– Supplementary Material –

Understanding Adherence to the Recording of Ecological Momentary Assessments on the Example of Tinnitus Monitoring

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Supplementary A: Translation of the MiniTF questionnaire items

The items of the MiniTF are depicted on Table 1, where we used a translation by Probst et al[1]. The answers to the questionnaire items are True (2 points), Partially True (1 point), Not True (0 points). MiniTF is used to derive a global score, ranging between 0 and 24 points. Higher values indicate higher severity (distress). Scores below 7 are of no pathological relevance.

Item	Translation of the German Question
tf1	I am aware of the noises from the moment I get up to the moment I sleep
tf2	Because of the noises I worry that there is something seriously wrong with my body
tf3	If the noises continue my life will not be worth living
tf4	I am more irritable with my family and friends because of the noises
tf5	I worry that the noises might damage my physical health
tf6	I find it harder to relax because of the noises
tf7	My noises are often so bad that I cannot ignore them
tf8	It takes me longer to get to sleep because of the noises
tf9	I am more liable to feel low because of the noises
tf10	I often think about whether the noises will ever go away
tf11	I am a victim of my noises
tf12	The noises have affected my concentration

Table 1. The translated items of the German MiniTF questionnaire of Hiller et al[2]; translation by Probst et al[1]

Supplementary B: Classification results on time series data of D[1292:852]

On Table 2 we see the accuracy achieved by each of the first 6 out of 13 algorithms for each EMA variable; on Table 3 we see the accuracy values for the remaining 7 algorithms. By taking apart the accuracy values for the individual variables, we can assess their contribution to separation between the two classes.

Algorithm	EMA item	value of *FirstDays*									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10 or more**
ST	q1	-	-	0.71	0.61	0.65	0.92	0.92	0.75	0.94	0.36
	q2	-	-	0.61	0.67	0.62	0.5	0.92	0.92	0.95	0.61
	q3	-	-	0.53	0.52	0.76	0.92	0.92	0.92	0.94	0.56
	q4	-	-	0.65	0.55	0.72	0.67	0.92	0.92	0.95	0.5
	q5	-	-	0.62	0.83	0.71	0.92	0.92	0.83	0.89	0.58
	q6	-	-	0.68	0.59	0.47	0.92	0.92	0.92	0.89	0.55
	q7	-	-	0.61	0.68	0.75	0.92	0.92	0.92	0.94	0.59
TSF	q1	0.84	0.61	0.61	0.74	0.71	0.92	0.92	0.92	0.94	0.55
	q2	0.69	0.58	0.65	0.5	0.69	0.58	0.92	0.92	0.95	0.48
	q3	0.63	0.55	0.6	0.48	0.71	0.83	0.92	0.83	0.83	0.5
	q4	0.77	0.52	0.48	0.64	0.78	0.83	0.92	0.92	0.95	0.5
	q5	0.76	0.61	0.69	0.61	0.76	0.92	0.92	0.92	0.95	0.55
	q6	0.68	0.54	0.54	0.55	0.71	0.58	0.92	0.83	0.94	0.48
	q7	0.64	0.6	0.61	0.55	0.56	0.75	0.92	0.92	0.78	0.56
EE	q1	-	0.54	0.52	0.74	0.82	0.92	0.92	0.92	0.89	0.55
	q2	-	0.58	0.68	0.5	0.69	0.75	0.92	0.92	0.89	0.64
	q3	-	0.47	0.57	0.39	0.71	0.92	0.92	0.83	0.83	0.5
	q4	-	0.48	0.42	0.59	0.72	0.67	0.92	0.92	0.95	0.53
	q5	-	0.66	0.62	0.61	0.71	0.92	0.92	0.92	0.89	0.48
	q6	-	0.54	0.43	0.68	0.76	0.75	0.92	0.83	0.94	0.48
	q7	-	0.45	0.58	0.64	0.69	0.75	0.92	0.92	0.78	0.53
MSM	q1	0.84	0.54	0.48	0.74	0.65	0.92	0.92	0.92	0.89	0.48
	q2	0.73	0.58	0.65	0.5	0.75	0.92	0.92	0.92	0.84	0.61
	q3	0.73	0.48	0.57	0.39	0.82	0.92	0.92	0.83	0.83	0.44
	q4	0.79	0.48	0.48	0.59	0.67	0.58	0.92	0.92	0.95	0.5
	q5	0.76	0.63	0.59	0.52	0.65	0.85	0.92	0.92	0.95	0.45
	q6	0.72	0.56	0.5	0.68	0.76	0.75	0.92	0.83	0.89	0.42
	q7	0.73	0.45	0.55	0.64	0.69	0.75	0.92	0.92	0.72	0.5
CID_{DTW}	q1	0.84	0.61	0.61	0.7	0.82	0.92	0.92	0.92	0.89	0.58
	q2	0.73	0.56	0.65	0.5	0.75	0.83	0.92	0.92	0.89	0.52
	q3	0.73	0.5	0.57	0.39	0.76	0.92	0.92	0.83	0.78	0.5
	q4	0.79	0.53	0.55	0.59	0.72	0.67	0.92	0.83	0.95	0.56
	q5	0.76	0.63	0.59	0.61	0.71	0.85	0.92	0.83	0.89	0.58
	q6	0.72	0.54	0.54	0.68	0.76	0.67	0.92	0.83	0.89	0.35
	q7	0.73	0.44	0.55	0.59	0.62	0.67	0.92	0.92	0.72	0.53
DTD_C	q1	0.84	0.62	0.65	0.78	0.65	0.92	0.92	0.92	0.89	0.55
	q2	0.73	0.61	0.68	0.5	0.69	0.75	0.92	0.92	0.89	0.67
	q3	0.73	0.5	0.57	0.39	0.65	0.92	0.92	0.83	0.83	0.47
	q4	0.79	0.53	0.58	0.59	0.67	0.58	0.92	0.92	0.95	0.53
	q5	0.76	0.61	0.62	0.61	0.65	0.92	0.92	0.83	0.79	0.48
	q6	0.72	0.54	0.43	0.64	0.76	0.75	0.92	0.83	0.94	0.48
	q7	0.73	0.44	0.58	0.64	0.69	0.67	0.92	0.92	0.72	0.56

Table 2. Accuracy (Return=Yes/No) of each time series classifier in dependence of *FirstDays* value (columns) and EMA item (row), for a horizon of observations of 30 days and a cut-off $\tau = 9$ days - first 6 of the classification algorithms

Algorithm	EMA item	value of *FirstDays*									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10 or more**
DD_{DTW}	q1	0.84	0.61	0.65	0.74	0.71	0.92	0.92	0.92	0.89	0.52
	q2	0.81	0.56	0.65	0.67	0.69	0.83	0.92	0.92	0.89	0.58
	q3	0.81	0.48	0.53	0.39	0.76	0.92	0.92	0.83	0.94	0.47
	q4	0.82	0.47	0.58	0.59	0.67	0.58	0.92	0.83	0.9	0.5
	q5	0.81	0.61	0.62	0.61	0.71	0.85	0.92	0.83	0.95	0.55
	q6	0.8	0.52	0.43	0.68	0.53	0.92	0.92	0.92	0.94	0.35
	q7	0.81	0.44	0.55	0.64	0.69	0.67	0.92	0.92	0.72	0.47
DTW	q1	0.84	0.54	0.48	0.7	0.76	0.92	0.92	0.92	0.89	0.48
	q2	0.73	0.61	0.68	0.5	0.69	0.75	0.92	0.92	0.89	0.67
	q3	0.73	0.47	0.57	0.39	0.65	0.92	0.92	0.83	0.83	0.47
	q4	0.79	0.48	0.45	0.59	0.67	0.58	0.92	0.83	0.95	0.53
	q5	0.76	0.63	0.62	0.61	0.65	0.92	0.92	0.83	0.95	0.55
	q6	0.72	0.54	0.43	0.68	0.76	0.75	0.92	0.83	0.94	0.48
	q7	0.73	0.44	0.58	0.64	0.69	0.67	0.92	0.92	0.72	0.56
RotF	q1	0.84	0.52	0.71	0.7	0.71	0.92	0.92	0.92	0.94	0.52
	q2	0.81	0.53	0.61	0.71	0.75	0.92	0.92	0.92	0.95	0.55
	q3	0.81	0.53	0.63	0.7	0.76	0.92	0.92	0.92	0.94	0.59
	q4	0.82	0.6	0.52	0.68	0.78	0.92	0.92	0.92	0.95	0.53
	q5	0.81	0.58	0.69	0.65	0.76	0.92	0.92	0.92	0.95	0.61
	q6	0.8	0.56	0.57	0.68	0.76	0.92	0.92	0.92	0.94	0.58
	q7	0.81	0.52	0.68	0.68	0.75	0.92	0.92	0.92	0.94	0.59
RandF	q1	0.84	0.59	0.65	0.74	0.76	0.92	0.92	0.92	0.94	0.55
	q2	0.81	0.54	0.61	0.71	0.75	0.92	0.92	0.92	0.95	0.55
	q3	0.83	0.55	0.63	0.7	0.76	0.92	0.92	0.92	0.94	0.59
	q4	0.82	0.55	0.48	0.68	0.78	0.92	0.92	0.92	0.95	0.53
	q5	0.76	0.58	0.52	0.57	0.71	0.92	0.92	0.92	0.95	0.55
	q6	0.77	0.57	0.57	0.68	0.76	0.92	0.92	0.92	0.94	0.58
	q7	0.81	0.55	0.65	0.68	0.75	0.92	0.92	0.92	0.94	0.59
C45	q1	0.84	0.52	0.61	0.7	0.76	0.92	0.92	0.92	0.94	0.55
	q2	0.81	0.54	0.61	0.71	0.75	0.92	0.92	0.92	0.95	0.58
	q3	0.81	0.53	0.63	0.7	0.76	0.92	0.92	0.92	0.94	0.59
	q4	0.82	0.53	0.61	0.68	0.78	0.92	0.92	0.92	0.95	0.56
	q5	0.81	0.52	0.59	0.7	0.76	0.92	0.92	0.92	0.95	0.58
	q6	0.8	0.52	0.61	0.68	0.76	0.92	0.92	0.92	0.94	0.58
	q7	0.81	0.53	0.61	0.68	0.75	0.92	0.92	0.92	0.94	0.59
NB	q1	0.84	0.57	0.61	0.65	0.65	0.75	0.75	0.83	0.72	0.55
	q2	0.81	0.54	0.68	0.33	0.44	0.17	0.17	0.08	0.11	0.48
	q3	0.81	0.55	0.63	0.3	0.53	0.25	0.08	0.25	0	0.47
	q4	0.82	0.47	0.55	0.68	0.83	0.5	0.75	0.58	0.7	0.66
	q5	0.81	0.55	0.69	0.74	0.53	0.62	0.75	0.58	0.74	0.58
	q6	0.8	0.57	0.57	0.41	0.24	0.25	0.08	0.08	0.06	0.39
	q7	0.81	0.55	0.71	0.36	0.38	0.17	0.23	0.08	0.06	0.41
ED	q1	0.84	0.62	0.68	0.78	0.65	0.92	0.92	0.83	0.83	0.52
	q2	0.73	0.61	0.68	0.5	0.69	0.75	0.92	0.92	0.84	0.67
	q3	0.73	0.48	0.57	0.39	0.65	0.92	0.92	0.83	0.83	0.47
	q4	0.79	0.53	0.58	0.64	0.78	0.42	0.83	0.92	0.95	0.56
	q5	0.76	0.63	0.62	0.57	0.65	0.92	0.92	0.83	0.84	0.52
	q6	0.72	0.54	0.43	0.64	0.76	0.75	0.92	0.83	0.94	0.55
	q7	0.73	0.44	0.61	0.64	0.69	0.67	0.92	0.92	0.78	0.5

Table 3. Accuracy (Return=Yes/No) of each time series classifier in dependence of *FirstDays* value (columns) and EMA item (row), for a horizon of observations of 30 days and a cut-off $\tau_{early} = 9$ days - last 7 of the classification algorithms

References

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