

Assessing Consciousness in Patients with Disorders of Consciousness using Soft-Clustering – Supplementary file

Sophie Adama, Martin Bogdan

adama@informatik.uni-leipzig.de

VS patients

Patient L3

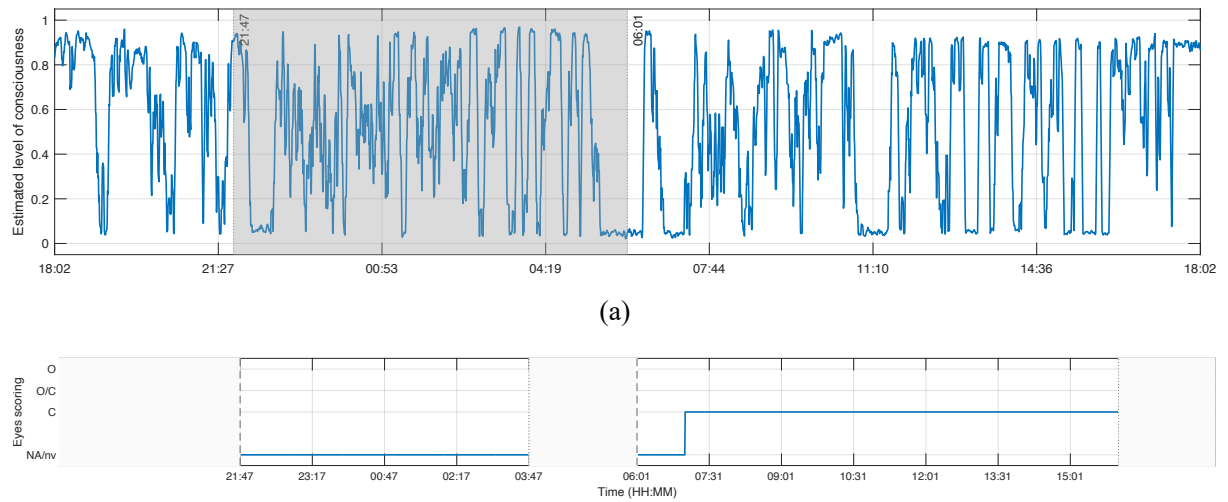
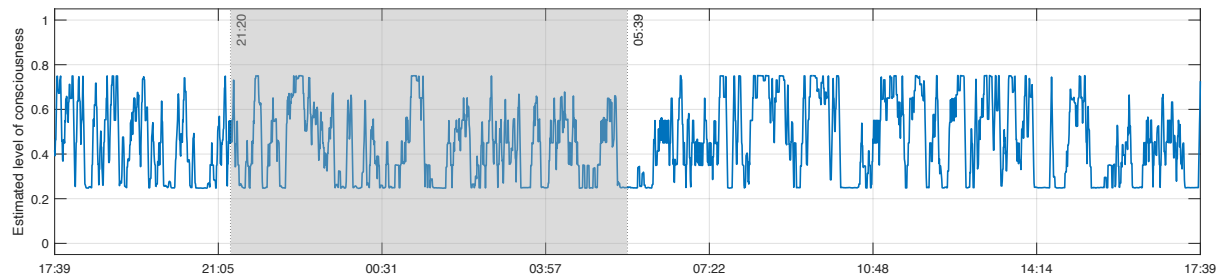


Figure S 1: Estimated consciousness level (a) and Eyes scoring (b).

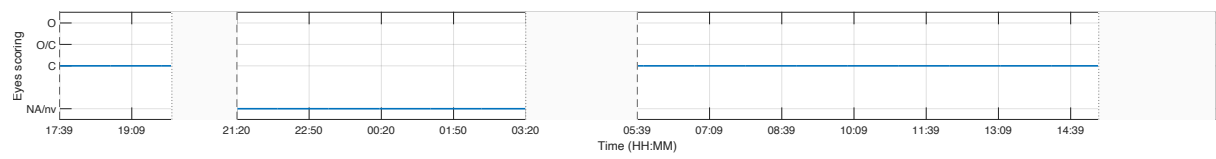
Table S 1: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	0,8615	-0,8036	0,8627
P_{β}	0,8299	-0,9717	0,8439
SEF95	0,7900	-0,9555	0,8059
ERR	0,7780	-0,7568	0,7752
LZC	0,3736	-0,4113	0,3803
$iCOH_{\theta}$	0,0144	0,0064	0,0082
wSMI	-0,0978	-0,0773	-0,0866

Patient L13



(a)



(b)

Figure S 2: Estimated consciousness level (a) and Eyes scoring (b).

Table S 2: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	0,4933	-0,5122	0,5354
P_{β}	0,4556	-0,8997	0,8270
SEF95	0,5011	-0,90091	0,8481
ERR	0,0481	-0,3973	0,3046
LZC	-0,2004	-0,2662	0,1242
$iCOH_{\theta}$	0,5246	-0,0680	0,2032
wSMI	0,2718	-0,3499	0,3227

Patient S12

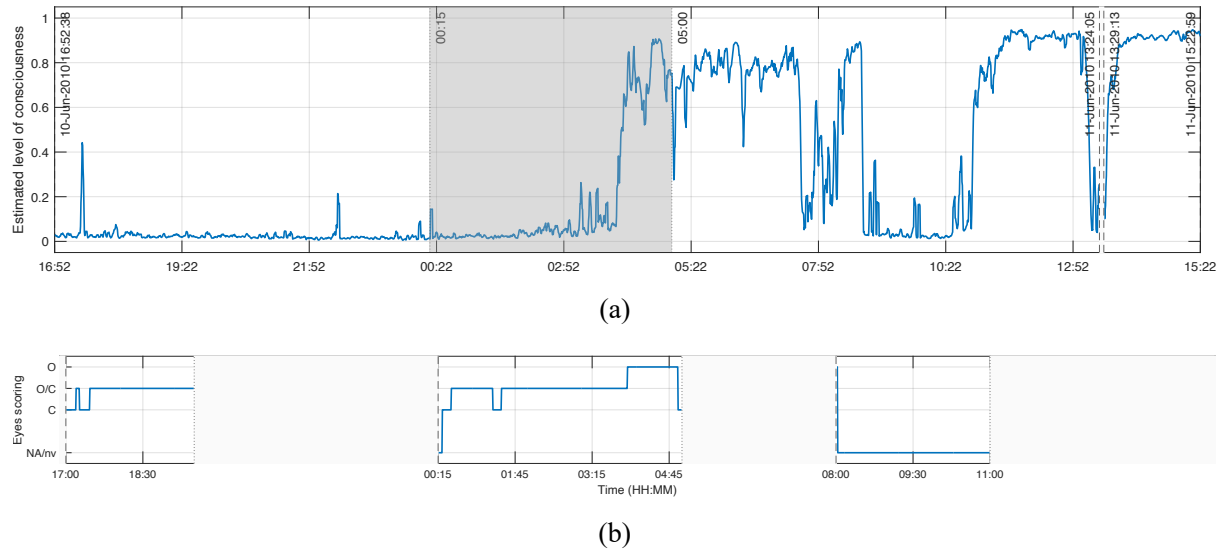
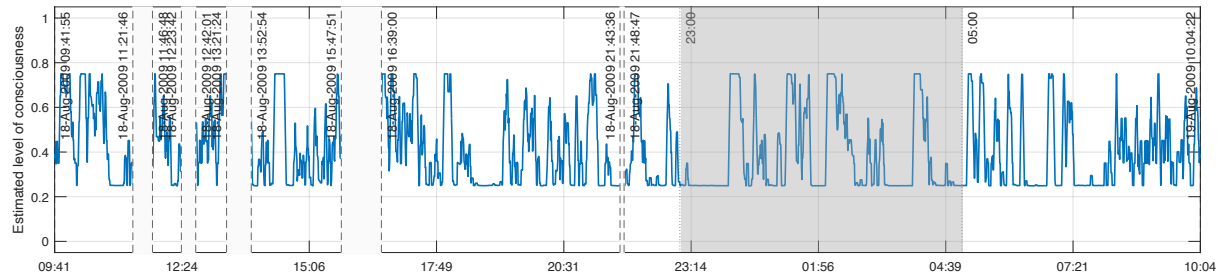


Figure S 3: Estimated consciousness level (a) and Eyes scoring (b).

Table S 3: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	-0,6193	0,5232	0,4908
P_{β}	0,4830	0,7516	0,6979
SEF95	0,6922	0,8228	0,7358
ERR	0,7307	0,4314	0,5019
LZC	0,5034	-0,0451	-0,0058
$iCOH_{\theta}$	-0,0026	0,3858	0,4479
wSMI	0,4503	0,2183	0,3042

Patient S13



(a)



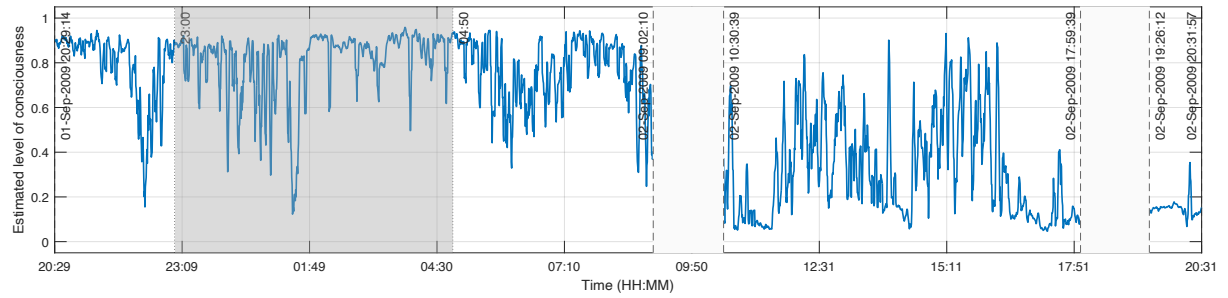
(b)

Figure S 4: Estimated consciousness level (a) and Eyes scoring (b).

Table S 4: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	0,4820	0,2183	0,3042
P_{β}	0,5345	0,8942	0,8551
SEF95	0,4645	0,9380	0,8732
ERR	0,3159	0,8638	0,7653
LZC	-0,0988	0,7039	0,4809
$iCOH_{\theta}$	0,1504	-0,0374	0,0237
wSMI	0,6432	0,0865	0,2793

Patient S14



(a)



(b)

Figure S 5: Estimated consciousness level (a) and Eyes scoring (b).

Table S 5: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{theta}	-0,0744	-0,0742	-0,0307
P_{beta}	0,8034	-0,9272	0,8274
SEF95	0,8454	-0,9667	0,8713
ERR	0,7785	-0,9244	0,8046
LZC	0,4942	-0,3605	0,4553
$i\text{COH}_{\text{theta}}$	0,0416	-0,0924	0,0483
wSMI	0,4954	-0,5486	0,4988

Patient S16

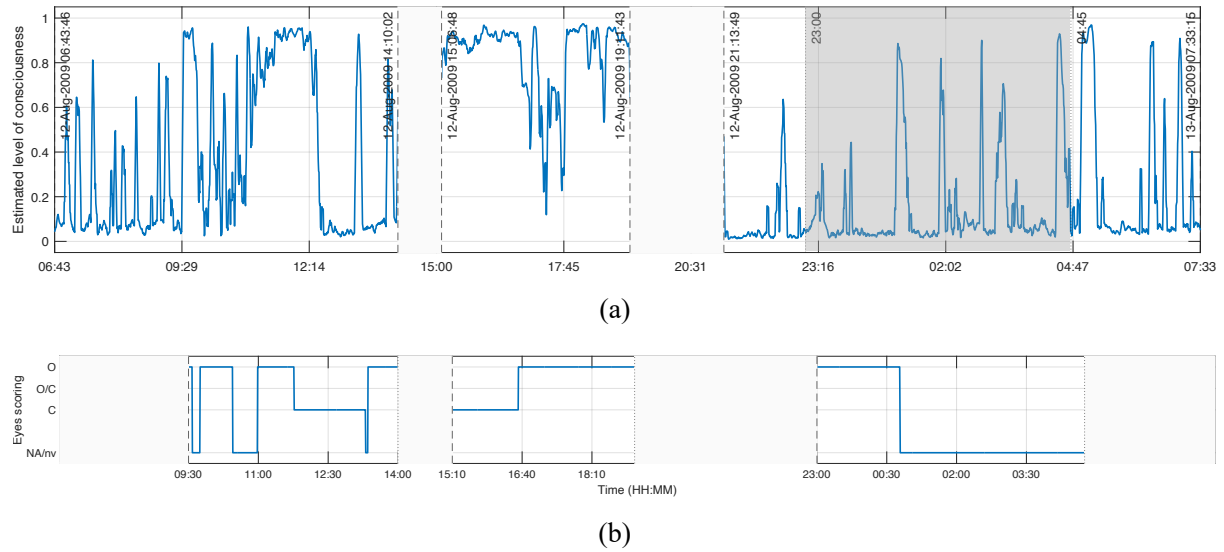


Figure S 6: Estimated consciousness level (a) and Eyes scoring (b).

Table S 6: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	-0,4848	-0,7251	-0,4893
P_{β}	0,8016	0,8008	0,8273
SEF95	0,8004	0,7701	0,8269
ERR	0,3968	0,3170	0,3861
LZC	0,6407	0,7669	0,6729
$iCOH_{\theta}$	0,0738	0,0423	0,0719
wSMI	-0,4714	-0,7052	-0,4821

Patient S17

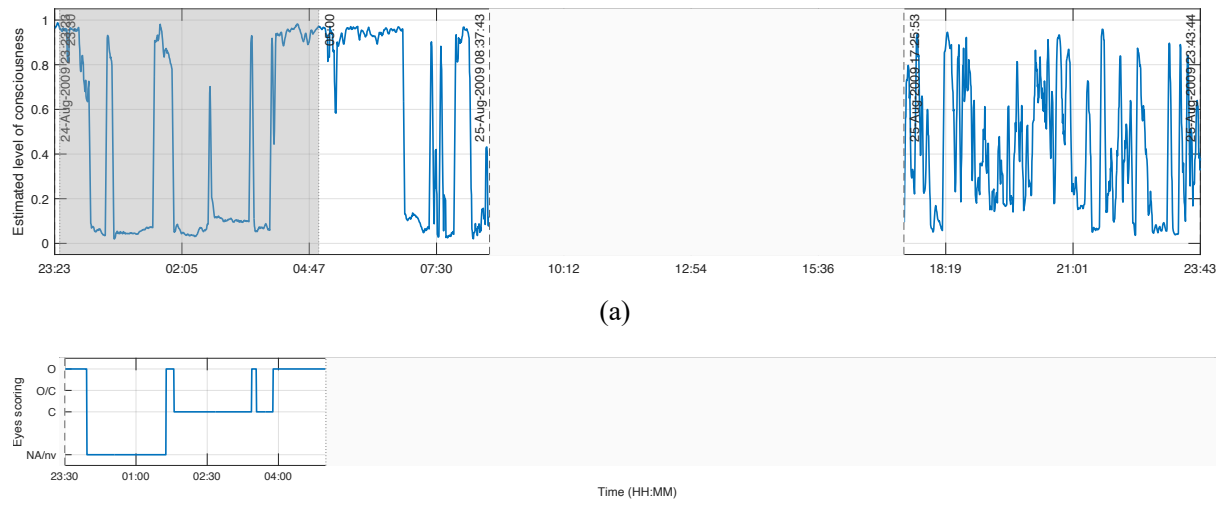


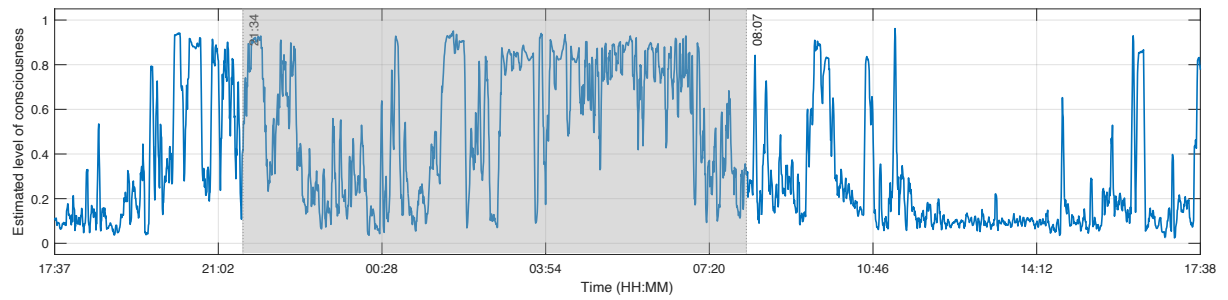
Figure S 7: Estimated consciousness level (a) and Eyes scoring (b).

Table S 7: Spearman correlation coefficients between the features and the estimated levels of consciousness.

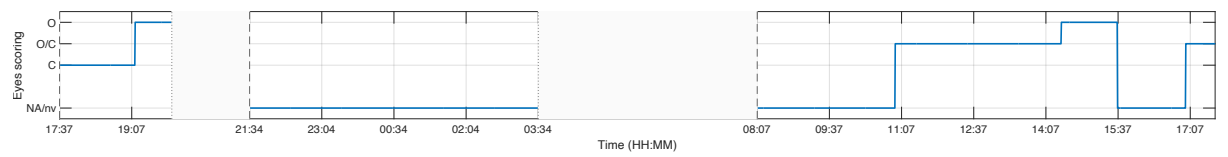
Features	FCM	GMM	Ensemble
P_{θ}	-0,6990	0,7421	-0,6779
P_{β}	0,5480	-0,6529	0,5850
SEF95	0,8449	-0,8931	0,8583
ERR	0,5551	-0,6222	0,5681
LZC	0,7808	-0,7316	0,7612
$iCOH_{\theta}$	-0,0219	0,0338	-0,0205
wSMI	-0,7970	0,7950	-0,7971

MCS patients

Patient L4



(a)



(b)

Figure S 8: Estimated consciousness level (a) and Eyes scoring (b).

Table S 8: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	0,6894	0,5700	0,6204
P_{β}	0,8503	0,9447	0,8673
SEF95	0,8212	0,9506	0,8519
ERR	0,4857	0,4242	0,4528
LZC	0,7665	0,9396	0,8038
$iCOH_{\theta}$	-0,0261	-0,0589	-0,0282
wSMI	0,1958	0,3729	0,2592

Patient L7

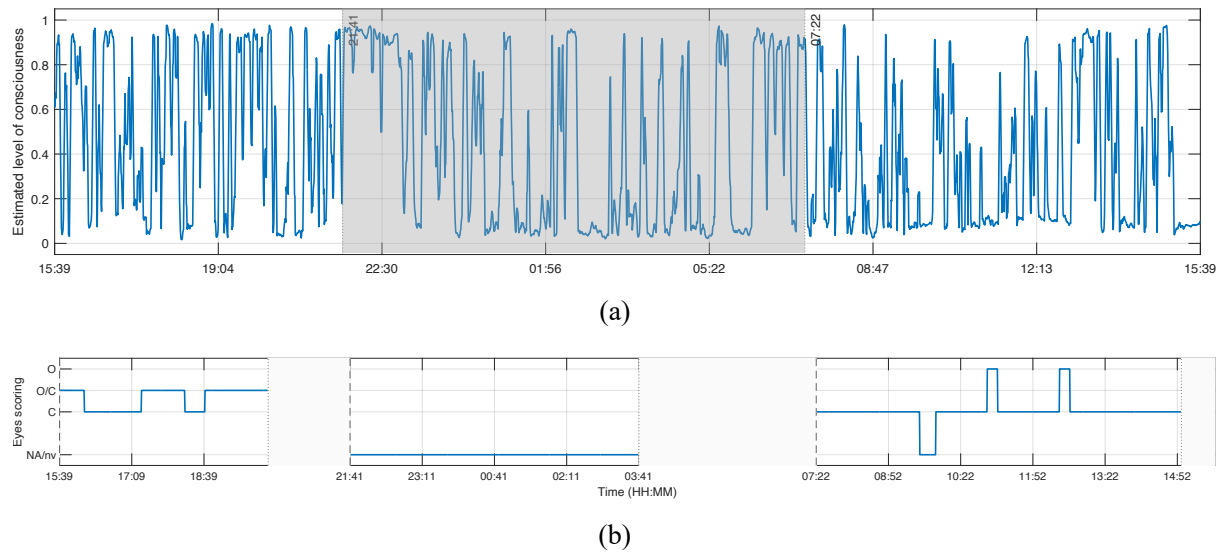


Figure S 9: Estimated consciousness level (a) and Eyes scoring (b).

Table S 9: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	-0,2871	0,2455	-0,2858
P_{β}	0,8024	-0,9249	0,8042
SEF95	0,8626	-0,9847	0,8638
ERR	0,0587	0,0849	0,0585
LZC	0,7572	-0,9060	0,7583
$iCOH_{\theta}$	-0,0283	0,0630	-0,0282
wSMI	0,7688	-0,8472	0,7685

Patient L8

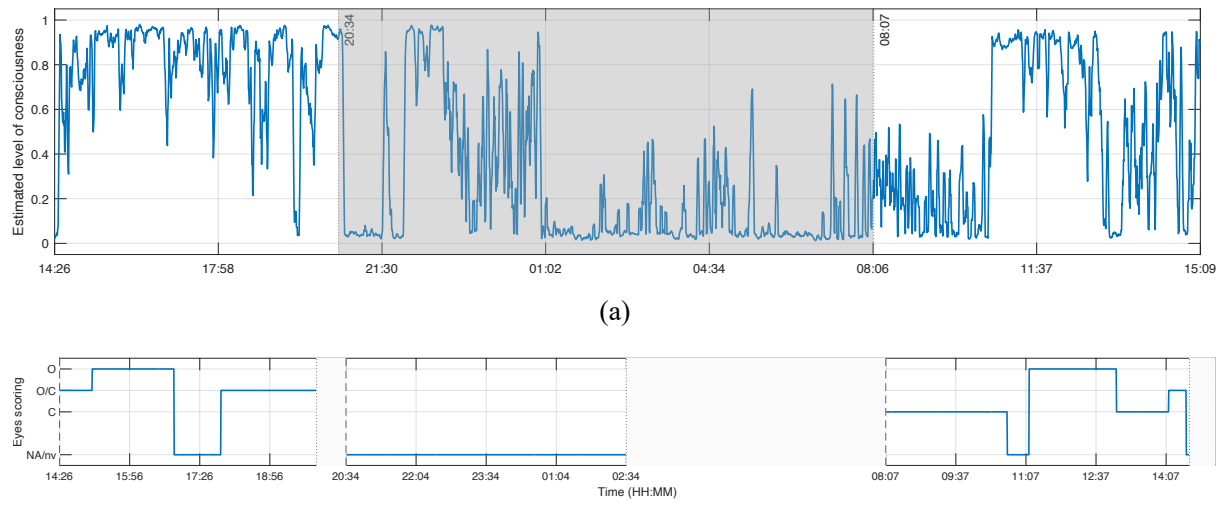


Figure S 10: Estimated consciousness level (a) and Eyes scoring (b).

Table S 10: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	-0,1053	0,2060	-0,1166
P_{β}	0,8685	-0,9443	0,8758
SEF95	0,8782	-0,9440	0,8866
ERR	0,8664	-0,9556	0,8773
LZC	0,8440	-0,9398	0,8553
$iCOH_{\theta}$	0,0566	-0,0348	0,0504
wSMI	0,1601	-0,2636	0,1621

Patient L9

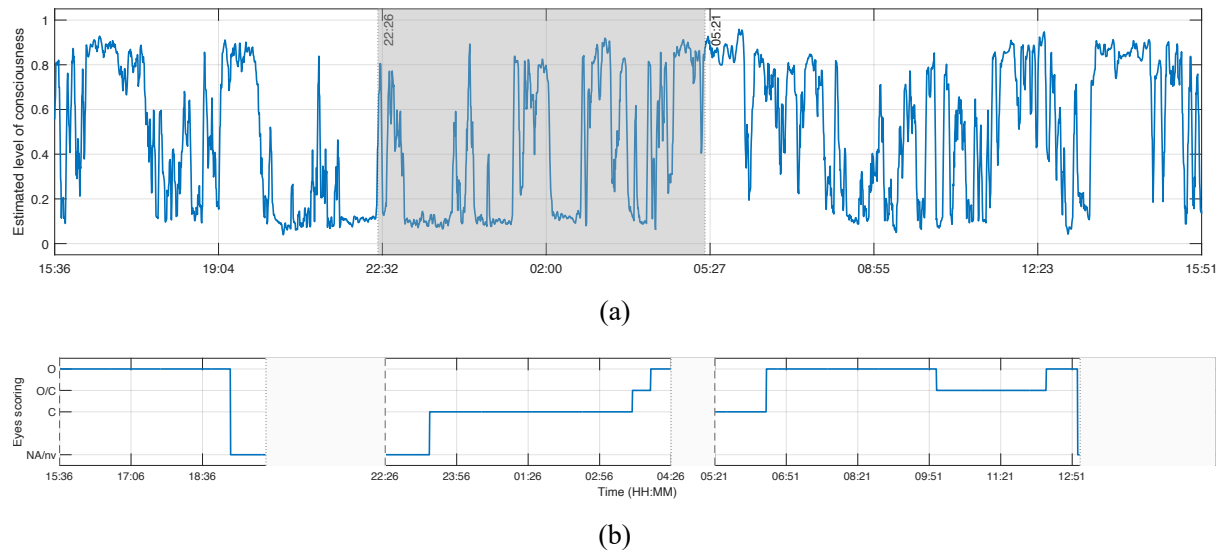


Figure S 11: Estimated consciousness level (a) and Eyes scoring (b).

Table S 11: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	0,3046	0,3232	0,3032
P_{β}	0,8251	0,9502	0,8546
SEF95	0,8565	0,9599	0,8855
ERR	0,3153	0,3876	0,3142
LZC	0,7810	0,8463	0,8053
$iCOH_{\theta}$	-0,0385	-0,0733	-0,0447
wSMI	0,4238	0,3470	0,4008

Patient L16

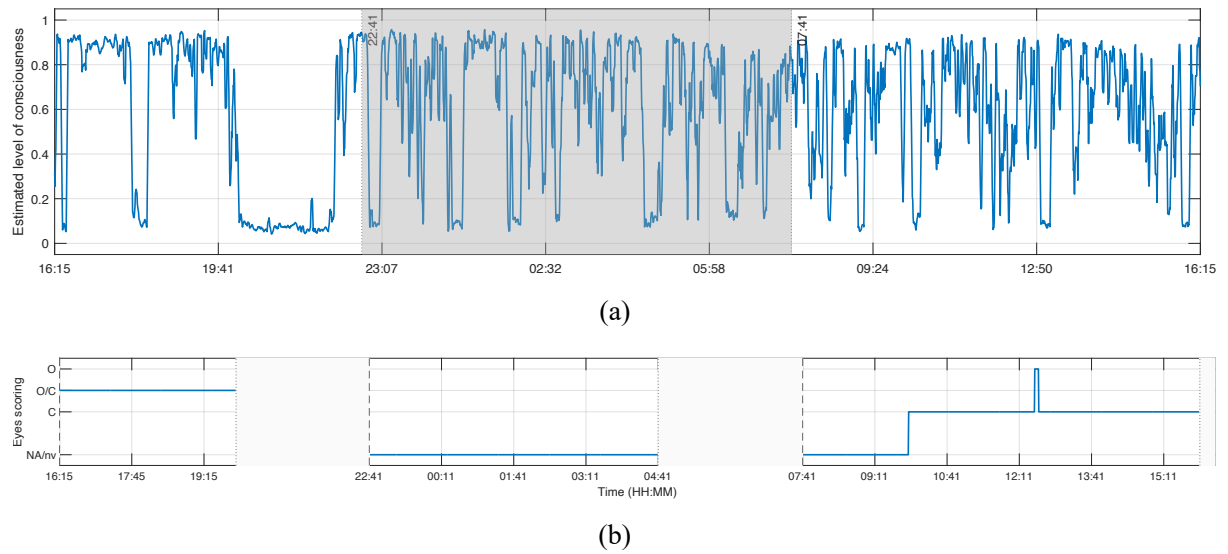
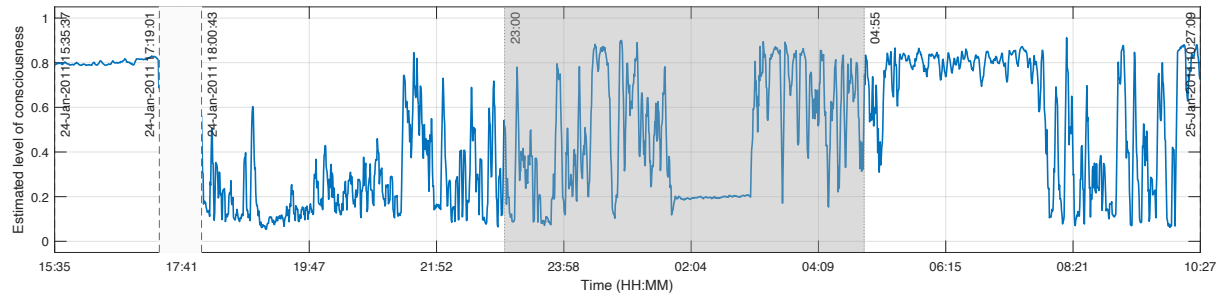


Figure S 12: Estimated consciousness level (a) and Eyes scoring (b).

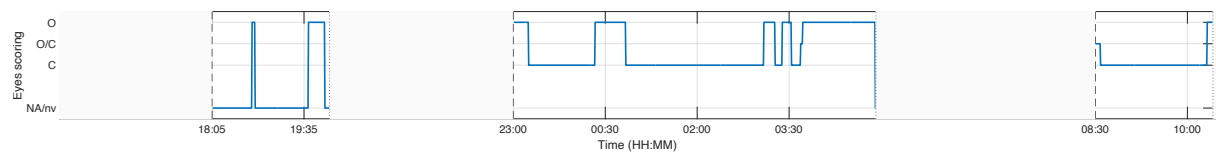
Table S 12: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	-0,0147	0,0305	-0,0143
P_{β}	0,8654	0,9810	0,8722
SEF95	0,8661	0,9584	0,8705
ERR	0,1263	0,2056	0,1275
LZC	0,8244	0,9042	0,8294
$iCOH_{\theta}$	0,0120	0,0253	0,0119
wSMI	0,5141	0,4868	0,5077

Patient S2



(a)



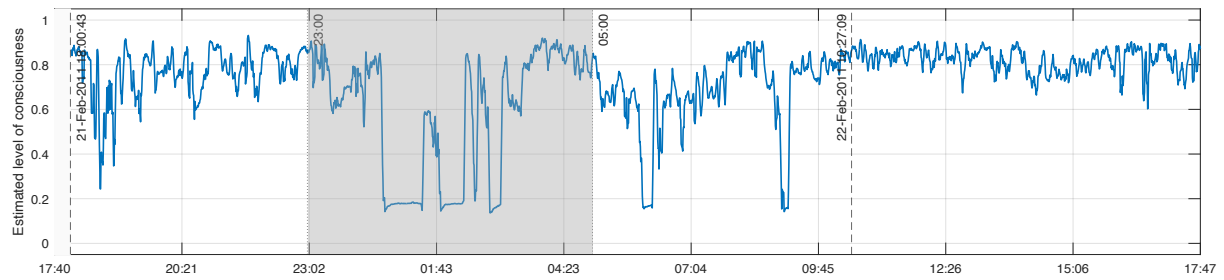
(b)

Figure S 13: Estimated consciousness level (a) and Eyes scoring (b).

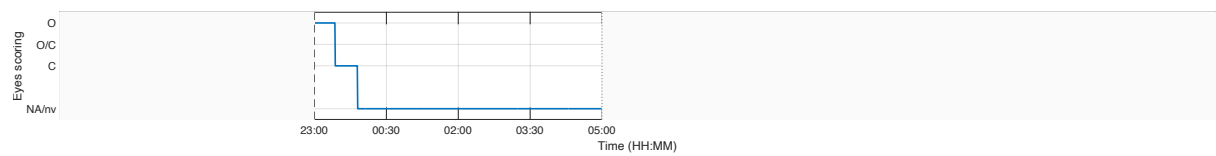
Table S 13: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	-0,0914	-0,4109	-0,1643
P_{β}	0,6822	0,6946	0,7423
SEF95	0,7918	0,8513	0,8359
ERR	0,4830	0,2671	0,4760
LZC	0,4236	0,3742	0,4545
$iCOH_{\theta}$	0,0025	-0,0740	-0,0088
wSMI	-0,3249	-0,5361	-0,4002

Patient S5



(a)



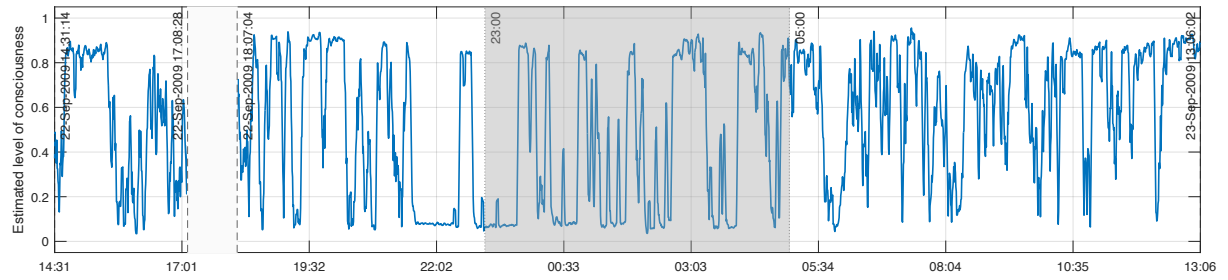
(b)

Figure S 14: Estimated consciousness level (a) and Eyes scoring (b).

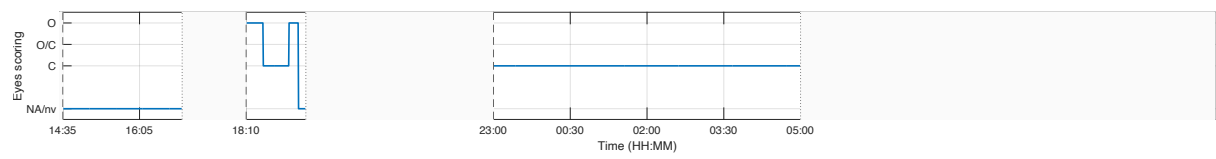
Table S 14: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	0,1436	-0,5158	0,2113
P_{β}	0,4884	-0,9269	0,5399
SEF95	0,8262	-0,6649	0,8544
ERR	0,0440	-0,6656	0,1264
LZC	0,7650	-0,1689	0,7277
$iCOH_{\theta}$	0,0573	-0,0629	0,0631
wSMI	-0,4952	0,3101	-0,4814

Patient S6



(a)



(b)

Figure S 15: Estimated consciousness level (a) and Eyes scoring (b).

Table S 15: Spearman correlation coefficients between the features and the estimated levels of consciousness.

Features	FCM	GMM	Ensemble
P_{θ}	0,4876	-0,4458	0,4740
P_{β}	0,8475	-0,9155	0,8595
SEF95	0,8241	-0,8996	0,8379
ERR	0,7944	-0,8146	0,7930
LZC	-0,1260	0,0128	-0,1033
$iCOH_{\theta}$	-0,0385	0,0537	-0,0458
wSMI	-0,1309	0,1367	-0,1457