ONSETS, ACTIVITY, AND EVENTS: CLASS-WISE SED EVALUATION

Table 1: Class-wise metrics for baseline sed.

	F1 (%)		Error rate	
Event label	Segment	Event	Segment	Event
air_conditioner	14.2	4.5	1.20	1.86
car_horn	38.6	11.0	2.01	3.43
children_playing	35.7	6.8	1.66	4.11
dog_bark	27.4	3.5	3.58	9.08
drilling	43.4	10.7	1.75	3.70
engine_idling	35.4	8.1	1.60	3.37
gun_shot	18.7	4.4	2.99	6.39
jackhammer	47.3	10.4	2.07	3.88
siren	51.5	13.4	1.10	2.78
street_music	36.7	7.5	1.59	3.78

Table 2: Class-wise metrics for sed_sad_joint model.

	F1 (%)		Error rate	
Event label	Segment	Event	Segment	Event
air_conditioner	34.6	6.8	1.43	4.60
car_horn	35.6	8.6	1.11	2.88
children_playing	39.7	6.2	1.38	4.75
dog_bark	36.0	8.3	1.34	4.40
drilling	48.5	10.2	1.07	3.57
engine_idling	38.7	10.0	1.80	5.42
gun_shot	11.0	4.3	1.06	1.82
jackhammer	52.8	14.1	1.65	4.42
siren	51.4	12.0	0.93	3.25
street_music	38.7	5.4	1.45	5.10

Table 4: Class-wise metrics for sed_onset model.

	F1 (%)		Error rate	
Event label	Segment	Event	Segment	Event
air_conditioner	36.9	16.4	1.34	3.09
car_horn	30.5	22.4	1.02	1.39
children_playing	44.7	16.9	2.01	3.99
dog_bark	45.0	14.9	1.55	3.43
drilling	52.0	23.9	1.40	2.51
engine_idling	43.2	16.4	1.22	2.55
gun_shot	64.3	49.4	0.81	1.39
jackhammer	62.0	28.0	0.92	2.35
siren	52.6	22.9	1.15	2.42
street_music	42.2	15.3	1.86	4.31

Table 5: Class-wise metrics for sed_sad_onset model.

	F1 (%)		Error rate	
Event label	Segment	Event	Segment	Event
air_conditioner	24.1	10.1	1.25	1.76
car_horn	30.0	15.1	1.37	1.78
children_playing	37.8	15.5	1.25	2.33
dog_bark	42.0	16.7	1.19	1.99
drilling	42.4	20.5	1.31	2.11
engine_idling	43.1	21.3	1.13	1.77
gun_shot	63.4	55.0	0.72	1.01
jackhammer	54.4	29.9	1.52	2.29
siren	51.8	30.7	0.72	1.06
street_music	44.4	19.3	1.64	2.63

Table 3: Class-wise metrics for sed_sad model.

	F1 (%)		Error rate	
Event label	Segment	Event	Segment	Event
air_conditioner	33.2	11.2	1.63	2.57
car_horn	30.8	11.2	1.19	1.59
children_playing	38.2	13.3	1.32	2.31
dog_bark	38.0	13.4	1.09	1.87
drilling	48.6	17.7	1.47	2.39
engine_idling	44.4	19.3	1.09	1.69
gun_shot	42.8	24.6	1.14	1.81
jackhammer	60.0	28.2	1.11	1.94
siren	51.1	25.1	0.78	1.21
street_music	40.0	12.9	1.57	2.86

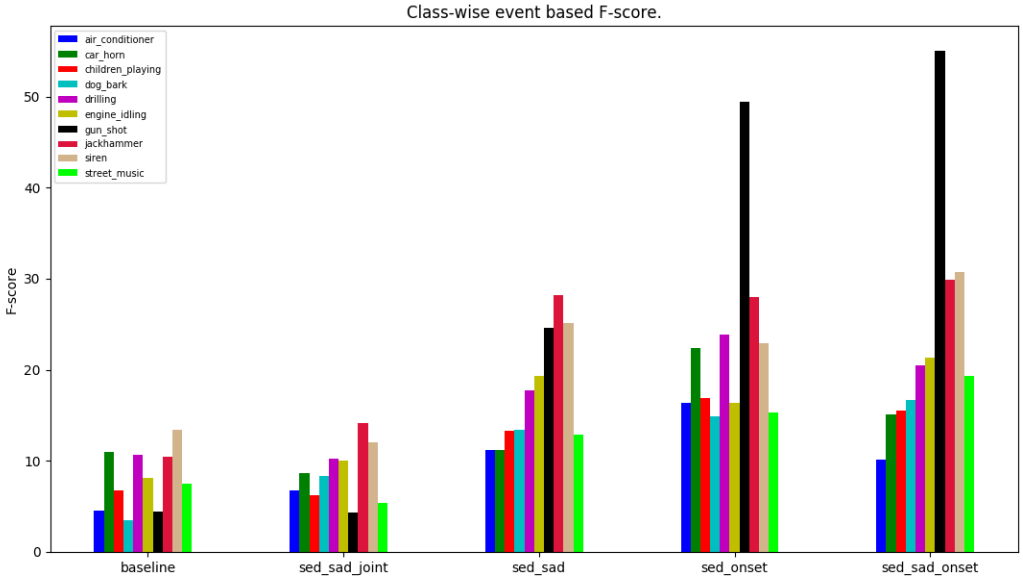

Figure 2: Class-wise event based F-score.

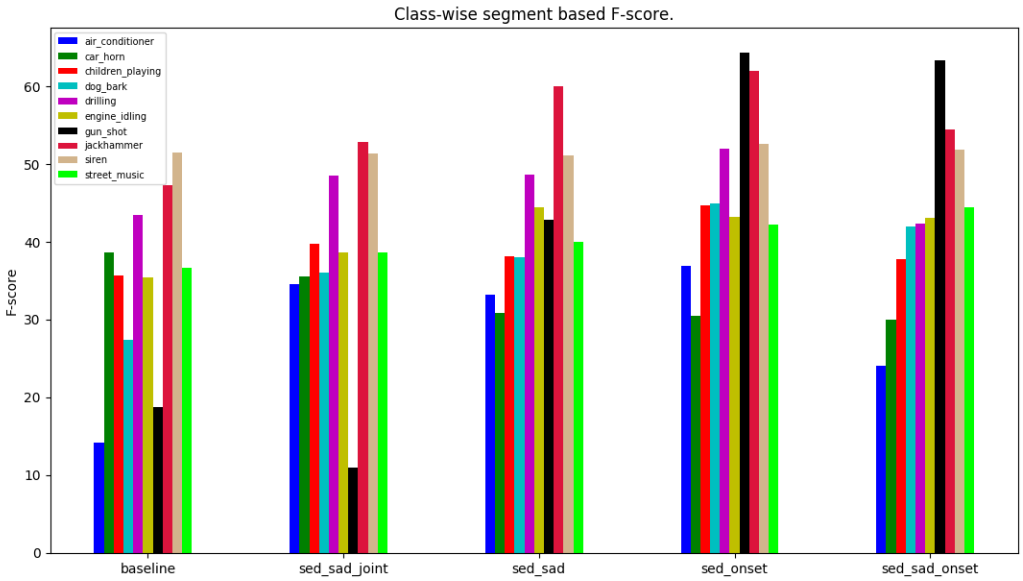

Figure 1: Class-wise segment based F-score.

1 Inferences

By comparing the class-wise event based F-scores of sed_sad and sed_onset models, there are a few interesting observations. For impulsive-high energy events like gun shot, car horn, and drilling onset conditioned SED is very decisive in improving event based detection; which makes sense because onsets are well defined for these events. However, for percussive and periodic events like engine idling and siren, sound activity conditioned SED is more effective than onset conditioned event detection.