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QEEG Clinical Report

BrainLens V0.4

کلینیک نوروتراپی و
روانپزشکی دکتر حسینی

Report Description

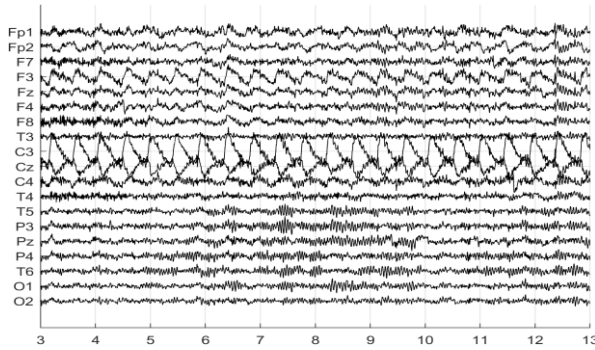
Personal & Clinical Data

Name	Hossein Mokhtari	Date of Recording	06-Nov-2024
Date of Birth - Age	22-Mar-1947 - 77.62	Gender	Male
Handedness(R/L)	Right	Source of Referral	Dr Hosseini
Initial Diagnosis	Dementia-MDD		
Current Medication	Asentra-Memantine		

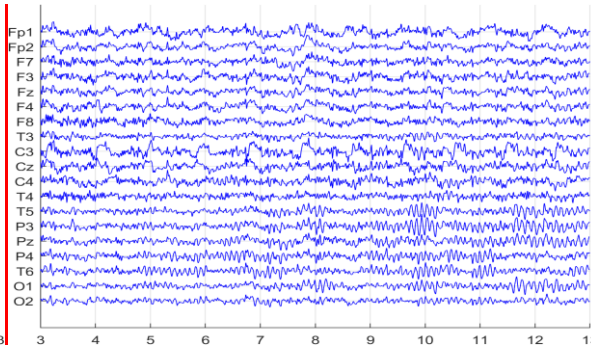
Dr Hosseini

Denoising Information (EC)

Raw EEG



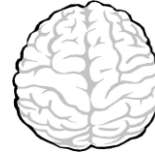
Denoised EEG



Flat Channels



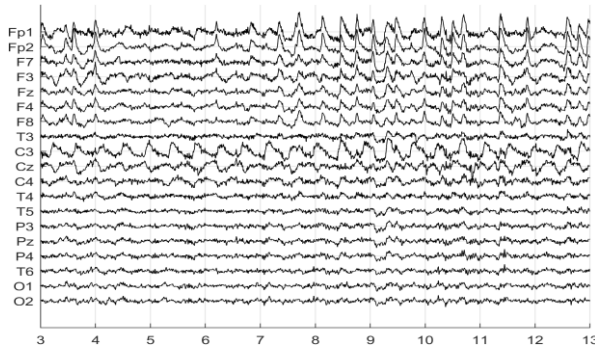
Rejected Channels



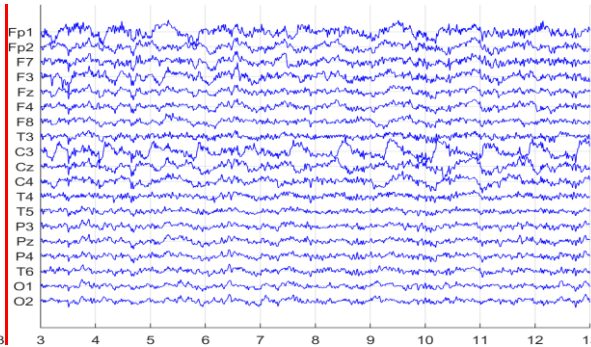
Number of Eye and Muscle Elements				Low Artifact Percentage	
Eye	0	Muscle	0		
Total Artifact Percentage				High Artifact Percentage	
EEG Quality		good		Total Recording Time Remaining	238.47 sec

Denoising Information (EO)

Raw EEG



Denoised EEG



Flat Channels



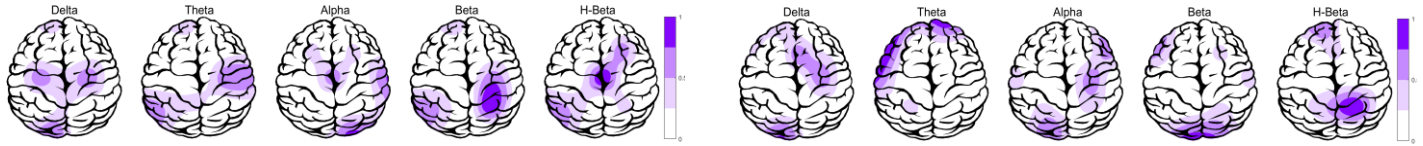
Rejected Channels



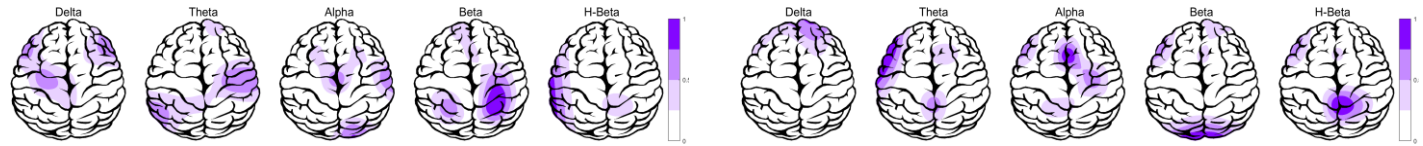
Number of Eye and Muscle Elements				Low Artifact Percentage	
Eye	1	Muscle	0		
Total Artifact Percentage				High Artifact Percentage	
EEG Quality		bad		Total Recording Time Remaining	203.46 sec

Pathological assessment for mood disorders and adult ADHD

Compare to Mood Disorders Database



Compare to adult ADHD Database



EEG Compatibility with Depression Diagnosis

Depression Table	EC		EO	
Feature Name	Threshold	Region	Threshold	Region
Increased Global rAlpha	0.00	NAN	0.00	NAN
Increased global rTheta	0.00	NAN	0.00	NAN
Decreased rDelta	0.00	NAN	0.00	NAN
Increased rBeta	0.00	NAN	0.00	NAN
Left FAA	0.00	NAN	0.00	NAN
Right OAA	0.10	Right OAA	0.09	Right OAA
Decreased Coherence (D, T)	-1.00	Decreased Coherence	-1.00	Decreased Coherence
Increased Coherence (A, B)	0.00	NAN	0.00	NAN

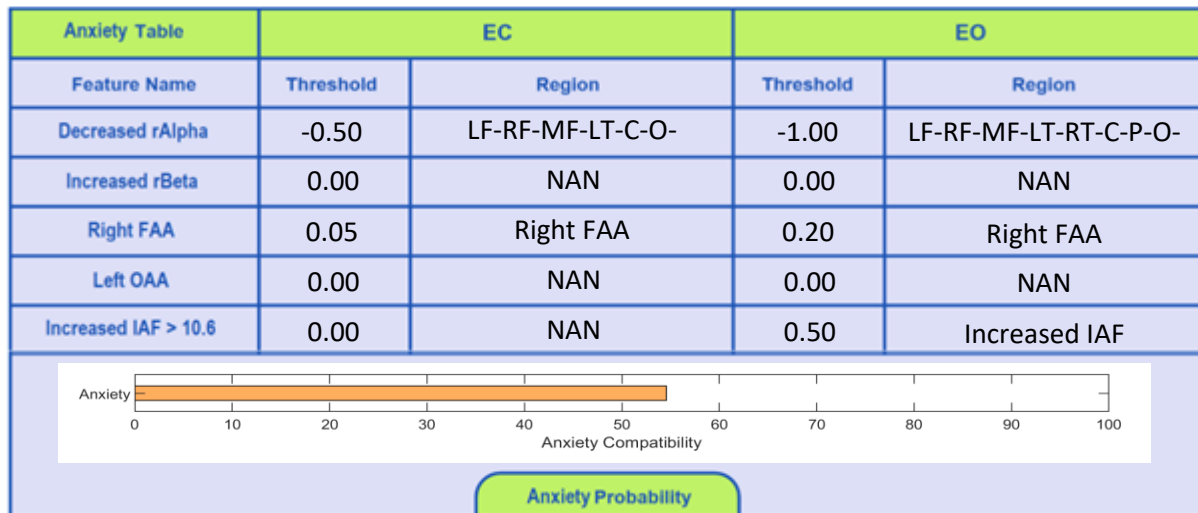
depression 

0 10 20 30 40 50 60 70 80 90 100

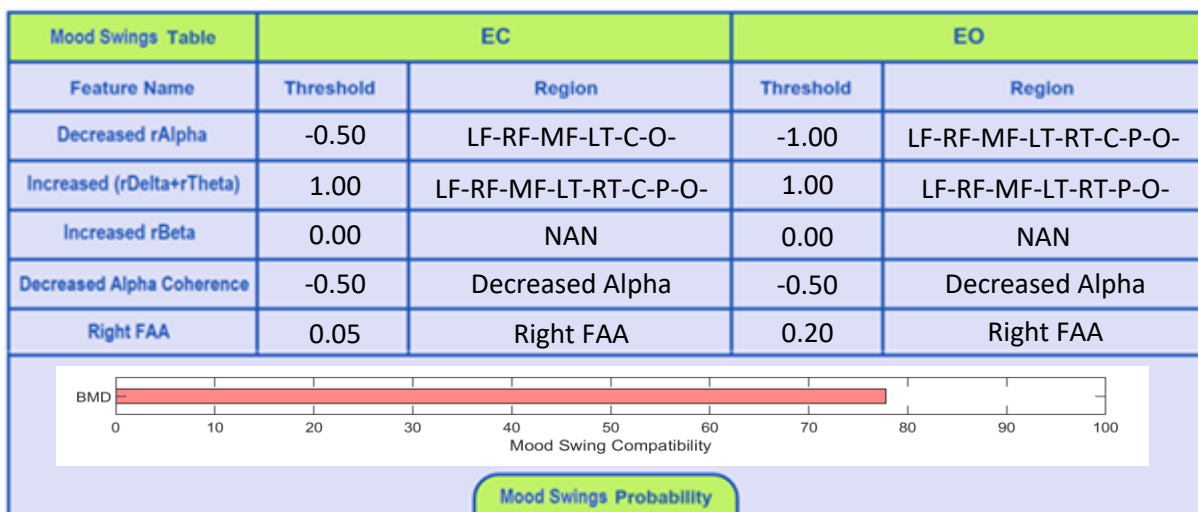
Depression Compatibility

Depression Probability

EEG Compatibility with Anxiety Diagnosis

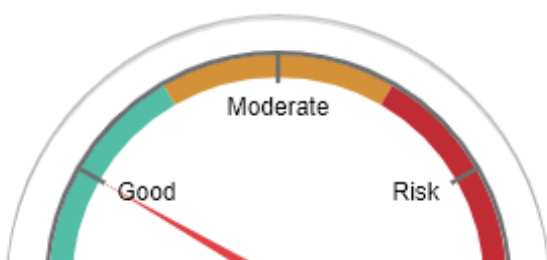


EEG Compatibility with Mood Swings Diagnosis

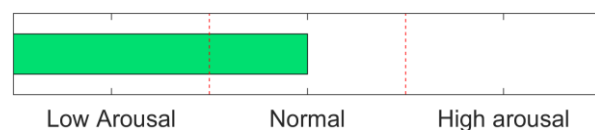


* This index can only be investigated if there are symptoms of mood swings (R/O BMD or R/O mood swings).

Cognitive Functions

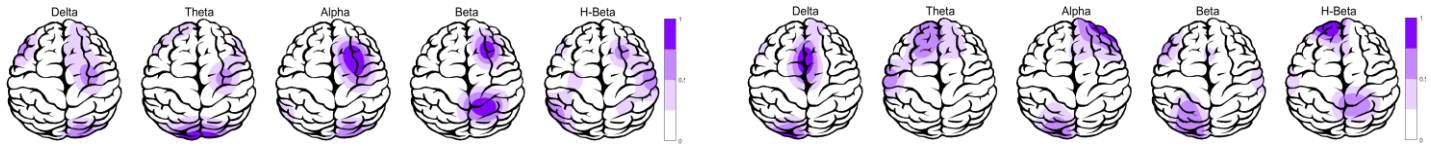


Arousal Level Detection



Pathological assessment for Dementia

Compare to Dementia Database



Dementia Probability

Dementia Table	EC			
Feature Name	Threshold	Region	Threshold	Region
Increased rDelta	2.00	LF-RF-MF-LT-RT-C-P-	2.00	LF-RF-MF-LT-RT-C-P-
Increased rTheta	0.50	C	1.00	RF-O-
Decreased rAlpha	-0.50	LF-RF-MF-LT-C-O-	-1.00	LF-RF-MF-LT-RT-C-P-
Decreased rBeta	-2.00	LF-RF-MF-LT-RT-C-P-	-0.50	LF-RF-MF-LT-RT-C-P-
Increased T/A Ratio	1.00	LF-RF-MF-LT-C-O-	3.00	LF-RF-MF-LT-RT-C-P-
Increased D/A Ratio	2.00	LF-RF-MF-LT-RT-C-P-	2.00	LF-RF-MF-LT-RT-C-P-
Decreased (D+T+A+B) Coherence	-0.50	Decreased global	-0.50	Decreased global

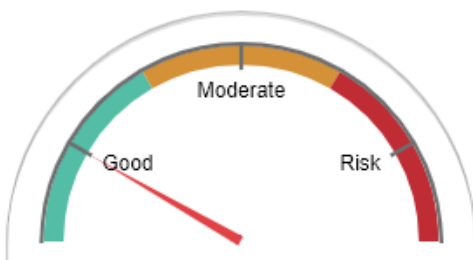
dementia

0 10 20 30 40 50 60 70 80 90 100

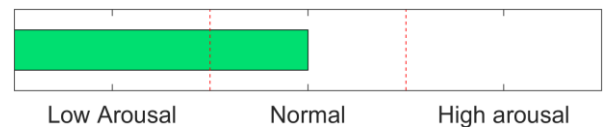
Dementia Compatibility

Dementia Probability

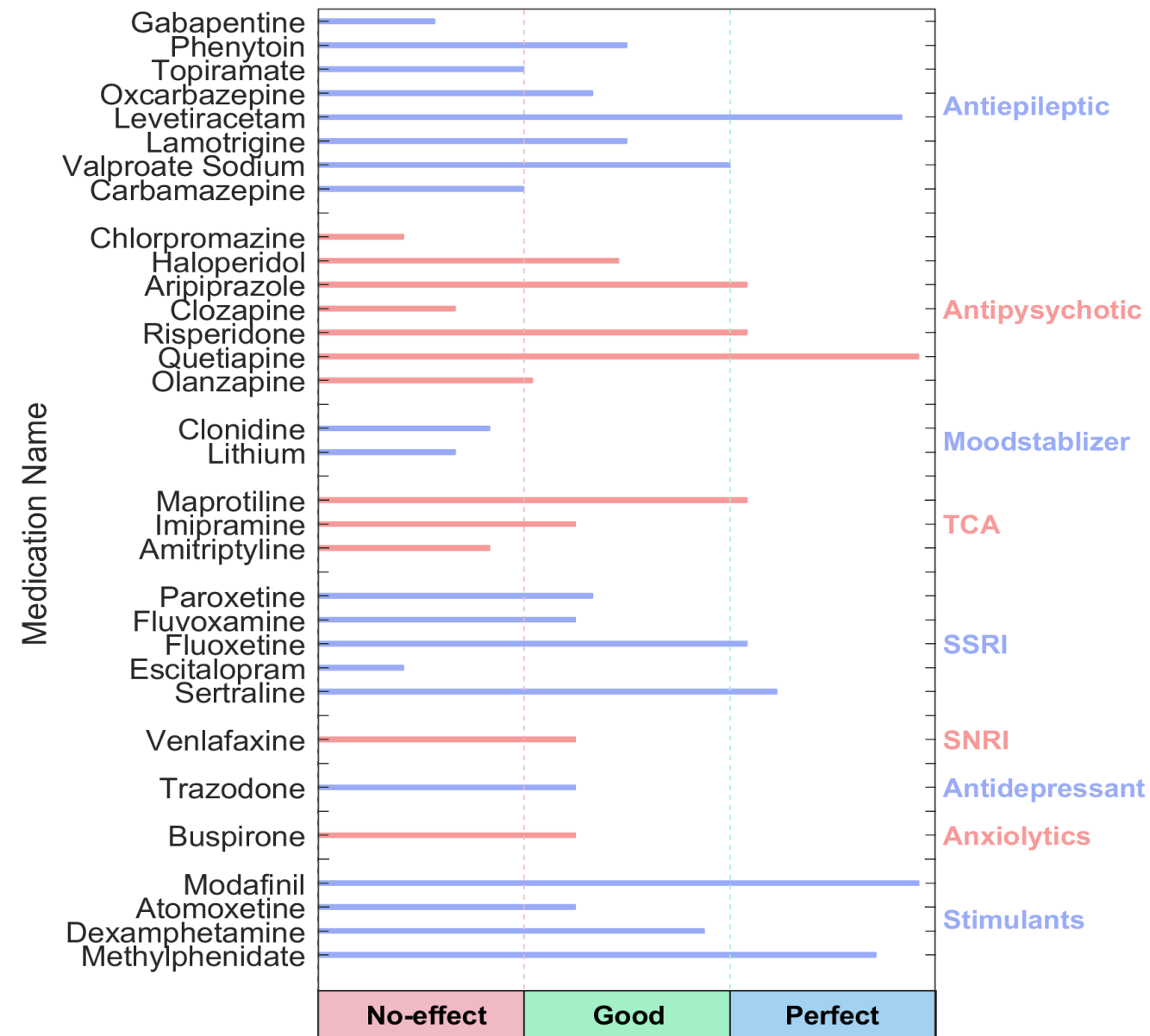
Cognitive Impairment Severity



Arousal Level Detection



QEEG based predicting medication response



Explanation

These two tables can be considered the most important finding that can be extracted from QEEG. To prepare this list, the NPCIndex Article Review Team has studied, categorized, and extracted algorithms from many authoritative published articles on predict medication response and Pharmacoe EEG studies. These articles are published between 1970 and 2021. The findings extracted from this set include 85 different factors in the raw band domains, spectrum, power, coherence, and loreta that have not been segregated to avoid complexity, and their results are shown in these diagrams. One can review details in NPCIndex.com .

Medication Recommendation

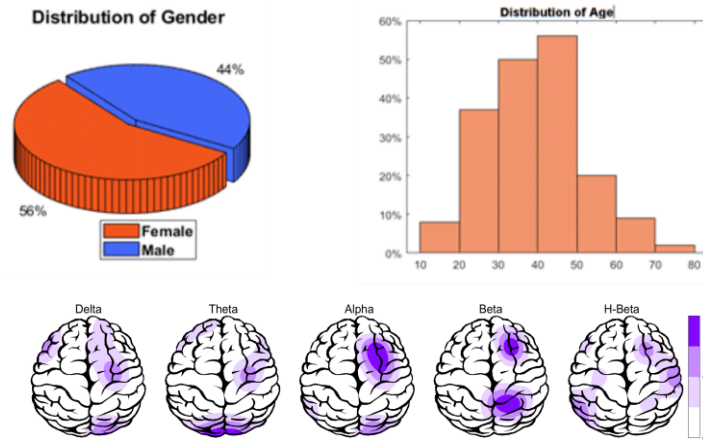
These two charts, calculate response probability to various medications, according only to QEEG indicators. Blue charts favor drug response and red charts favor drug resistance. The longer the bar, the more evidence there is in the articles. Only drugs listed in the articles are listed. These tables present the indicators reviewed in the QEEG studies and are not a substitute for physician selection.

rTMS Response Prediction

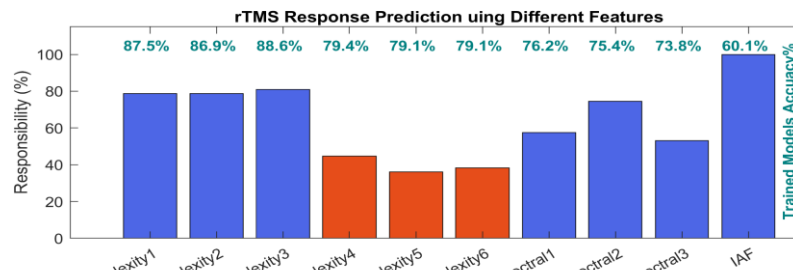
Network Performance

Accuracy: 92.1%
Sensitivity: 89.13%
Specificity: 97.47%

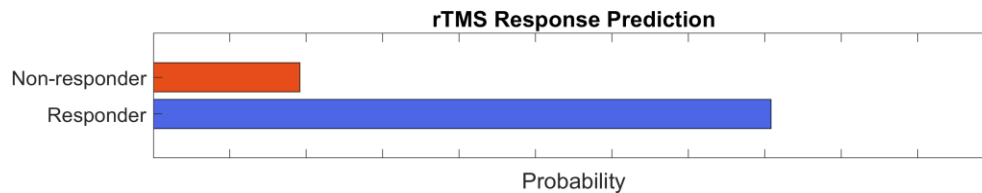
Participants Information



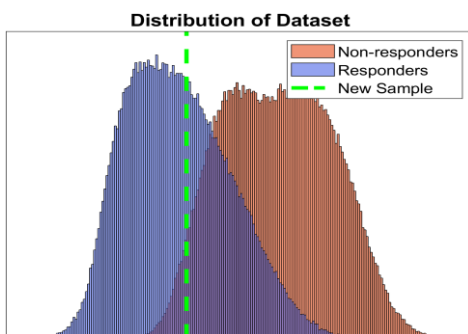
Features Information



Responsibility



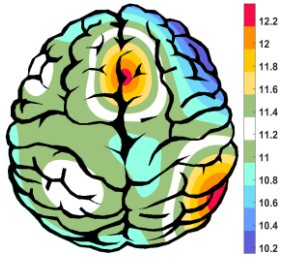
Data Distribution



About Predicting rTMS Response

This index was obtained based on machine learning approaches and by examining the QEEG biomarkers of more than 470 cases treated with rTMS. The cases were diagnosed with depression (with and without comorbidity) and all were medication free. By examining more than 40 biomarkers capable of predicting response to rTMS treatment in previous studies and with data analysis, finally 10 biomarkers including bispectral and nonlinear features entered the machine learning process. The final chart can distinguish between RTMS responsive and resistant cases with 92.1% accuracy. This difference rate is much higher than the average response to treatment of 44%, in the selection of patients with clinical criteria, and is an important finding in the direction of personalized treatment for rTMS.

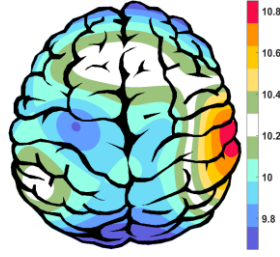
APF(EO)



Frontal APF= 11.08

Posterior APF= 11.00

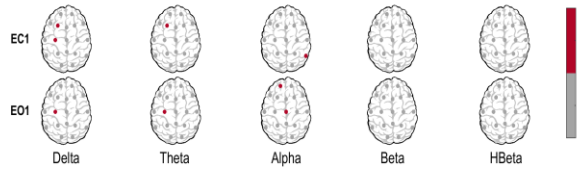
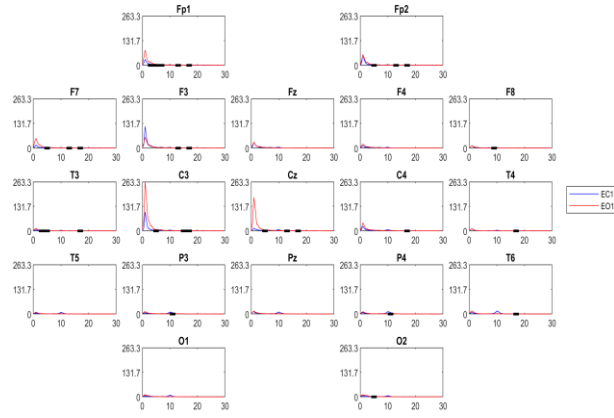
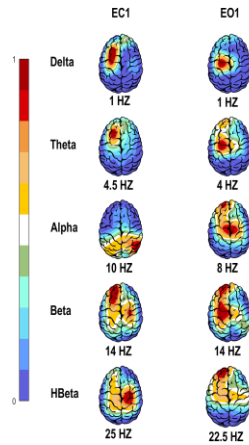
APF(EC)



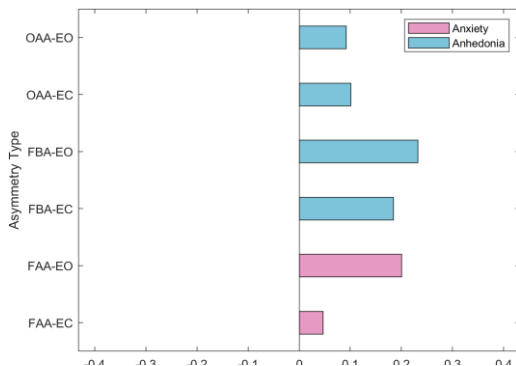
Frontal APF= 10.00

Posterior APF= 10.00

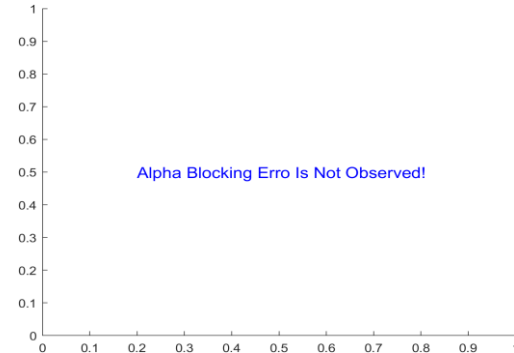
EEG Spectra



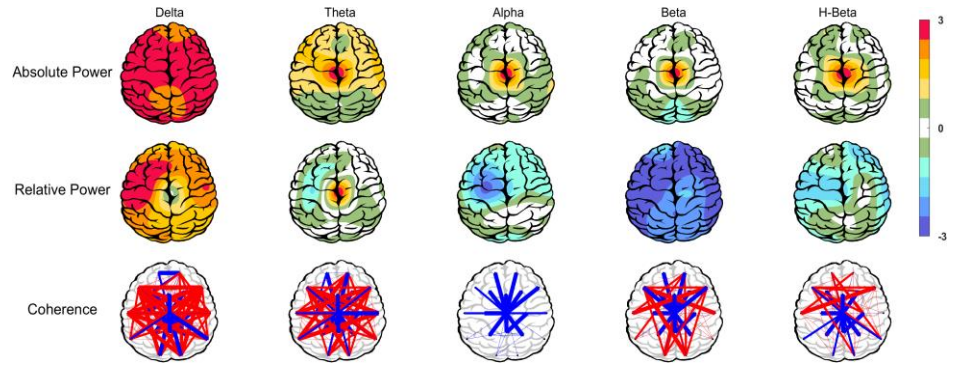
Alpha Asymmetry(AA)



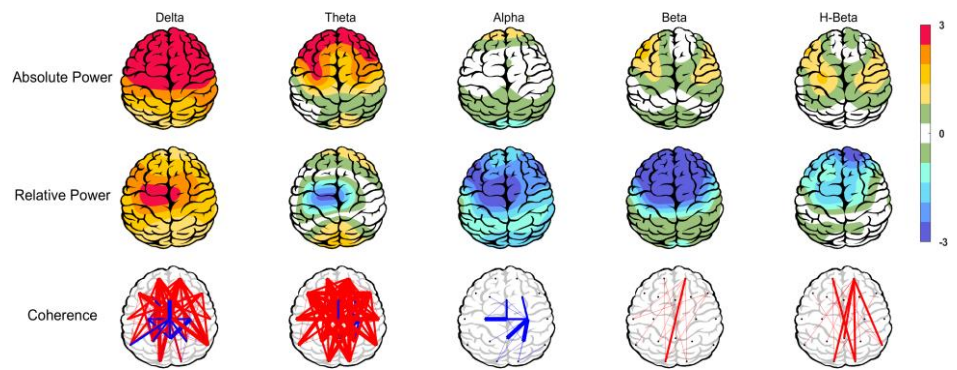
Alpha Blocking



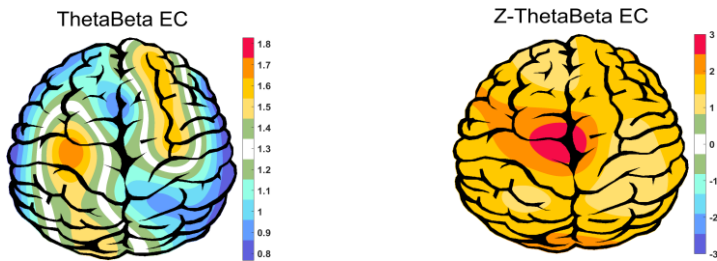
Z Score Summary Information (EC)



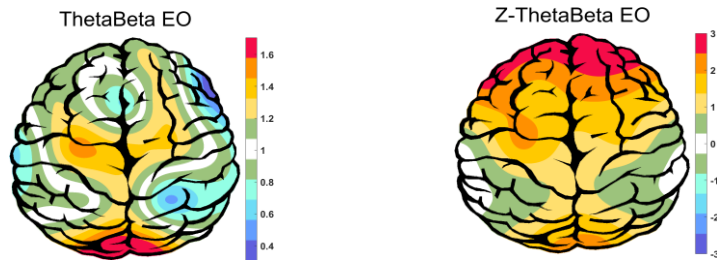
Z Score Summary Information (EO)



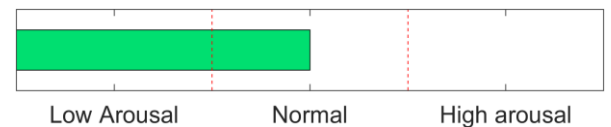
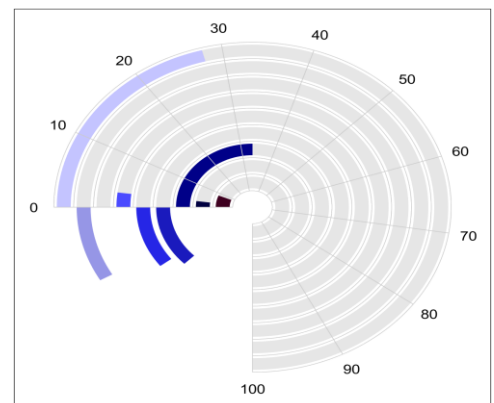
E.C.T/B Ratio (Raw- Z Score)



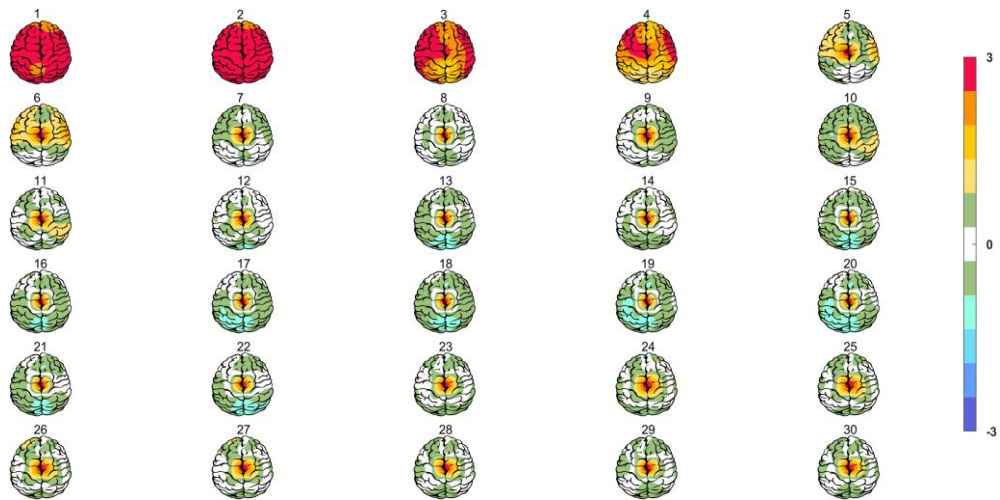
E.O.T/B Ratio (Raw- Z Score)



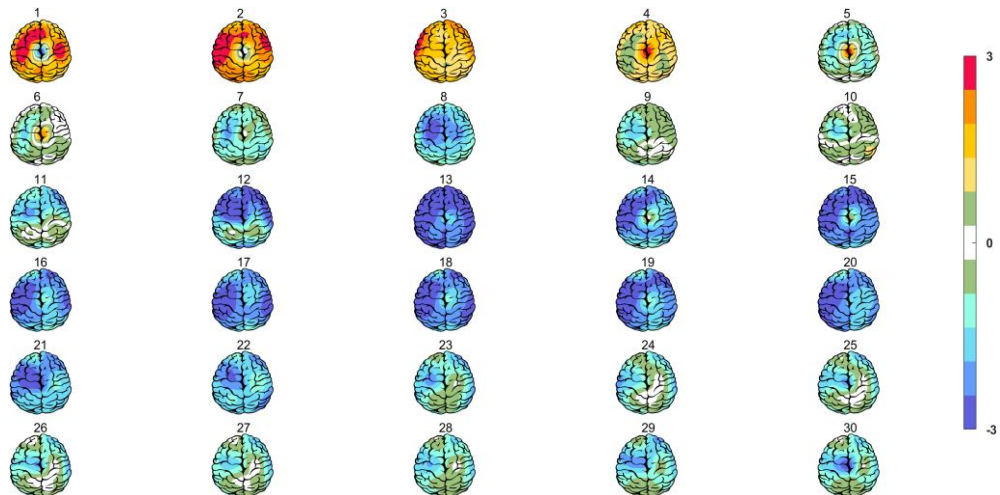
Arousal Level



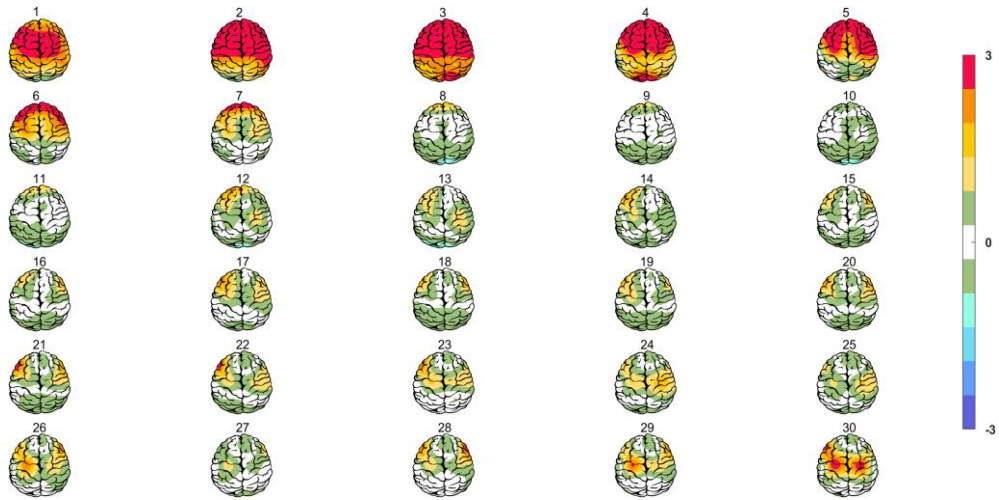
Absolute Power-Eye Closed (EC)



Relative Power-Eye Closed (EC)



Absolute Power-Eye Open (EO)



Relative Power-Eye Open (EO)

