

Domain-Incremental Continual Learning for Mitigating Bias in Facial Expression and Action Unit Recognition

Supplementary Material: Additional Results



1 MITIGATING BIAS IN FACIAL EXPRESSION RECOGNITION (FER)

1.1 Domain-Ordering Experiments

1.1.1 Gender Orders

TABLE 1

Experiment 1: Gender-wise Accuracy and Fairness Scores on RAF-DB dataset learning with the Female group followed by Male samples. Accuracy scores are reported after training the models on all the subsets. Ordering: **Female**→**Male**.

Method	Accuracy W/O Data-Augmentation		Fairness	Accuracy W/ Data-Augmentation		Fairness
	Female	Male		Female	Male	
EWC	0.761	0.734	0.965	0.766	0.718	0.937
EWC-Online	0.757	0.735	0.971	0.746	0.718	0.962
SI	0.741	0.735	0.992	0.761	0.742	0.975
MAS	0.741	0.706	0.953	0.757	0.711	0.939
NR	0.751	0.683	0.910	0.753	0.676	0.897

1.1.2 Race Orders

TABLE 2

Experiment 1: Race-wise Accuracy and Fairness Scores on RAF-DB dataset. Accuracy scores are reported after training the models on all the subsets. Ordering: **Asian**→**Caucasian**→**African American**.

Method	Accuracy W/O Data-Augmentation			Fairness	Accuracy W/ Data-Augmentation			Fairness
	Asian	Caucasian	African American		Asian	Caucasian	African American	
EWC	0.768	0.740	0.756	0.964	0.761	0.779	0.764	0.976
EWC-Online	0.765	0.789	0.795	0.993	0.763	0.774	0.753	0.986
SI	0.752	0.741	0.755	0.982	0.759	0.760	0.769	0.987
MAS	0.765	0.790	0.794	0.995	0.779	0.787	0.779	0.989
NR	0.787	0.768	0.762	0.976	0.740	0.768	0.758	0.963

TABLE 3

Experiment 1: Race-wise Accuracy and Fairness Scores on RAF-DB dataset. Accuracy scores are reported after training the models on all the subsets. Ordering: **Caucasian**→**Asian**→**African American**.

Method	Accuracy W/O Data-Augmentation			Fairness	Accuracy W/ Data-Augmentation			Fairness
	Caucasian	Asian	African American		Caucasian	Asian	African American	
EWC	0.728	0.776	0.772	0.938	0.780	0.729	0.777	0.934
EWC-Online	0.729	0.776	0.777	0.938	0.767	0.740	0.781	0.948
SI	0.728	0.754	0.760	0.959	0.751	0.762	0.769	0.991
MAS	0.750	0.763	0.755	0.983	0.765	0.744	0.775	0.960
NR	0.667	0.774	0.782	0.852	0.775	0.629	0.755	0.812

TABLE 4

Experiment 1: Race-wise Accuracy and Fairness Scores on RAF-DB dataset. Accuracy scores are reported after training the models on all the subsets. Ordering: **Asian**→**African American**→**Caucasian**.

Method	Accuracy W/O Data-Augmentation			Fairness	Accuracy W/ Data-Augmentation			Fairness
	Asian	African American	Caucasian		Asian	African American	Caucasian	
EWC	0.753	0.779	0.765	0.983	0.777	0.780	0.788	0.986
EWC-Online	0.769	0.767	0.758	0.986	0.777	0.778	0.787	0.988
SI	0.771	0.778	0.771	0.992	0.778	0.762	0.783	0.994
MAS	0.753	0.774	0.760	0.982	0.765	0.757	0.775	0.987
NR	0.788	0.757	0.767	0.973	0.764	0.764	0.787	0.970

TABLE 5

Experiment 1: Race-wise Accuracy and Fairness Scores on RAF-DB dataset. Accuracy scores are reported after training the models on all the subsets. Ordering: **African American**→**Asian**→**Caucasian**.

Method	Accuracy W/O Data-Augmentation			Fairness	Accuracy W/ Data-Augmentation			Fairness
	African American	Asian	Caucasian		African American	Asian	Caucasian	
EWC	0.757	0.780	0.738	0.946	0.781	0.771	0.768	0.988
EWC-Online	0.752	0.777	0.746	0.960	0.773	0.755	0.769	0.977
SI	0.769	0.762	0.746	0.970	0.763	0.741	0.757	0.972
MAS	0.765	0.791	0.748	0.945	0.765	0.758	0.774	0.979
NR	0.763	0.793	0.744	0.938	0.756	0.735	0.760	0.967

TABLE 6

Experiment 1: Race-wise Accuracy and Fairness Scores on RAF-DB dataset. Accuracy scores are reported after training the models on all the subsets. Ordering: **African American**→**Caucasian**→**Asian**.

Method	Accuracy W/O Data-Augmentation			Fairness	Accuracy W/ Data-Augmentation			Fairness
	African American	Caucasian	Asian		African American	Caucasian	Asian	
EWC	0.790	0.738	0.769	0.934	0.771	0.758	0.745	0.967
EWC-Online	0.792	0.776	0.772	0.980	0.764	0.765	0.728	0.951
SI	0.766	0.788	0.793	0.994	0.782	0.762	0.754	0.963
MAS	0.764	0.769	0.789	0.974	0.763	0.764	0.755	0.988
NR	0.768	0.746	0.753	0.971	0.774	0.756	0.727	0.939

1.2 Class-Wise Accuracy Scores

1.2.1 Results for Gender Attributes

TABLE 7

Experiment 1: Class-wise Accuracy Scores on RAF-DB dataset for Gender-ordered Learning. Accuracy scores are reported after training the models on all the subsets. **M:** Male; **F:** Female.

Classes	Accuracy W/O Data-Augmentation												Accuracy W/ Data-Augmentation																
	Baseline		Offline		EWC		EWC-Online		SI		MAS		NR		Baseline		Offline		EWC		EWC-Online		SI		MAS		NR		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Mean	0.66	0.73	0.66	0.65	0.67	0.71	0.66	0.65	0.65	0.67	0.67	0.65	0.65	0.74	0.64	0.73	0.68	0.69	0.70	0.71	0.69	0.73	0.69	0.73	0.68	0.71	0.67	0.71	
Surprise	0.76	0.79	0.75	0.75	0.76	0.76	0.73	0.76	0.77	0.78	0.79	0.79	0.72	0.75	0.79	0.81	0.73	0.76	0.78	0.81	0.78	0.79	0.8	0.81	0.80	0.85	0.77	0.81	
Fear	0.60	0.72	0.64	0.62	0.73	0.91	0.68	0.71	0.69	0.77	0.73	0.69	0.65	0.78	0.51	0.77	0.54	1.0	0.78	0.90	0.71	0.91	0.70	0.86	0.7	0.84	0.62	0.78	
Disgust	0.34	0.56	0.29	0.36	0.34	0.43	0.34	0.41	0.32	0.41	0.34	0.41	0.29	0.56	0.29	0.49	0.40	0.47	0.33	0.45	0.33	0.45	0.39	0.52	0.34	0.5	0.33	0.45	
Happiness	0.85	0.91	0.85	0.88	0.83	0.88	0.84	0.89	0.85	0.91	0.83	0.88	0.82	0.91	0.85	0.92	0.83	0.89	0.84	0.88	0.83	0.90	0.86	0.89	0.83	0.86	0.86	0.91	
Sadness	0.52	0.68	0.58	0.67	0.51	0.60	0.52	0.64	0.53	0.59	0.51	0.57	0.53	0.64	0.54	0.71	0.64	0.62	0.58	0.65	0.64	0.71	0.51	0.61	0.57	0.63	0.53	0.64	
Anger	0.81	0.77	0.65	0.44	0.79	0.80	0.77	0.52	0.71	0.61	0.75	0.57	0.82	0.79	0.78	0.67	0.76	0.62	0.82	0.65	0.85	0.75	0.80	0.73	0.78	0.64	0.81	0.63	
Neutral	0.72	0.70	0.72	0.64	0.73	0.62	0.73	0.62	0.69	0.60	0.71	0.66	0.73	0.73	0.75	0.74	0.70	0.67	0.72	0.63	0.71	0.62	0.76	0.66	0.71	0.65	0.76	0.76	

1.2.2 Results for Race Attributes

TABLE 8

Experiment 1: Class-wise Accuracy Scores on RAF-DB dataset for Race-ordered Learning. Accuracy scores are reported after training the models on all the subsets. **Cau:** Caucasian; **AA:** African-American; **As:** Asian.

Classes	Accuracy W/O Data-Augmentation																				
	Baseline			Offline			EWC			EWC-Online			SI			MAS			NR		
	Cau	AA	As	Cau	AA	As	Cau	AA	As	Cau	AA	As	Cau	AA	As	Cau	AA	As	Cau	AA	As
Mean	0.71	0.72	0.74	0.66	0.49	0.60	0.73	0.66	0.75	0.73	0.77	0.71	0.72	0.7	0.70	0.73	0.64	0.72	0.71	0.71	0.68
Surprise	0.83	0.78	0.69	0.76	0.59	0.43	0.86	0.75	0.76	0.86	0.68	0.70	0.85	0.75	0.63	0.84	0.69	0.63	0.82	0.71	0.62
Fear	0.77	0.69	0.59	0.58	0.40	0.40	0.62	0.72	0.81	0.72	0.58	0.86	0.71	0.72	0.89	0.72	0.78	0.81	0.75	0.50	0.80
Disgust	0.35	0.35	0.57	0.27	0.23	0.43	0.47	0.42	0.53	0.38	0.50	0.55	0.44	0.27	0.47	0.44	0.33	0.57	0.38	0.62	0.57
Happiness	0.85	0.89	0.90	0.87	0.86	0.88	0.89	0.91	0.92	0.88	0.88	0.92	0.88	0.89	0.91	0.86	0.87	0.89	0.82	0.85	0.88
Sadness	0.73	0.79	0.76	0.65	0.81	0.69	0.77	0.77	0.74	0.72	0.77	0.70	0.77	0.78	0.70	0.75	0.77	0.72	0.70	0.73	0.72
Anger	0.78	0.61	0.52	0.65	0.33	0.44	0.81	0.57	0.46	0.79	0.58	0.42	0.80	0.60	0.37	0.85	0.42	0.48	0.53	0.80	0.72
Neutral	0.64	0.66	0.75	0.68	0.66	0.70	0.65	0.68	0.71	0.65	0.70	0.72	0.65	0.66	0.68	0.62	0.65	0.69	0.65	0.73	0.62
Classes	Accuracy W/ Data-Augmentation																				
	Baseline			Offline			EWC			EWC-Online			SI			MAS			NR		
	Cau	AA	As	Cau	AA	As	Cau	AA	As	Cau	AA	As	Cau	AA	As	Cau	AA	As	Cau	AA	As
Mean	0.70	0.74	0.73	0.66	0.57	0.70	0.74	0.74	0.71	0.73	0.77	0.71	0.75	0.73	0.70	0.74	0.77	0.70	0.70	0.71	0.74
Surprise	0.84	0.80	0.76	0.73	0.68	0.67	0.86	0.74	0.68	0.66	0.75	0.61	0.79	0.73	0.52	0.69	0.77	0.58	0.79	0.82	0.68
Fear	0.67	0.92	0.73	0.45	0.40	1.00	0.71	0.83	0.78	0.80	0.77	0.64	0.10	0.48	0.07	0.50	0.75	0.72	0.20	0.67	0.71
Disgust	0.37	0.29	0.68	0.41	0.11	0.56	0.48	0.42	0.67	0.19	0.47	0.31	0.17	0.29	0.20	0.15	0.45	0.20	0.30	0.46	0.45
Happiness	0.89	0.90	0.93	0.85	0.88	0.89	0.88	0.86	0.91	0.81	0.83	0.90	0.83	0.83	0.87	0.81	0.82	0.88	0.85	0.87	0.93
Sadness	0.74	0.79	0.76	0.61	0.71	0.69	0.76	0.84	0.73	0.86	0.53	0.67	0.89	0.41	0.50	0.88	0.50	0.60	0.82	0.51	0.66
Anger	0.74	0.69	0.61	0.75	0.50	0.22	0.84	0.65	0.60	0.32	0.76	0.61	0.38	0.65	0.41	0.33	0.76	0.53	0.4	0.76	0.74
Neutral	0.67	0.67	0.78	0.70	0.65	0.75	0.66	0.68	0.73	0.53	0.67	0.52	0.54	0.6	0.47	0.52	0.62	0.46	0.59	0.72	0.55

2 MITIGATING BIAS IN FACIAL ACTION UNIT (AU) DETECTION

2.1 Domain-Ordering Experiments

2.1.1 Gender Orders

TABLE 9

Experiment 2: Gender-wise F1-Scores and Fairness Scores on BP4D dataset. F1-Scores are reported after training the models on all the subsets. Ordering: **Female**→**Male**.

Method	F1-Scores W/O Data-Augmentation		Fairness	F1-Scores W/ Data-Augmentation		Fairness
	Female	Male		Female	Male	
EWC	0.516	0.471	0.912	0.519	0.494	0.952
EWC-Online	0.502	0.473	0.941	0.522	0.500	0.959
SI	0.516	0.505	0.979	0.519	0.518	0.998
MAS	0.508	0.481	0.946	0.529	0.487	0.922
NR	0.509	0.508	0.999	0.522	0.516	0.988

2.1.2 Race Orders

TABLE 10

Experiment 2: Race-wise F1-Scores and Fairness Scores on BP4D dataset. F1-Scores are reported after training the models on all the subsets. Ordering: **White**→**Asian**→**Black**→**Latino**.

Method	F1-Scores W/O Data-Augmentation				Fairness	F1-Scores W/ Data-Augmentation				Fairness
	White	Asian	Black	Latino		White	Asian	Black	Latino	
EWC	0.484	0.478	0.495	0.481	0.966	0.499	0.477	0.490	0.479	0.956
EWC-Online	0.478	0.513	0.506	0.511	0.932	0.506	0.475	0.500	0.485	0.938
SI	0.481	0.470	0.502	0.491	0.936	0.499	0.489	0.493	0.496	0.979
MAS	0.473	0.478	0.486	0.480	0.973	0.511	0.490	0.477	0.495	0.934
NR	0.467	0.472	0.492	0.472	0.950	0.509	0.494	0.484	0.497	0.951

2.2 AU-Wise Accuracy Scores

2.2.1 Results for Gender Attributes

TABLE 11

Experiment 2: AU-wise F1-Scores on BP4D dataset for Gender-ordered Learning. F1-scores are reported after training the models on all the subsets. **M:** Male; **F:** Female.

AUs	F1-Scores W/O Data-Augmentation														F1-Scores W/ Data-Augmentation													
	Baseline		Offline		EWC		EWC-Online		SI		MAS		NR		Baseline		Offline		EWC		EWC-Online		SI		MAS		NR	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Mean	0.49	0.57	0.49	0.57	0.50	0.59	0.53	0.59	0.47	0.53	0.56	0.60	0.53	0.55	0.57	0.58	0.52	0.57	0.51	0.56	0.51	0.57	0.47	0.53	0.55	0.57	0.51	0.53
AU1	0.33	0.29	0.33	0.24	0.27	0.30	0.30	0.28	0.26	0.26	0.29	0.26	0.40	0.17	0.41	0.23	0.33	0.27	0.29	0.31	0.41	0.22	0.26	0.26	0.26	0.24	0.24	0.23
AU2	0.32	0.18	0.29	0.20	0.26	0.21	0.29	0.17	0.46	0.15	0.29	0.17	0.33	0.12	0.44	0.17	0.33	0.24	0.28	0.23	0.33	0.15	0.46	0.15	0.50	0.19	0.32	0.17
AU4	0.50	0.79	0.42	0.51	0.43	0.81	0.49	0.68	0.43	0.55	0.59	0.77	0.54	0.59	0.40	0.66	0.44	0.42	0.52	0.70	0.44	0.70	0.43	0.55	0.52	0.74	0.57	0.43
AU6	0.62	0.74	0.63	0.79	0.69	0.79	0.69	0.76	0.55	0.73	0.67	0.77	0.71	0.77	0.73	0.77	0.66	0.78	0.68	0.74	0.64	0.73	0.55	0.73	0.70	0.74	0.69	0.73
AU7	0.86	0.68	0.89	0.74	0.88	0.71	0.88	0.72	0.73	0.71	0.88	0.75	0.84	0.69	0.83	0.68	0.90	0.75	0.83	0.68	0.87	0.70	0.73	0.71	0.83	0.66	0.84	0.76
AU10	0.65	0.80	0.69	0.83	0.71	0.81	0.69	0.78	0.74	0.79	0.73	0.82	0.72	0.80	0.70	0.83	0.71	0.84	0.70	0.77	0.70	0.83	0.74	0.79	0.75	0.79	0.69	0.81
AU12	0.82	0.89	0.82	0.92	0.88	0.92	0.84	0.88	0.73	0.91	0.81	0.88	0.81	0.92	0.82	0.92	0.84	0.93	0.81	0.90	0.85	0.92	0.73	0.91	0.80	0.86	0.81	0.89
AU14	0.44	0.54	0.38	0.58	0.48	0.56	0.53	0.56	0.40	0.56	0.48	0.61	0.45	0.58	0.55	0.57	0.43	0.61	0.50	0.55	0.45	0.56	0.4	0.56	0.53	0.59	0.44	0.55
AU15	0.24	0.47	0.29	0.47	0.32	0.34	0.43	0.46	0.17	0.34	0.32	0.48	0.27	0.47	0.41	0.41	0.36	0.31	0.30	0.36	0.29	0.43	0.17	0.34	0.33	0.42	0.27	0.36
AU17	0.53	0.57	0.50	0.57	0.52	0.70	0.55	0.61	0.46	0.55	0.57	0.60	0.55	0.55	0.57	0.57	0.53	0.60	0.55	0.50	0.48	0.60	0.46	0.55	0.56	0.56	0.54	0.50
AU23	0.27	0.38	0.26	0.54	0.25	0.45	0.38	0.55	0.42	0.39	0.52	0.49	0.32	0.43	0.31	0.62	0.39	0.51	0.35	0.52	0.30	0.55	0.42	0.39	0.49	0.57	0.31	0.43
AU24	0.33	0.49	0.34	0.45	0.25	0.52	0.33	0.60	0.30	0.43	0.54	0.55	0.40	0.52	0.63	0.50	0.35	0.54	0.39	0.51	0.30	0.49	0.30	0.43	0.35	0.52	0.38	0.48

2.2.2 Results for Race Attributes

TABLE 12

Experiment 2: AU-wise F1-Scores on BP4D dataset for Race-ordered Learning. F1-scores are reported after training the models on all the subsets. **Bl:** Black; **As:** Asia; **Wh:** White; **La:** Latino

AUs	F1-Scores W/O Data-Augmentation																											
	Baseline				Offline				EWC				EWC-Online				SI				MAS				NR			
	Bl	As	Wh	La	Bl	As	Wh	La	Bl	As	Wh	La	Bl	As	Wh	La	Bl	As	Wh	La	Bl	As	Wh	La	Bl	As	Wh	La
Mean	0.56	0.50	0.46	0.49	0.62	0.49	0.53	0.50	0.60	0.45	0.47	0.42	0.62	0.23	0.30	0.03	0.24	0.27	0.41	0.14	0.37	0.24	0.15	0.17	0.38	0.17	0.17	0.10
AU1	0.61	0.29	0.22	0.03	0.36	0.18	0.55	0.15	0.51	0.23	0.22	0.20	0.62	0.23	0.30	0.03	0.24	0.27	0.41	0.14	0.37	0.24	0.15	0.17	0.38	0.17	0.17	0.10
AU2	0.60	0.07	0.36	0.10	0.28	0.08	0.53	0.02	0.56	0.50	0.49	0.03	0.64	0.11	0.41	0.04	0.33	0.14	0.34	0.03	0.17	0.21	0.35	0.01	0.30	0.06	0.26	0.02
AU4	0.32	0.78	0.33	0.83	0.30	0.67	0.41	0.48	0.37	0.66	0.42	0.59	0.46	0.35	0.40	0.88	0.21	0.69	0.41	0.77	0.25	0.80	0.46	0.90	0.07	0.67	0.35	0.70
AU6	0.79	0.59	0.54	0.59	0.78	0.70	0.72	0.76	0.69	0.54	0.50	0.54	0.67	0.51	0.54	0.56	0.87	0.66	0.66	0.69	0.72	0.66	0.66	0.75	0.82	0.64	0.75	0.73
AU7	0.62	0.69	0.65	0.67	0.74	0.76	0.81	0.76	0.61	0.67	0.65	0.67	0.56	0.61	0.62	0.66	0.80	0.73	0.73	0.79	0.57	0.76	0.72	0.70	0.76	0.78	0.81	0.81
AU10	0.70	0.59	0.73	0.90	0.88	0.64	0.73	0.95	0.73	0.60	0.69	0.82	0.74	0.62	0.70	0.83	0.64	0.69	0.74	0.88	0.64	0.68	0.72	0.84	0.78	0.71	0.77	0.91
AU12	0.79	0.82	0.93	0.72	0.87	0.86	0.92	0.66	0.85	0.81	0.88	0.68	0.85	0.79	0.85	0.68	0.91	0.82	0.92	0.66	0.88	0.82	0.89	0.64	0.98	0.86	0.94	0.63
AU14	0.64	0.58	0.42	0.56	0.68	0.48	0.39	0.64	0.68	0.59	0.38	0.56	0.72	0.46	0.42	0.53	0.77	0.46	0.41	0.53	0.74	0.53	0.46	0.61	0.69	0.46	0.45	0.58
AU15	0.30	0.36	0.22	0.36	0.58	0.21	0.27	0.21	0.40	0.20	0.20	0.17	0.27	0.23	0.14	0.24	0.16	0.11	0.22	0.30	0.33	0.39	0.22	0.24	0.48	0.39	0.39	0.43
AU17	0.45	0.55	0.47	0.69	0.65	0.49	0.47	0.54	0.48	0.57	0.51	0.71	0.45	0.46	0.42	0.56	0.37	0.46	0.55	0.63	0.54	0.52	0.55	0.70	0.48	0.53	0.48	0.42
AU23	0.42	0.31	0.37	0.24	0.62	0.51	0.20	0.41	0.68	0.42	0.41	0.22	0.41	0.35	0.29	0.38	0.19	0.30	0.32	0.30	0.44	0.50	0.24	0.32	0.44	0.37	0.31	0.38
AU24	0.46	0.34	0.35	0.29	0.65	0.34	0.29	0.47	0.68	0.10	0.29	0.06	0.58	0.56	0.20	0.38	0.58	0.23	0.27	0.36	0.67	0.21	0.36	0.33	0.69	0.42	0.29	0.24

Classes	F1-Scores W/ Data-Augmentation																											
	Baseline				Offline				EWC				EWC-Online				SI				MAS				NR			
	Bl	As	Wh	La	Bl	As	Wh	La	Bl	As	Wh	La	Bl	As	Wh	La	Bl	As	Wh	La	Bl	As	Wh	La	Bl	As	Wh	La
Mean	0.59	0.45	0.44	0.41	0.54	0.54	0.56	0.51	0.61	0.41	0.49	0.46	0.54	0.41	0.47	0.47	0.49	0.49	0.48	0.54	0.51	0.51	0.48	0.53	0.64	0.54	0.52	0.50
AU1	0.45	0.31	0.19	0.1	0.21	0.19	0.55	0.15	0.71	0.12	0.52	0.20	0.40	0.20	0.39	0.10	0.58	0.21	0.25	0.16	0.48	0.21	0.17	0.10	0.65	0.18	0.36	0.17
AU2	0.39	0.14	0.49	0.04	0.16	0.12	0.52	0.05	0.66	0.05	0.56	0.03	0.39	0.10	0.48	0.02	0.36	0.12	0.12	0.01	0.24	0.10	0.21	0.06	0.65	0.01	0.48	0.01
AU4	0.29	0.65	0.28	0.41	0.24	0.61	0.41	0.73	0.23	0.31	0.29	0.90	0.13	0.55	0.35	0.75	0.25	0.72	0.42	0.79	0.26	0.42	0.36	0.52	0.12	0.53	0.37	0.18
AU6	0.72	0.52	0.55	0.55	0.73	0.71	0.80	0.73	0.68	0.55	0.52	0.57	0.71	0.48	0.48	0.55	0.61	0.72	0.65	0.74	0.64	0.67	0.64	0.71	0.83	0.69	0.69	0.71
AU7	0.64	0.67	0.62	0.67	0.70	0.78	0.85	0.77	0.61	0.67	0.61	0.66	0.68	0.63	0.62	0.67	0.59	0.75	0.71	0.78	0.65	0.79	0.80	0.79	0.80	0.76	0.79	0.70
AU10	0.83	0.56	0.69	0.76	0.85	0.69	0.75	0.95	0.72	0.67	0.69	0.88	0.72	0.57	0.73	0.92	0.68	0.65	0.71	0.95	0.60	0.69	0.73	0.93	0.87	0.69	0.80	0.93
AU12	0.96	0.73	0.92	0.69	0.87	0.89	0.92	0.70	0.92	0.85	0.90	0.55	0.83	0.74	0.88	0.68	0.72	0.86	0.93	0.68	0.74	0.88	0.91	0.65	0.90	0.92	0.94	0.66
AU14	0.68	0.64	0.39	0.56	0.61	0.52	0.44	0.61	0.80	0.58	0.40	0.50	0.72	0.47	0.39	0.55	0.52	0.46	0.39	0.69	0.52	0.51	0.40	0.65	0.68	0.49	0.42	0.65
AU15	0.32	0.29	0.18	0.17	0.26	0.29	0.28	0.22	0.32	0.23	0.18	0.20	0.40	0.21	0.26	0.22	0.18	0.09	0.23	0.29	0.41	0.17	0.30	0.43	0.41	0.38	0.32	0.43
AU17	0.47	0.45	0.43	0.50	0.62	0.65	0.49	0.51	0.48	0.42	0.42	0.60	0.45	0.42	0.48	0.69	0.42	0.42	0.56	0.70	0.43	0.59	0.56	0.74	0.45	0.74	0.52	0.61
AU23	0.56	0.28	0.34	0.29	0.51	0.51	0.36	0.27	0.60	0.28	0.45	0.42	0.54	0.27	0.34	0.31	0.41	0.59	0.46	0.34	0.48	0.56	0.37	0.60	0.56	0.44	0.27	0.34
AU24	0.76	0.16	0.22	0.24	0.76	0.56	0.37	0.42	0.65	0.25	0.35	0.20	0.54	0.22	0.30	0.29	0.58	0.27	0.36	0.34	0.61	0.57	0.29	0.21	0.76	0.59	0.28	0.59