

Appendix of "Active Deep Multi-view Clustering"

Appendix A: The ARI and PUR Results Compared with Semi-supervised Methods

Tables 1 and 2 show the ARI and PUR results compared with semi-supervised methods on all data sets. It can be seen that the proposed ADMC outperforms other semi-supervised multi-view clustering methods w.r.t. ARI and PUR.

Appendix B: The ARI and PUR Results of Ablation Study

Table 3 shows the ARI and PUR results of ablation study by comparing with the unsupervised version ADMC-U and the semi-supervised version ADMC-R. We can find that ADMC-U is much worse than ADMC-R and ADMC, even though we only have very few annotations in ADMC-R and ADMC, which means the supervised information is quite important for the clustering. Moreover, compared with ADMC-R, ADMC often achieves better performance. It well shows that our designed active selection module performs much better than the random selection, demonstrating the effectiveness of this module.

Method	# of annotations	Caltech-2V	Caltech-5V	CCV	Reuters	Cora	BBCsport	Scene	Noisy-Mnist
IMvGCN	10	0.3529	0.6102	0.0778	0.1715	0.1666	0.8019	0.1658	0.3324
	20	0.4370	0.7423	0.0848	0.2653	0.2650	0.8581	0.1889	0.4064
	30	0.4337	0.7373	0.0801	0.2801	0.3004	0.8754	0.2171	0.4733
	40	0.4541	0.7236	0.0770	0.3213	0.1996	0.8775	0.2105	0.4906
	50	0.4264	0.7256	0.0751	0.3482	0.3458	0.8804	0.2199	0.5289
DSRL	10	0.1915	0.5966	0.0062	0.0520	0.0013	0.7253	0.0370	OOM
	20	0.3346	0.6990	0.0119	0.1574	0.0042	0.6414	0.0515	OOM
	30	0.3185	0.7224	0.0088	0.1561	0.0071	0.7476	0.0464	OOM
	40	0.3760	0.7158	0.0089	0.2035	0.0104	0.7405	0.0458	OOM
	50	0.4224	0.7004	0.0117	0.2284	0.0145	0.8945	0.1456	OOM
MVAR	10	0.3544	0.3079	0.0296	0.0117	0.0271	0.2517	0.0922	0.1383
	20	0.2651	0.4624	0.0175	0.0865	0.0410	0.3130	0.1286	0.2021
	30	0.2374	0.5013	0.0527	0.0999	0.0842	0.4597	0.0851	0.1560
	40	0.2827	0.4990	0.0526	0.1963	0.1101	0.4236	0.0566	0.2821
	50	0.3504	0.6476	0.0333	0.2007	0.1343	0.5876	0.1628	0.2926
ADMC	10	0.4108	0.6491	0.0760	0.2593	0.2555	0.6812	0.1898	0.4236
	20	0.4760	0.7380	0.1083	0.2612	0.3077	0.7819	0.2365	0.8835
	30	0.5213	0.7748	0.1205	0.2884	0.3334	0.8622	0.2364	0.9345
	40	0.5642	0.7899	0.1549	0.3211	0.3617	0.8958	0.2477	0.9710
	50	0.5767	0.8103	0.1599	0.3614	0.3708	0.9118	0.2664	0.9706

Table 1: ARI results compared with semi-supervised methods. OOM means that the method does not run a result due to the out-of-memory error.

Method	# of annotations	Caltech-2V	Caltech-5V	CCV	Reuters	Cora	BBCsport	Scene	Noisy-Mnist
IMvGCN	10	0.5341	0.7914	0.2279	0.4517	0.4716	0.9157	0.3403	0.5334
	20	0.6200	0.8636	0.2369	0.5308	0.5487	0.9447	0.3704	0.6443
	30	0.6050	0.8493	0.2224	0.5475	0.5907	0.9494	0.3977	0.6757
	40	0.6620	0.8436	0.2292	0.5883	0.5077	0.9504	0.4089	0.6906
	50	0.6647	0.8457	0.2328	0.6308	0.6279	0.9574	0.4290	0.7132
DSRL	10	0.4707	0.7671	0.1203	0.3158	0.3065	0.8199	0.1358	OOM
	20	0.6264	0.8479	0.1401	0.4400	0.3161	0.7941	0.2192	OOM
	30	0.6064	0.8607	0.1323	0.4442	0.3275	0.8511	0.2614	OOM
	40	0.6457	0.8564	0.1419	0.5167	0.3346	0.8603	0.2682	OOM
	50	0.6786	0.8464	0.1600	0.5467	0.3497	0.9577	0.3159	OOM
MVAR	10	0.5307	0.5736	0.1562	0.2250	0.3253	0.5349	0.2002	0.2873
	20	0.5314	0.7036	0.1699	0.3800	0.3818	0.6029	0.2829	0.3108
	30	0.4857	0.7086	0.1869	0.4117	0.3685	0.7813	0.2589	0.2992
	40	0.5514	0.7214	0.1946	0.5075	0.4121	0.7169	0.2506	0.4743
	50	0.6176	0.8164	0.2131	0.5175	0.5041	0.8272	0.3177	0.4667
ADMC	10	0.6093	0.8086	0.2061	0.5342	0.5465	0.8199	0.3530	0.6324
	20	0.6679	0.8650	0.2697	0.5333	0.6089	0.8658	0.4312	0.9433
	30	0.7164	0.8843	0.2829	0.5842	0.6193	0.9375	0.4352	0.9688
	40	0.7521	0.8914	0.3238	0.6208	0.6448	0.9559	0.4439	0.9866
	50	0.7643	0.9050	0.3357	0.6575	0.6499	0.9651	0.4604	0.9864

Table 2: PUR results compared with semi-supervised methods. OOM means that the method does not run a result due to the out-of-memory error.

Metrics	Method	# of annotations	Caltech-2V	Caltech-5V	CCV	Reuters	Cora	BBCSport	Scene	Noisy-Mnist	
ARI	ADMC-U	0	0.0222	0.2034	0.1039	0.1359	0.0286	0.0000	0.1015	0.2850	
		10	0.2887	0.3304	0.0226	0.1325	0.1073	0.2693	0.1479	0.3488	
		20	0.3732	0.4991	0.1008	0.1573	0.2256	0.6022	0.1981	0.5807	
	ADMC-R	30	0.4631	0.6006	0.0658	0.1958	0.1712	0.6885	0.2196	0.8856	
		40	0.4986	0.7259	0.0996	0.2675	0.3136	0.7646	0.2403	0.9325	
		50	0.5299	0.7346	0.1282	0.2705	0.3152	0.8021	0.2567	0.9454	
	ADMC	10	0.4108	0.6491	0.0760	0.2593	0.2555	0.6812	0.1898	0.4236	
		20	0.4760	0.7380	0.1083	0.2612	0.3077	0.7819	0.2365	0.8835	
		30	0.5213	0.7748	0.1205	0.2884	0.3334	0.8622	0.2364	0.9345	
		40	0.5642	0.7899	0.1549	0.3211	0.3617	0.8958	0.2477	0.9710	
		50	0.5767	0.8103	0.1599	0.3614	0.3708	0.9118	0.2664	0.9706	
	PUR	ADMC-U	0	0.2379	0.3914	0.2621	0.4100	0.3604	0.3548	0.2065	0.4932
			10	0.4856	0.5007	0.1556	0.3883	0.4335	0.4926	0.2919	0.5496
			20	0.5814	0.6729	0.2607	0.4408	0.5295	0.7316	0.3599	0.7289
		ADMC-R	30	0.6721	0.7521	0.2405	0.4633	0.5126	0.8309	0.4161	0.9469
40			0.7093	0.8364	0.2674	0.5600	0.6226	0.8879	0.4337	0.9688	
50			0.7336	0.8529	0.2892	0.5996	0.6311	0.9062	0.4284	0.9748	
ADMC		10	0.6093	0.8086	0.2061	0.5342	0.5465	0.8199	0.3530	0.6324	
		20	0.6679	0.8650	0.2697	0.5333	0.6089	0.8658	0.4312	0.9433	
		30	0.7164	0.8843	0.2829	0.5842	0.6193	0.9375	0.4352	0.9688	
		40	0.7521	0.8914	0.3238	0.6208	0.6448	0.9559	0.4439	0.9866	
		50	0.7643	0.9050	0.3357	0.6575	0.6499	0.9651	0.4604	0.9864	

Table 3: ARI and PUR results of ablation study.