Appendix of "Efficient Late Fusion Multi-view Clustering with Min-Max Optimization"

Anonymous CVPR submission

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1. Code

The code of this work is publicly available at: https://anonymous.4open.science/r/ELFMVC-MMO-69D9.

2. Complete Experimental Results

Table 1. Empirical evaluation and comparison of proposed algorithm on eight datasets. Boldface means the best one and underline indicates the second best. Some results are not reported due to "out-of-memory".

Dataset	Avg-KKM	MKKM [?]	LMKKM [?]	ONKC [?]	MKKM-MiR [?]	LKAM [?]	LF-MVC [?]	MKKM-MM [?]	SMKKM [?]	Proposed
ACC										
BBCSport	66.3 ± 0.3	66.2 ± 0.4	66.6 ± 0.6	66.4 ± 0.6	66.2 ± 0.5	76.6 ± 2.3	76.5 ± 0.2	66.3 ± 0.3	66.8 ± 0.6	**80.5 ± 0.0**
Caltech	34.2 ± 1.0	32.8 ± 0.9	27.9 ± 0.8	34.0 ± 0.9	34.8 ± 1.0	32.3 ± 1.0	34.4 ± 1.3	34.2 ± 1.0	35.8 ± 0.7	**36.0 ± 0.9**
Cora	30.7 ± 0.8	25.3 ± 0.4	22.5 ± 0.2	40.8 ± 0.3	35.7 ± 0.1	34.5 ± 0.1	41.0 ± 1.1	30.7 ± 0.8	35.7 ± 0.1	**47.5 ± 0.1**
Flower102	27.1 ± 0.8	22.4 ± 0.5	-	39.5 ± 0.7	40.2 ± 0.9	41.4 ± 0.8	38.4 ± 1.2	27.1 ± 0.8	**42.5 ± 0.8**	42.4 ± 0.7
YoutubeFace	19.3 ± 0.7	11.5 ± 0.2	-	19.4 ± 0.5	18.9 ± 0.6	21.3 ± 1.0	**27.3 ± 0.4**	19.3 ± 0.7	20.6 ± 0.6	25.2 ± 0.8
ALOI	64.5 ± 1.3	6.4 ± 0.1	-	67.9 ± 1.3	68.5 ± 1.5	65.2 ± 1.0	68.4 ± 1.4	64.5 ± 1.3	64.3 ± 1.4	**71.1 ± 1.8**
Reuters	45.5 ± 1.5	45.4 ± 1.5	-	41.8 ± 1.2	46.2 ± 1.4	45.5 ± 0.0	45.7 ± 1.6	45.5 ± 1.5	45.5 ± 0.7	**50.8 ± 0.0**
NUS-WIDE	12.5 ± 0.4	12.7 ± 0.2	-	13.1 ± 0.3	12.9 ± 0.2	13.7 ± 0.2	13.2 ± 0.4	12.5 ± 0.4	13.0 ± 0.3	**14.0 ± 0.4**
NMI										
BBCSport	54.2 ± 0.6	54.1 ± 0.6	54.4 ± 0.7	53.5 ± 0.4	53.8 ± 1.1	54.5 ± 3.0	57.6 ± 0.5	54.2 ± 0.6	49.3 ± 1.1	**62.4 ± 0.0**
Caltech	59.3 ± 0.6	58.6 ± 0.5	55.3 ± 0.5	59.3 ± 0.5	59.7 ± 0.5	58.5 ± 0.6	59.5 ± 0.6	59.3 ± 0.6	**60.4 ± 0.5**	**60.4 ± 0.5**
Cora	15.7 ± 1.4	9.5 ± 0.2	6.7 ± 0.3	23.1 ± 0.3	18.9 ± 0.2	16.1 ± 0.1	22.4 ± 0.5	15.7 ± 1.4	18.8 ± 0.2	**27.1 ± 0.1**
Flower102	46.0 ± 0.5	42.7 ± 0.2	-	56.1 ± 0.4	56.7 ± 0.5	56.9 ± 0.3	54.9 ± 0.4	46.0 ± 0.5	**58.6 ± 0.5**	57.4 ± 0.3
YoutubeFace	16.8 ± 0.7	12.1 ± 0.1	-	17.4 ± 0.3	16.9 ± 0.4	19.4 ± 0.7	**24.5 ± 0.3**	16.8 ± 0.7	18.4 ± 0.5	21.6 ± 0.5
ALOI	77.7 ± 0.7	22.3 ± 0.2	-	79.8 ± 0.5	80.9 ± 0.6	78.2 ± 0.4	79.6 ± 0.5	77.7 ± 0.7	77.7 ± 0.7	**81.0 ± 0.6**
Reuters	27.4 ± 0.4	27.3 ± 0.4	-	22.3 ± 0.4	25.3 ± 0.7	**29.9 ± 0.0**	27.4 ± 0.4	27.4 ± 0.4	27.7 ± 0.2	28.1 ± 0.0
NUS-WIDE	11.1 ± 0.1	11.3 ± 0.2	-	11.2 ± 0.2	11.0 ± 0.2	**13.4 ± 0.2**	11.3 ± 0.2	11.1 ± 0.1	11.4 ± 0.2	11.9 ± 0.2
PUR										
BBCSport	77.3 ± 0.3	77.3 ± 0.4	77.5 ± 0.5	77.0 ± 0.2	77.1 ± 0.8	76.6 ± 2.3	78.3 ± 0.2	77.3 ± 0.3	73.5 ± 0.7	**80.5 ± 0.0**
Caltech	36.2 ± 1.0	34.9 ± 0.9	29.6 ± 0.8	36.2 ± 0.9	36.8 ± 0.8	34.3 ± 0.9	36.7 ± 1.3	36.2 ± 1.0	38.0 ± 0.7	**38.2 ± 0.8**
Cora	41.5 ± 1.3	36.1 ± 1.0	35.0 ± 0.2	48.6 ± 0.3	47.0 ± 0.1	43.3 ± 0.1	47.2 ± 0.5	41.5 ± 1.3	47.0 ± 0.1	**51.4 ± 0.1**
Flower102	32.3 ± 0.6	27.8 ± 0.4	-	45.6 ± 0.7	46.3 ± 0.8	48.0 ± 0.6	44.6 ± 0.8	32.3 ± 0.6	48.6 ± 0.7	**48.9 ± 0.6**
YoutubeFace	30.7 ± 0.8	26.8 ± 0.1	-	30.7 ± 0.6	30.2 ± 0.4	31.1 ± 0.8	**36.3 ± 0.6**	30.7 ± 0.8	32.1 ± 0.5	34.5 ± 0.7
ALOI	66.6 ± 1.3	6.8 ± 0.1	-	70.1 ± 1.2	70.7 ± 1.3	67.0 ± 0.8	70.6 ± 1.3	66.6 ± 1.3	66.8 ± 1.1	**73.0 ± 1.7**
Reuters	53.0 ± 0.4	52.9 ± 0.5	-	52.6 ± 0.3	52.2 ± 0.6	**55.4 ± 0.0**	53.2 ± 0.4	53.0 ± 0.4	53.3 ± 0.0	54.7 ± 0.0
NUS-WIDE	23.3 ± 0.3	24.2 ± 0.4	-	22.6 ± 0.4	22.2 ± 0.4	**25.0 ± 0.4**	23.5 ± 0.4	23.3 ± 0.3	22.9 ± 0.3	24.0 ± 0.4
RI										
BBCSport	48.1 ± 0.6	48.0 ± 0.8	48.1 ± 1.0	47.1 ± 0.5	47.8 ± 1.3	54.5 ± 2.3	54.8 ± 0.6	48.1 ± 0.6	42.6 ± 1.3	**61.2 ± 0.0**
Caltech	18.4 ± 0.9	17.3 ± 0.7	13.4 ± 0.8	18.3 ± 0.8	18.8 ± 0.8	16.8 ± 0.9	18.8 ± 1.0	18.4 ± 0.9	19.8 ± 0.7	**20.2 ± 0.9**
Cora	6.5 ± 0.6	3.6 ± 0.3	1.7 ± 0.1	15.6 ± 0.4	11.4 ± 0.1	11.1 ± 0.1	14.5 ± 0.4	6.5 ± 0.6	11.4 ± 0.1	**17.8 ± 0.1**
Flower102	15.5 ± 0.5	12.1 ± 0.4	-	24.9 ± 0.5	25.5 ± 0.6	27.2 ± 0.6	25.5 ± 1.0	15.5 ± 0.5	28.5 ± 0.8	**29.1 ± 0.7**
YoutubeFace	3.2 ± 0.2	1.4 ± 0.0	-	3.3 ± 0.1	3.1 ± 0.2	3.8 ± 0.3	**6.2 ± 0.1**	3.2 ± 0.2	3.7 ± 0.1	5.3 ± 0.2
ALOI	51.4 ± 1.5	2.0 ± 0.1	-	55.4 ± 1.1	**56.5 ± 1.1**	53.9 ± 0.9	54.3 ± 1.2	51.4 ± 1.5	51.5 ± 1.4	55.5 ± 1.2
Reuters	21.8 ± 1.4	21.8 ± 1.4	-	20.3 ± 0.3	23.1 ± 0.6	24.1 ± 0.0	22.1 ± 1.6	21.8 ± 1.4	22.1 ± 0.8	**26.7 ± 0.0**
NUS-WIDE	3.9 ± 0.2	4.0 ± 0.1	-	4.3 ± 0.2	4.2 ± 0.1	**5.3 ± 0.2**	4.5 ± 0.2	3.9 ± 0.2	4.3 ± 0.2	4.9 ± 0.2

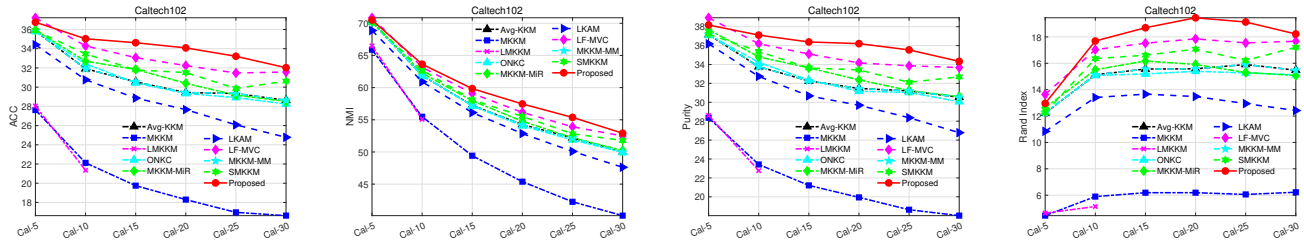

Figure 1. The clustering performance of the aforementioned algorithms with the variation of number of samples on Caltech102.

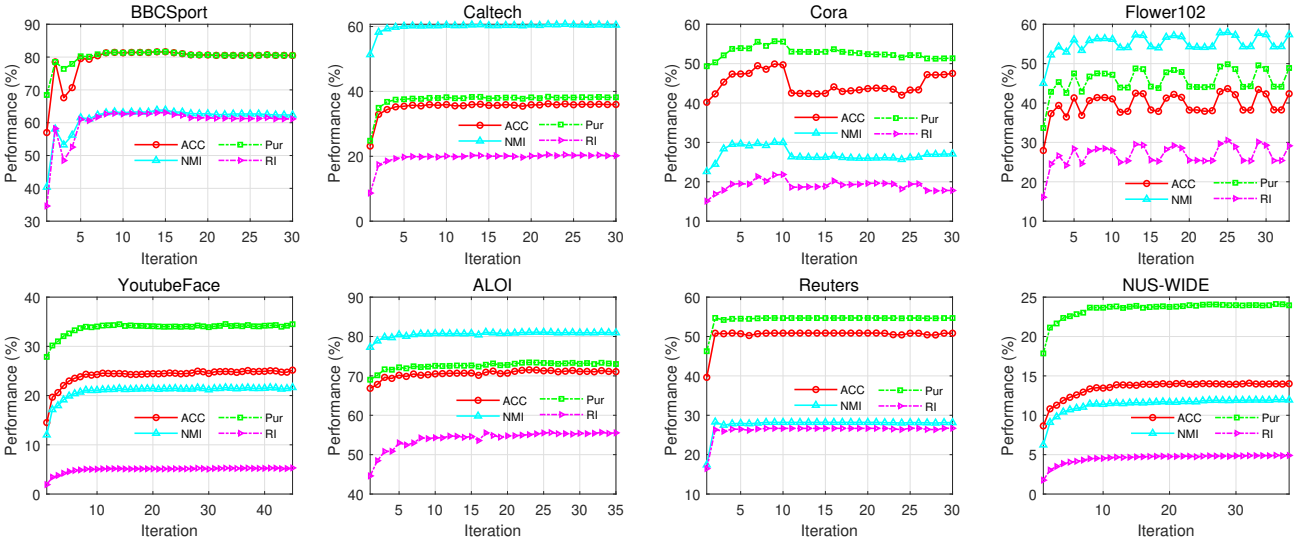

Figure 2. The curves of clustering performance of the proposed algorithm with the increase of iterations on benchmark datasets.

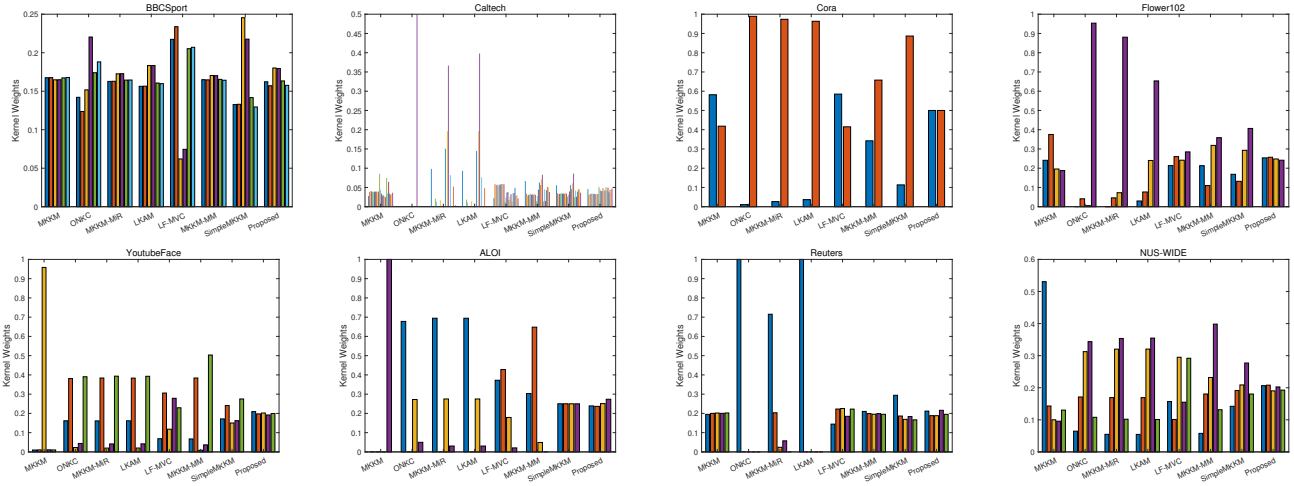

Figure 3. The kernel weights learned by different algorithms.

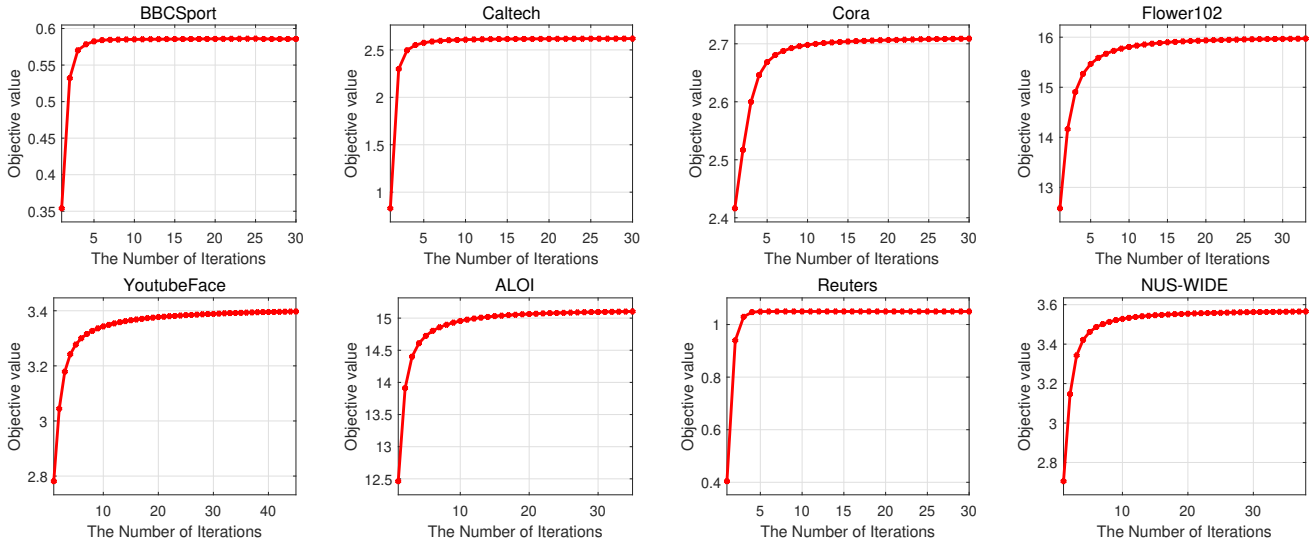

Figure 4. The curves of convergence of the proposed algorithm with the increase of iterations on benchmark datasets.

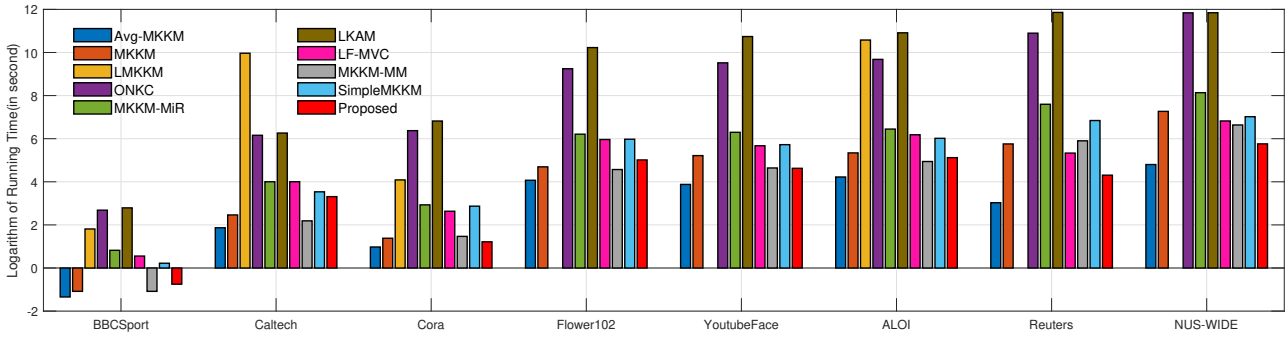

Figure 5. Run time comparison of different algorithms on eight benchmark datasets (in seconds). The experiments are conducted on a PC with Intel (R) Core (TM)-i9-10900X 3.7GHz CPU and 64G RAM in MATLAB environment.