

W: MAX_WINDOW_LENGTH in CAWDerivative.hpp
Dur: Event-MinDuration in emil-library.cfg
On: Event-OnThreshold in emil-library.cfg
Off: Event-OffThreshold in emil-library.cfg

Original algorithm:

Event-MinDuration:

It does not contribute to the classification of an eye movement, every event surpassing Event-OnThreshold will be identified as a saccade/microsaccade after Event-MinDuration & velocity drops to Event-OffThreshold.

Event-OffThreshold:

It does not contribute to the classification of an eye movement, but only determines the duration of detected saccade/microsaccade, which is the greater of Event-MinDuration and the interval between surpassing Event-OnThreshold and dropping to Event-OffThreshold.

New algorithm:

EOS_TRIG_1_EMEVENT marks the period from velocity > Event-OnThreshold to velocity < Event-OffThreshold

If the above period is longer than Event-MinDuration, then it is marked as saccade/microsaccade

Original Algorithm: Microsaccade

Condition	nOnline	False Alarm	nOffline	Missed
vOn300, vOff300	860	55.0% 26.9%	448	14.5% 06.9%
vOn600, vOff300	546	21.8% 08.6%	618	21.0% 06.0%
vOn900, vOff300	807	36.3% 08.4%	638	18.0% 04.7%
vOn600, vOff600	675	46.2% 11.9%	418	12.2% 06.0%

Original Algorithm: Saccade

Condition	nOnline	False Alarm	nOffline	Missed
vOn300, vOff300	405	11.4% 04.7%	594	38.6% 00.5%
vOn600, vOff300	142	35.2% 02.1%	179	47.5% 02.2%
vOn900, vOff300	379	16.4% 04.5%	558	40.7% 00.9%
vOn600, vOff600	413	05.3% 01.5%	626	36.1% 01.0%

Original Algorithm:
All

Condition	nOnline	False Alarm	nOffline	Missed
vOn300, vOff300	1265	19.8%	1042	03.3%
vOn600, vOff300	688	07.3%	797	05.1%
vOn900, vOff300	1186	07.2%	1196	02.9%
vOn600, vOff600	1088	07.9%	1044	03.0%

New Algorithm: Microsaccade

Condition	nOnline	False Alarm	nOffline	Missed
W5, Dur15, vOn300, vOff300	249	36.9% 04.4%	861	78.3% 67.8%
W5, Dur15, vOn600, vOff300	147	24.5% 02.7%	575	68.9% 59.8%
W5, Dur15, vOn900, vOff300	225	43.6% 04.4%	646	78.5% 67.0%
W5, Dur15, vOn600, vOff600	258	32.9% 05.0%	1009	77.6% 64.7%
W5, Dur15, vOn900, vOff600	283	23.0% 06.7%	1561	74.2% 52.9%
W5, Dur15, vOn900, vOff900	224	50.4% 03.6%	544	77.8% 74.8%
W5, Dur25, vOn600, vOff600	200	47.0% 08.0%	662	82.3% 79.9%
W15, Dur15, vOn600, vOff600	318	25.8% 04.1%	1005	67.0% 57.7%

New Algorithm: Saccade

Condition	nOnline	False Alarm	nOffline	Missed
W5, Dur15, vOn300, vOff300	207	09.2% 00.5%	457	54.9% 35.00%
W5, Dur15, vOn600, vOff300	80	16.3% 08.8%	230	64.3% 39.6%
W5, Dur15, vOn900, vOff300	223	11.2% 03.1%	509	55.4% 36.5%
W5, Dur15, vOn600, vOff600	238	12.2% 02.9%	532	53.6% 36.7%
W5, Dur15, vOn900, vOff600	257	18.3% 01.9%	625	50.6% 36.2%
W5, Dur15, vOn900, vOff900	207	04.3% 02.9%	498	58.2% 37.1%
W5, Dur25, vOn600, vOff600	181	06.1% 00.6%	431	59.6% 40.8%
W15, Dur15, vOn600, vOff600	241	08.3% 02.5%	513	51.3% 33.5%

New Algorithm:
All

Condition	nOnline	False Alarm	nOffline	Missed
W5, Dur15, vOn300, vOff300	456	02.6%	1318	56.4%
W5, Dur15, vOn600, vOff300	227	04.8%	805	54.0%
W5, Dur15, vOn900, vOff300	448	03.8%	1155	53.6%
W5, Dur15, vOn600, vOff600	496	04.0%	1541	55.0%
W5, Dur15, vOn900, vOff600	540	04.4%	2186	48.1%
W5, Dur15, vOn900, vOff900	431	03.2%	1042	56.8%
W5, Dur25, vOn600, vOff600	381	04.5%	1093	64.5%
W15, Dur15, vOn600, vOff600	559	03.4%	1518	49.5%