761	0.9832	0.9832	0.9795	0.9795	0.9795	0.9795	0.9795	0.9795	0.9795	0.9795	0.9761	0.9761
ecoli01vs235	0.5	0.8295	0.8782	0.8982	0.8914	0.9095	0.9118	0.8868	0.8891	0.8891	0.8891	0.8891	0.8891	0.8891	0.8891	0.8891	0.8891
ecoli01vs5	0.5	0.8523	0.8636	0.9432	0.9455	0.9568	0.9477	0.9455	0.9477	0.9477	0.9477	0.9455	0.9455	0.9455	0.9455	0.9455	0.9455
ecoli0137vs26	0.5	0.7391	0.8299	0.8562	0.8471	0.8471	0.8435	0.8471	0.8435	0.8435	0.8435	0.8471	0.8434	0.8416	0.8434	0.8398	0.8398
ecoli0146vs5	0.5	0.8327	0.8731	0.9404	0.9135	0.8885	0.9173	0.9173	0.9173	0.9404	0.9404	0.9404	0.9404	0.9404	0.9404	0.9404	0.9404
ecoli0147vs2356	0.5	0.8440	0.8491	0.8646	0.8812	0.8450	0.8632	0.8730	0.8747	0.8779	0.8779	0.8779	0.8763	0.8763	0.8763	0.8763	0.8763
ecoli0147vs56	0.5	0.8269	0.8604	0.8959	0.8992	0.9029	0.8910	0.8926	0.8943	0.8991	0.8991	0.8991	0.8991	0.8991	0.8975	0.8959	0.8959
ecoli0234vs5	0.5	0.9111	0.8917	0.9168	0.9168	0.9113	0.9363	0.9363	0.9363	0.9391	0.9391	0.9391	0.9391	0.9391	0.9391	0.9364	0.9364
ecoli0267vs35	0.5	0.8176	0.8429	0.8304	0.8254	0.7905	0.8480	0.8255	0.8254	0.8254	0.8279	0.8279	0.8254	0.8254	0.8254	0.8254	0.8254
ecoli034vs5	0.5	0.8972	0.8972	0.9361	0.9389	0.9306	0.9306	0.9361	0.9583	0.9583	0.9583	0.9333	0.9333	0.9333	0.9333	0.9333	0.9583
ecoli0346vs5	0.5	0.8588	0.9088	0.9453	0.9453	0.9149	0.9345	0.9345	0.9372	0.9399	0.9426	0.9426	0.9426	0.9426	0.9426	0.9426	0.9426
ecoli0347vs56	0.5	0.8693	0.8942	0.8991	0.8905	0.8776	0.8884	0.8948	0.8905	0.8926	0.8926	0.8926	0.8905	0.8905	0.8883	0.8883	0.8883
ecoli046vs5	0.5	0.8505	0.8978	0.9315	0.9369	0.9342	0.9342	0.9315	0.9315	0.9342	0.9342	0.9342	0.9342	0.9342	0.9342	0.9342	0.9315
ecoli067vs35	0.5	0.8100	0.8600	0.8550	0.8550	0.8450	0.8475	0.8500	0.8500	0.8500	0.8500	0.8550	0.8550	0.8550	0.8550	0.8500	0.8500
ecoli067vs5	0.5	0.8300	0.8800	0.8775	0.8825	0.8650	0.8600	0.8650	0.8700	0.8725	0.8725	0.8700	0.8725	0.8725	0.8725	0.8725	0.8725
ecoli1	0.5	0.8592	0.8903	0.9204	0.9184	0.9112	0.9088	0.9146	0.9204	0.9204	0.9204	0.9204	0.9204	0.9137	0.9137	0.9137	0.9118
ecoli2	0.5	0.8890	0.9041	0.9027	0.8927	0.8838	0.8939	0.8891	0.8909	0.8927	0.8927	0.8927	0.8927	0.8927	0.8927	0.8927	0.9009
ecoli3	0.5	0.8063	0.8469	0.8452	0.8452	0.8814	0.8452	0.8452	0.8452	0.8452	0.8452	0.8452	0.8452	0.8452	0.8452	0.8452	0.8452
ecoli4	0.5	0.8889	0.8810	0.9199	0.9183	0.9152	0.9152	0.9183	0.9183	0.9183	0.9183	0.9183	0.9183	0.9183	0.9183	0.9167	0.9167
flareF	0.4527	0.6047	0.6213	0.7181	0.7128	0.7600	0.7389	0.7214	0.7160	0.7126	0.7251	0.7231	0.7221	0.7177	0.7177	0.7167	0.7167
glass0	0.5	0.8344	0.8667	0.8596	0.8667	0.8421	0.8703	0.8703	0.8738	0.8807	0.8701	0.8738	0.8738	0.8738	0.8738	0.8667	0.8632
glass0123vs456	0.5	0.9010	0.9168	0.9469	0.9469	0.9308	0.9400	0.9300	0.9400	0.9400	0.9400	0.9369	0.9369	0.9469	0.9469	0.9469	0.9439
glass0146vs2	0.5	0.6876	0.7060	0.7764	0.7843	0.7950	0.7976	0.7949	0.7949	0.7949	0.7949	0.7922	0.7896	0.7896	0.7896	0.8203	0.8203
glass015vs2	0.5	0.6677	0.6054	0.6954	0.6589	0.7065	0.7245	0.7116	0.6782	0.6782	0.6750	0.6685	0.6718	0.6653	0.6653	0.6589	0.6589
glass016vs2	0.5	0.6960	0.6648	0.6781	0.6695	0.6867	0.6838	0.6867	0.6838	0.6838	0.6810	0.6781	0.6810	0.6810	0.6752	0.6695	0.6667
glass016vs5	0.5	0.9471	0.9800	0.9629	0.9657	0.9657	0.9629	0.9600	0.9629	0.9629	0.9629	0.9629	0.9629	0.9629	0.9629	0.9657	0.9657
glass04vs5	0.5	0.9500	0.7938	0.9640	0.9643	0.7581	0.8820	0.9820	0.9820	0.9702	0.9702	0.9643	0.9643	0.9643	0.9643	0.9643	0.9643
glass06vs5	0.5	0.9900	0.9800	0.9445	0.9445	0.9595	0.9645	0.9545	0.9495	0.9545	0.9545	0.9495	0.9495	0.9495	0.9495	0.9445	0.9445
glass1	0.5	0.7907	0.7498	0.8053	0.8053	0.7685	0.7755	0.7822	0.7924	0.7991	0.7924	0.7924	0.7991	0.7991	0.7991	0.8089	0.8053
glass2	0.5	0.7469	0.7718	0.8129	0.8029	0.8180	0.8181	0.8105	0.8080	0.8080	0.8080	0.8080	0.8004	0.8029	0.8054	0.7979	0.7979
glass4	0.5	0.8442	0.9225	0.9051	0.9076	0.9051	0.9051	0.9076	0.9076	0.9076	0.9076	0.9076	0.9076	0.9076	0.9076	0.9076	0.9076
glass5	0.5	0.9976	0.9854	0.9756	0.9756	0.9707	0.9707	0.9732	0.9732	0.9732	0.9732	0.9732	0.9732	0.9732	0.9732	0.9732	0.9732
glass6	0.5	0.9365	0.9230	0.9423	0.9423	0.9477	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9423	0.9423	0.9423	0.9423	0.9423
haberman	0.5	0.5456	0.5609	0.5827	0.5962	0.6331	0.6329	0.6248	0.6105	0.6150	0.6087	0.6069	0.5985	0.6025	0.5940	0.5940	0.5918
iris0	0.5	1.0000	0.5000	1.0000	1.0000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	1.0000	1.0000	1.0000
krvskonevsfifteen	0.5	1.0000	0.8792	1.0000	1.0000	0.9000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
krvskthreevseleven	0.5	0.9934	0.9625	0.9672	0.9918	0.9919	0.9925	0.9925	0.9919	0.9921	0.9921	0.9921	0.9909	0.9905	0.9904	0.9902	0.9900
krvskzerovseight	0.5	0.9812	0.8456	0.9867	0.9812	0.9766	0.9749	0.9742	0.9728	0.9728	0.9728	0.9728	0.9728	0.9728	0.9728	0.9728	0.9728
krvskzerovsfifteen	0.5	1.0000	0.9033	0.9998	0.9998	0.6998	0.9995	0.9993	0.9993	0.9993	0.9993	0.9993	0.9993	0.9993	0.9993	0.9993	0.9993
krvskzeroonevsdraw	0.5	0.9843	0.9142	0.9796	0.9768	0.9769	0.9775	0.9762	0.9766	0.9762	0.9762	0.9759	0.9755	0.9755	0.9755	0.9751	0.9751
led7digit02456789vs1	0.8241	0.8663	0.9112	0.8743	0.8496	0.8480	0.8639	0.8676	0.8718	0.8718	0.8706	0.8669	0.8669	0.8657	0.8607	0.8472	0.8447
lymphography[3]	0.5	0.7395	0.7220	0.9078	0.9544	0.9683	0.9578	0.9578	0.9578	0.9578	0.9578	0.9578	0.9578	0.9578	0.9578	0.9578	0.9578
newthyroid1	0.5	0.9631	0.9718	0.9806	0.9806	0.9635	0.9861	0.9806	0.9806	0.9806	0.9806	0.9806	0.9806	0.9806	0.9806	0.9806	0.9778
newthyroid2	0.5	0.9603	0.9603	0.9806	0.9806	0.9667	0.9806	0.9806	0.9806	0.9806	0.9806	0.9806	0.9806	0.9806	0.9806	0.9806	0.9806
pageblocks0	0.5	0.9272	0.9239	0.9506	0.9511	0.9587	0.9586	0.9575	0.9567	0.9552	0.9552	0.9544	0.9545	0.9545	0.9536	0.9536	0.9536
pageblocks13vs4	0.5	0.9966	0.9955	0.9808	0.9797	0.9729	0.9786	0.9786	0.9775	0.9797	0.9786	0.9786	0.9797	0.9797	0.9797	0.9797	0.9797
pima	0.5	0.7167	0.7212	0.7274	0.7331	0.7531	0.7357	0.7379	0.7343	0.7372	0.7250	0.7250	0.7241	0.7223	0.7241	0.7313	0.7320
poker8vs6	0.5	0.8250	0.8316	0.7909	0.8491	0.8559	0.8522	0.8484	0.8463	0.8443	0.8422	0.8416	0.8409	0.8402	0.8395	0.8364	0.8357
poker89vs5	0.5	0.6349	0.6971	0.8095	0.8063	0.7698	0.7610	0.7537	0.7512	0.7480	0.7468	0.7459	0.7444	0.7441	0.7434	0.7420	0.7415
poker89vs6	0.5	0.7573	0.8816	0.8725	0.8704	0.8665	0.8645	0.8600	0.8559	0.8518	0.8497	0.8480	0.8466	0.8456	0.8446	0.8408	0.8405
poker9vs7	0.5	0.5457	0.8245	0.9216	0.9153	0.9152	0.8983	0.8962	0.9090	0.9090	0.9090	0.9090	0.9090	0.9068	0.9068	0.9047	0.9047
segment0	0.5	0.9955	0.9914	0.9949	0.9949	0.9939	0.9949	0.9949	0.9949	0.9949	0.9949	0.9949	0.9949	0.9949	0.9949	0.9949	0.9949
shuttle2vs5	0.5	1.0000	0.9000	0.9992	0.9986	0.5000	0.8991	0.9986	0.9986	0.9986	0.9986	0.9986	0.9986	0.9986	0.9986	0.9986	0.9986
shuttle6vs23	0.5	0.9977	0.9955	0.9909	0.9886	0.8909	0.9886	0.9886	0.9886	0.9886	0.9886	0.9886	0.9886	0.9886	0.9886	0.9886	0.9886
shuttlec0vsc4	0.5	1.0000	1.0000	0.9991	0.9991	0.5000	0.9991	0.9991	0.9991	0.9991	0.9991	0.9991	0.9991	0.9991	0.9991	0.9991	0.9991
shuttlec2vsc4	0.5	1.0000	0.8000	0.9960	0.9960	0.8000	0.8000	0.9960	0.9960	0.9960	0.9960	0.9960	0.9960	0.9960	0.9960	0.9960	0.9960
vehicle0	0.5	0.9467	0.9390	0.9641	0.9633	0.9448	0.9540	0.9579	0.9602	0.9625	0.9625	0.9633	0.9633	0.9633	0.9633	0.9625	0.9625
vehicle1	0.5	0.7073	0.7418	0.7616	0.7700	0.7711	0.7699	0.7732	0.7725	0.7717	0.7725	0.7709	0.7687	0.7685	0.7701	0.7731	0.7723
vehicle2	0.5	0.9629	0.9694	0.9733	0.9741	0.9502	0.9701	0.9717	0.9725	0.9725	0.9725	0.9725	0.9733	0.9733	0.9741	0.9741	0.9741
vehicle3	0.5	0.7316	0.7557	0.7676	0.7699	0.7550	0.7723	0.7730	0.7786	0.7762	0.7676	0.7629	0.7629	0.7644	0.7660	0.7731	0.7715
vowel0	0.5	0.9539	0.9000	0.9644	0.9644	0.9628	0.9644	0.9644	0.9644	0.9644	0.9644	0.9644	0.9644	0.9644	0.9650	0.9650	0.9650
winequalityred3vs5	0.5	0.6390	0.6787	0.7544	0.7559	0.7067	0.7059	0.7052	0.7537	0.7537	0.7537	0.7537	0.7530	0.7530	0.7530	0.7530	0.7530
winequalityred4	0.5	0.5962	0.6957	0.7279	0.7159	0.7120	0.7214	0.7224	0.7224	0.7201	0.7289	0.7292	0.7282	0.7276	0.7269	0.7247	0.7243
winequalityred8vs6	0.5	0.5950	0.7418	0.7839	0.7815	0.7925	0.7901	0.7878	0.7862	0.7862	0.7846	0.7846	0.7846	0.7839	0.7839	0.7823	0.7815
winequalityred8vs67	0.5	0.5708	0.6475	0.7009	0.7229	0.7075	0.7289	0.7271	0.7271	0.7259	0.7235	0.7235	0.7235	0.7217	0.7211	0.7194	0.7188
winequalitywhite3vs7	0.5	0.5653	0.6744	0.7858	0.7847	0.7903	0.7903	0.7886	0.7875	0.7858	0.7852	0.7852	0.7852	0.7852	0.7852	0.7847	0.7841
winequalitywhite39vs5	0.5	0.5311	0.6336	0.7024	0.6996	0.6865	0.7051	0.7034	0.7034	0.7027	0.7020	0.7013	0.7010	0.7003	0.7003	0.6989	0.7186
winequalitywhite9vs4	0.5	0.6875	0.7569	0.8355	0.8294	0.8355	0.8355	0.8325	0.8325	0.8325	0.8325	0.8325	0.8325	0.8325	0.8295	0.8263	0.8263
wisconsin	0.5	0.9681	0.9572	0.9656	0.9656	0.9677	0.9666	0.9677	0.9677	0.9666	0.9656	0.9656	0.9656	0.9656	0.9645	0.9645	0.9645
yeast0256vs3789	0.5	0.7550	0.8009	0.7983	0.7938	0.7894	0.7883	0.7963	0.7980	0.7916	0.7916	0.7927	0.7921	0.7916	0.7910	0.7899	0.7883
yeast02579vs368	0.5	0.8904	0.8787	0.8866	0.8888	0.8827	0.8833	0.8844	0.8888	0.8894	0.8888	0.8888	0.8888	0.8888	0.8888	0.8888	0.8883
yeast0359vs78	0.5	0.6741	0.7277	0.7327	0.7427	0.7460	0.7603	0.7614	0.7471	0.7571	0.7549	0.7538	0.7538	0.7527	0.7627	0.7572	0.7561
yeast05679vs4	0.5	0.7106	0.7807	0.7949	0.7908	0.7981	0.7791	0.8023	0.7912	0.7923	0.8012	0.8012	0.8012	0.8002	0.8002	0.7950	0.7950
yeast1	0.5	0.7171	0.7369	0.7440	0.7406	0.7409	0.7371	0.7388	0.7394	0.7384	0.7358	0.7375	0.7361	0.7358	0.7367	0.7364	0.7394
yeast1vs7	0.5	0.7434	0.7905	0.8328	0.8281	0.7897	0.8242	0.8266	0.8266	0.8219	0.8196	0.8173	0.8328	0.8316	0.8304	0.8281	0.8269
yeast1289vs7	0.5	0.6492	0.7086	0.7275	0.7526	0.6838	0.7392	0.7398	0.7403	0.7409	0.7398	0.7398	0.7387	0.7387	0.7387	0.7349	0.7349
yeast1458vs7	0.5	0.5039	0.5889	0.6293	0.6551	0.6543	0.6520	0.6490	0.6641	0.6588	0.6747	0.6710	0.6710	0.6695	0.6687	0.6649	0.6642
yeast2vs4	0.5	0.8735	0.8904	0.9387	0.9398	0.9409	0.9409	0.9409	0.9409	0.9409	0.9409	0.9409	0.9409	0.9409	0.9409	0.9409	0.9409
yeast2vs8	0.5	0.7392	0.8425	0.8448	0.8351	0.8176	0.8394	0.8405	0.8383	0.8372	0.8372	0.8361	0.8361	0.8350	0.8329	0.8307	0.8296
yeast3	0.5	0.8761	0.9109	0.9228	0.9257	0.9199	0.9222	0.9229	0.9229	0.9194	0.9194	0.9194	0.9226	0.9226	0.9257	0.9242	0.9242
yeast4	0.5	0.6950	0.7668	0.8260	0.8442	0.8398	0.8419	0.8328	0.8428	0.8432	0.8528	0.8525	0.8525	0.8521	0.8521	0.8518	0.8514
yeast5	0.5	0.9135	0.9073	0.9483	0.9483	0.9493	0.9493	0.9486	0.9486	0.9486	0.9486	0.9486	0.9486	0.9483	0.9483	0.9483	0.9483
yeast6	0.5	0.7917	0.8182	0.8292	0.8247	0.8366	0.8369	0.8233	0.8233	0.8237	0.8233	0.8233	0.8233	0.8230	0.8230	0.8226	0.8226
zoo3	0.6	0.7739	0.8792	0.9168	0.9011	0.8500	0.8755	0.8858	0.8808	0.8858	0.8958	0.8958	0.8958	0.8958	0.8958	0.8958	0.8958
Average	0.5040	0.8169	0.8268	0.8711	0.8725	0.8378	0.8580	0.8636	0.8677	0.8681	0.8680	0.8673	0.8671	0.8669	0.8720	0.8714	0.8715
DEV STD	0.0349	0.1432	0.1210	0.1027	0.1015	0.1182	0.1092	0.1066	0.1067	0.1069	0.1070	0.1071	0.1073	0.1075	0.1018	0.1021	0.1021

[1] It is a label to refer to the contrast pattern selection method **Best CP**.

[2] It is a label to refer to the contrast pattern selection method **Covering**.

[3] It is a label to refer to the **lymphography normalfibrosis** database.