

• Supplementary File •

Evidential combination of augmented multi-source of information based on domain adaptation

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Appendix A

Table A1 Classification Accuracy of Different Combination Methods Based on TCA with KNN for **Office+Caltech-10** (in %).

Task	KNN	SVM	GFK	CORAL	TCA	TCA +SBS	TCA +MV	TCA +WMV	TCA +ECAMI-MV	TCA +ECAMI-WMV	TCA +AF	TCA +WAF	TCA +ECAMI-AF	TCA +ECAMI-WAF	TCA +DS	TCA +ECAMI-DS	TCA +ECAMI-WDS
C→A	22.76	38.31	41.02	20.15	47.19												
D→A	26.62	10.86	32.05	30.69	20.88												
W→A	22.65	9.71	31.84	26.20	33.30												
CD→A	23.90	38.83	40.29	21.29	46.24	47.19	33.51	33.30	46.24	46.35	36.95	36.95	46.97	46.76	38.00	47.29	47.49
CW→A	23.80	39.25	42.48	21.09	46.24												
DW→A	28.81	12.00	34.97	31.21	32.88												
CDW→A	24.32	38.10	41.23	21.82	46.35												
A→C	24.04	14.60	40.25	23.06	41.41												
D→C	26.09	14.09	30.10	32.06	27.16												
W→C	18.08	11.06	30.72	25.73	31.79												
AD→C	24.04	22.08	39.72	23.51	43.81	41.41	37.13	35.98	44.17	43.81	41.23	40.96	44.43	44.35	42.65	43.72	43.63
AW→C	24.49	17.10	39.89	24.67	43.81												
DW→C	25.02	12.20	32.15	27.69	33.48												
ADW→C	24.04	20.48	40.52	23.60	43.19												
A→D	23.57	15.92	36.61	30.75	36.94												
C→D	24.84	29.94	41.40	26.75	49.68												
W→D	44.59	10.19	77.90	73.25	81.53												
AC→D	26.11	28.66	44.59	28.03	50.96	81.53	59.87	73.89	76.43	78.34	77.07	77.07	78.98	80.25	73.89	78.34	81.53
AW→D	37.58	62.42	80.89	47.13	71.97												
CW→D	38.22	42.68	80.25	42.04	73.89												
ACW→D	37.58	45.22	75.80	43.95	70.06												
A→W	27.12	10.51	40.00	26.10	40.00												
C→W	26.10	35.25	40.68	19.66	45.08												
D→W	43.73	12.88	64.41	63.56	67.46												
AC→W	28.81	30.17	42.37	26.44	44.41	67.46	52.88	64.41	64.75	65.42	63.39	63.73	71.19	72.20	61.69	76.61	77.29
AD→W	31.86	54.58	71.86	32.54	61.36												
CD→W	28.14	49.15	73.56	26.44	65.42												
ACD→W	29.45	41.65	68.47	30.58	57.29												
Average	28.08	27.42	48.43	31.07	48.35	59.58	45.84	51.90	57.23	58.48	54.66	54.68	60.21	60.89	54.06	59.97	62.49

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Table A5 Classification Accuracy of Different Combination Methods Based on TCA with KNN for VLSC (in %).

Task	KNN	SVM	GPK	CORAL	TCA	TCA +SBS	TCA +M	TCA +W	TCA +ECAMI-M	TCA +ECAMI-W	TCA +A	TCA +W	TCA +ECAMI-A	TCA +ECAMI-W	TCA +D	TCA +ECAMI-D	TCA +ECAMI-W
L→V	24.22	12.48	40.42	35.07	48.29												
S→V	27.64	12.63	45.91	37.44	57.06												
C→V	54.09	17.53	47.55	52.01	48.14												
LS→V	26.00	52.75	47.55	35.07	62.41	57.06	58.69	61.52	65.08	66.57	64.78	64.49	67.31	67.46	63.74	66.86	67.61
LC→V	35.81	47.40	53.64	47.99	60.03												
SC→V	49.78	59.88	52.90	53.34	64.19												
LSC→V	37.30	52.90	55.57	49.33	65.08												
V→L	50.28	47.64	47.83	50.47	55.58												
S→L	27.64	04.91	44.05	39.70	50.66												
C→L	54.09	40.83	25.14	51.80	34.78												
VS→L	50.47	57.09	50.66	45.56	53.50	55.58	52.17	49.15	53.31	55.95	56.71	54.06	56.52	58.22	52.74	57.47	58.60
VC→L	58.98	52.36	44.99	52.93	51.61												
SC→L	52.74	51.04	43.86	53.31	54.25												
VSC→L	52.74	56.90	47.07	52.17	54.63												
V→S	54.53	29.93	50.50	51.80	59.28												
L→S	29.21	15.11	32.66	34.53	37.41												
C→S	42.01	04.17	21.51	42.16	29.64	59.28	45.61	40.86	59.71	59.71	49.50	49.35	58.85	58.89	49.68	59.28	59.28
VL→S	32.37	44.89	45.18	40.14	53.96												
VC→S	46.91	53.38	51.22	43.17	54.82												
LC→S	32.81	36.98	37.55	43.17	46.62												
VLC→S	34.96	47.38	46.33	43.03	56.69												
V→C	51.46	47.15	74.41	63.84	79.83												
L→C	16.83	08.48	27.26	22.25	59.25												
S→C	21.56	08.48	34.24	32.82	64.81												
VL→C	30.32	50.35	72.18	32.96	83.03	79.83	77.47	78.58	83.45	84.14	77.89	78.16	84.14	84.28	75.38	85.26	85.26
VS→C	45.76	58.28	73.57	43.95	81.92												
LS→C	17.25	40.06	46.59	34.34	74.41												
VLS→C	31.02	45.62	70.38	28.51	84.84												
Average	38.89	47.53	43.23	58.10	62.94	48.49	57.53	65.39	66.59	62.22	61.52	66.71	67.21	60.39	67.22	67.69	67.69

Table A6 Classification Accuracy of Different Combination Methods Based on TCA with KNN for Office-31 (in %).

Task	KNN	SVM	GPK	CORAL	TCA	TCA +SBS	TCA +M	TCA +W	TCA +ECAMI-M	TCA +ECAMI-W	TCA +A	TCA +W	TCA +ECAMI-A	TCA +ECAMI-W	TCA +D	TCA +ECAMI-D	TCA +ECAMI-W
D→A	21.36	22.45	27.06	25.97	19.78												
W→A	25.85	26.33	36.04	38.06	38.25	38.25	28.16	19.30	39.08	38.83	32.77	32.77	38.47	38.23	31.31	38.59	38.59
DW→A	25.85	34.83	28.88	30.70	37.99												
A→D	33.77	17.53	24.03	25.97	37.66												
W→D	52.61	51.95	57.14	39.42	59.74	59.74	42.21	58.44	56.49	58.44	56.49	57.79	66.58	66.23	57.14	66.88	67.53
AW→D	55.84	58.18	43.51	61.04	67.53												
A→W	40.85	16.17	33.62	35.32	46.81												
D→W	46.38	33.62	39.15	33.89	62.98	62.98	44.68	59.57	61.28	59.57	65.11	68.09	76.60	76.16	64.24	77.87	77.87
AD→W	54.04	60.85	44.26	58.30	74.47												
Average	39.62	35.77	37.08	38.74	49.47	53.66	38.35	45.77	51.68	52.28	51.46	52.88	60.55	60.21	50.89	61.11	61.33

Table A7 Classification Accuracy of Different Combination Methods Based on JDA with KNN for Office-31 (in %).

Task	KNN	SVM	GPK	CORAL	JDA	JDA +SBS	JDA +M	JDA +W	JDA +ECAMI-M	JDA +ECAMI-W	JDA +A	JDA +W	JDA +ECAMI-A	JDA +ECAMI-W	JDA +D	JDA +ECAMI-D	JDA +ECAMI-W
D→A	21.36	22.45	27.06	25.97	20.02												
W→A	25.85	26.33	36.04	38.96	37.38	37.38	27.06	36.17	35.44	37.74	33.01	33.62	39.44	38.83	33.50	39.68	40.05
DW→A	25.85	34.83	28.88	30.70	37.74												
A→D	33.77	17.53	24.03	25.97	35.06												
W→D	52.61	51.95	57.14	39.42	66.23	66.23	44.16	65.58	54.55	65.58	57.14	59.09	67.53	67.53	56.49	69.48	69.48
AW→D	55.84	58.18	43.51	61.04	57.14												
A→W	40.85	16.17	33.62	35.32	71.06												
D→W	46.38	33.62	39.15	33.89	71.06	71.06	50.21	69.36	68.09	69.39	67.23	74.47	80.43	80.00	68.09	79.57	79.57
AD→W	54.04	60.85	44.26	58.30	75.31												
Average	39.61	35.77	37.08	38.84	52.33	58.22	40.48	57.05	52.69	56.24	52.46	55.73	62.47	62.26	52.69	62.91	63.03

Table A8 Classification Accuracy of Different Combination Methods Based on DAN for Office-31 (in %).

Task	KNN	SVM	GPK	CORAL	DAN	DAN +SBS	DAN +ECAMI-M	DAN +ECAMI-W	DAN +ECAMI-A	DAN +ECAMI-W	DAN +ECAMI-D	DAN +ECAMI-W
D→A	21.36	22.45	27.06	25.97	54.00							
W→A	25.85	26.33	36.04	38.06	53.10	53.10	50.31	52.45	53.12	56.63	55.23	58.96
DW→A	25.85	34.83	28.88	30.70	55.23							
A→D	33.77	17.53	24.03	25.97	67.00							
W→D	52.61	51.95	57.14	39.42	89.61	89.61	80.57	83.67	81.25	85.67	89.34	91.54
AW→D	55.84	58.18	43.51	61.04	87.69							
A→W	40.85	16.17	33.62	35.32	68.51							
D→W	46.38	33.62	39.15	33.89	86.51	86.51	83.65	85.57	84.32	87.63	89.65	92.35
AD→W	54.04	60.85	44.26	58.30	89.65							
Average	39.62	35.77	37.08	38.74	72.37	76.41	71.51	73.90	72.89	76.64	78.07	80.95

Table A9 Classification Accuracy of Different Combination Methods Based on ADDA for Office-31 (in %).

Task	KNN	SVM	GPK	CORAL	ADDA	ADDA +SBS	ADDA +ECAMI-M	ADDA +ECAMI-W	ADDA +ECAMI-A	ADDA +ECAMI-W	ADDA +ECAMI-D	ADDA +ECAMI-W
D→A	21.36	22.45	27.06	25.97	58.93							
W→A	25.85	26.33	36.04	38.06	55.36	58.93	56.33	57.69	56.89	58.35	59.96	62.35
DW→A	25.85	34.83	28.88	30.70	59.54							
A→D	33.77	17.53	24.03	25.97	69.89							
W→D	52.61	51.95	57.14	39.42	90.21	90.21	75.65	78.59	77.36	82.45	88.56	93.67
AW→D	55.84	58.18	43.51	61.04	88.52							
A→W	40.85	16.17	33.62	35.32	70.56							
D→W	46.38	33.62	39.15	33.89	91.32	91.32	85.63	86.79	88.36	89.56	92.13	95.69
AD→W	54.04	60.85	44.26	58.30	85.36							
Average	39.62	35.77	37.08	38.74	74.41	80.15	72.53	74.36	74.20	76.79	80.22	83.90

Table A10 Classification Accuracy of Different Combination Methods Based on TCA with SVM for **Office+Caltech-10** (in %).

Task	KNN	SVM	GFK	CORAL	TCA	TCA +SBSB	TCA +ECAMI-MV	TCA +ECAMI-WMV	TCA +ECAMI-AF	TCA +ECAMI-WAF	TCA +ECAMI-DS	TCA +ECAMI-WDS
C→A	22.76	38.31	41.02	20.15	50.84							
D→A	26.62	10.86	32.05	30.69	26.41							
W→A	22.65	09.71	31.84	26.20	23.28							
CD→A	23.90	38.83	40.29	21.29	50.10	50.84	49.79	49.79	51.04	51.04	51.36	51.36
CW→A	23.80	39.25	42.48	21.09	49.79							
DW→A	28.81	12.00	34.97	31.21	29.65							
CDW→A	24.32	38.10	41.23	21.82	48.96							
A→C	24.04	14.60	40.25	23.06	41.32							
D→C	26.09	14.09	30.10	32.06	27.69							
W→C	18.08	11.06	30.72	25.73	27.52							
AD→C	24.04	22.08	39.72	23.51	42.21	41.32	43.54	43.54	43.99	43.99	43.72	44.72
AW→C	24.49	17.10	39.89	24.67	42.92							
DW→C	25.02	12.20	32.15	27.69	27.87							
ADW→C	24.04	20.48	40.52	23.60	43.72							
A→D	23.57	15.92	36.61	30.75	35.03							
C→D	24.84	29.94	41.40	26.75	48.41							
W→D	44.59	10.19	77.90	73.25	85.99	85.99	80.25	80.25	86.62	86.62	85.35	85.35
AC→D	26.11	28.66	44.59	28.03	42.04							
AW→D	37.58	62.42	80.89	47.13	70.70							
CW→D	38.22	42.68	80.25	42.04	71.97							
ACW→D	37.58	45.22	75.80	43.95	70.70							
A→W	27.12	10.51	40.00	26.10	38.31							
C→W	26.10	35.25	40.68	19.66	39.32							
D→W	43.73	12.88	64.41	63.56	83.39							
AC→W	28.81	30.17	42.37	26.44	71.86	83.39	73.22	73.22	83.39	83.39	84.57	84.75
AD→W	31.86	54.58	71.86	32.54	40.00							
CD→W	28.14	49.15	73.56	26.44	65.08							
ACD→W	29.45	27.42	68.47	30.58	58.31							
Average	28.08	27.42	48.43	31.07	43.24	67.39	61.70	61.70	66.26	66.26	66.25	66.55

Table A11 Classification Accuracy of Different Combination Methods Based on TCA with SVM for **Office-31** (in %).

Task	KNN	SVM	GFK	CORAL	TCA	TCA +SBSB	TCA +ECAMI-MV	TCA +ECAMI-WMV	TCA +ECAMI-AF	TCA +ECAMI-WAF	TCA +ECAMI-DS	TCA +ECAMI-WDS
D→A	21.36	22.45	27.06	25.97	33.74							
W→A	25.85	26.33	36.04	38.96	28.03	33.74	36.53	39.93	38.71	39.44	39.02	39.32
DW→A	25.85	34.83	28.88	30.70	41.14							
A→D	33.77	17.53	24.03	25.97	55.84							
W→D	52.61	51.95	57.14	39.42	60.39	60.39	51.95	61.04	62.99	63.64	64.29	64.92
AW→D	55.84	58.18	43.51	61.04	20.13							
A→W	40.85	16.17	33.62	35.32	30.64							
D→W	46.38	33.62	39.15	35.32	51.49	51.49	38.72	49.79	49.79	49.79	52.77	52.77
AD→W	54.04	60.85	44.26	58.30	42.13							
Average	39.61	35.77	37.08	38.84	40.039	48.54	42.40	50.25	50.49	50.95	52.03	52.34