Marmara University Faculty of Engineering

CSE4062 – Data Science, Spring2020

Group7

"DRIVER DROWSINESS DETECTION"

Delivery #2 - Report

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#	Feature Name	Description	Type	Min.	Max.	Avg.	Std. Dev.	Entropy	# of Values	Missing Values %
1	**Frame_No**	Frame Number	Numerical	1	17460	2140,444	2935,9576	18,48939	681517	0 %
2	**Face_Detected**	# of Detected Faces	Numerical	0	2	0.9022	0.2976	19.2295	681517	0 %
3	**AVG_EAR**	Average Eye Aspect Ratio	Numerical	0.2251	0.9142	0.2836	0.0735	19.1795	681517	9.81 %
4	**LEFT_EAR**	Left Eye Aspect Ratio	Numerical	0.0192	0.7692	0.2577	0.0651	19.1817	681517	9.81 %
5	**RIGHT_EAR**	Right Eye Aspect Ratio	Numerical	0.0	1.3333	0.3095	0.0869	19.1717	681517	9.81 %
6	**MAR**	Mouth Aspect Ratio	Numerical	0.0	1.8804	0.1238	0.1802	18.2539	681517	9.81 %
7	**MOE**	Mouth Over Eye	Numerical	0.0	19.9546	0.4761	0.7393	18.1879	681517	9.81 %
8	**PERCLOS**	Percentage of Eye Closure	Numerical	0.0	100.0	16.8288	21.5928	18.0942	681517	16.33 %
9	**AVG_LEB**	Level of Eyebrows	Numerical	5.9732	67.6823	31.0206	6.9819	19.1927	681517	9.81 %
10	**LEFT_LEB**	Left Eye Brow Level	Numerical	6.4051	65.1325	31.4313	6.6788	19.1965	681517	9.81 %
11	**RIGHT_LEB**	Right Eye Brow Level	Numerical	4.1231	73.9968	30.6099	7.5747	19.1851	681517	9.81 %
12	**AVG_SOP**	Size of Pupils	Numerical	0.2324	1.0521	0.4686	0.0595	19.2177	681517	9.81 %
13	**LEFT_SOP**	Left eye pupil size	Numerical	0.215	1.4907	0.4826	0.0721	19.2136	681517	9.81 %
14	**RIGHT_SOP**	Right eye pupil eye	Numerical	0.2165	0.9235	0.4547	0.0556	19.2185	681571	9.81 %
15	**AVG_EC**	Eye Circularity	Numerical	0.132	0.9681	0.472	0.0883	19.204	681517	9.81 %
16	**LEFT_EC**	Left Eye Circularity	Numerical	0.1137	0.9846	0.4575	0.0888	19.2019	681517	9.81 %
17	**RIGHT_EC**	Right Eye Circularity	Numerical	0.113	1.225	0.4865	0.1036	19.197	681517	9.81 %
18	**CLOSENESS**	Eye Closure Status	Binary	0	1	0.1647	0.3709	16.6276	681517	9.81 %
19	**DROWSINESS**	Drowsiness Status	Binary	0	1	0.5717	0.4948	18.5718	681517	0.0046 %
20	**Subject**	Subject Number	Nominal	005	026	-	-	4.4521	22	-

21	**Factors List**	Factors List	Nominal	Night glasses	No glasses	-	-	1.9322	4	-
22	**Facial Actions**	Facial Actions	Nominal	Yawning	Nonsleepy Combination	-	-	2.3048	4	-
23	**Reserved for Calibration**	Reserved For Calibration	Nominal	True	False	-	-	0.35	681517	-

- All numerical and binary features are extracted from videos frame by frame.
- All nominal features are extracted from video and folder names. For later purposes, **Subject** will be used for subject-wise normalization; **Factors List** and **Facial Actions** can be used for sample elimination after performing some performance test on them. And finally **Reserved for Calibration** will be used as a label for calibration phase.
- **Drowsiness** is ground truth label which is extracted from text file annotations provided by **NTHU-DDD.**
- **AVG_EAR, MAR, MOE, PERCLOS, AVG_LEB, AVG_SOP** and **AVG_EC** are the main features that will be used for classification. **Closeness** can also be added here.
- Features with **LEFT** and **RIGHT** prefix represent left and right eye values, and features with **AVG** represent average of both eye values. **LEFT** and **RIGHT** values can be used for classification also instead of **AVG** when one of the both eyes' value is missing.