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QEEG Clinical Report

BrainLens V0.4

Report Description

Personal & Clinical Data

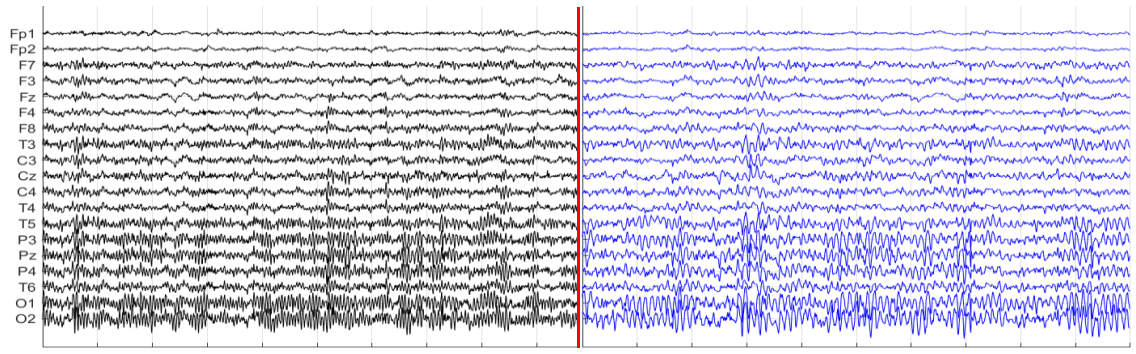
Name	Zahra Ebrahimtousi	Date of Recording	27-May-2024
Date of Birth - Age	21-Mar-1957 - 67.18	Gender	Female
Handedness(R/L)	Right	Source of Referral	Dr Masjedi
Initial Diagnosis	Memory problems, Anxiety		
Current Medication	Medication free		

Dr Masjedi

Denoising Information (EC)

Raw EEG

Denoised EEG



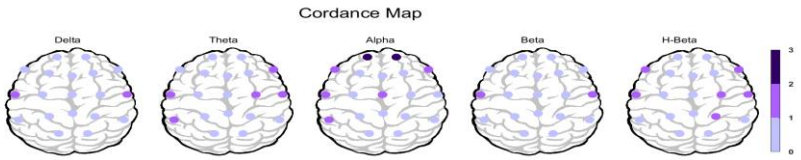
Flat Channels

Rejected Channels

Number of Eye and Muscle Elements				Low Artifact Percentage	
Eye	2	**Muscle**	0		
Total Artifact Percentage				**High Artifact Percentage**	
EEG Quality	bad			**Total Recording Time Remaining**	377.44 sec

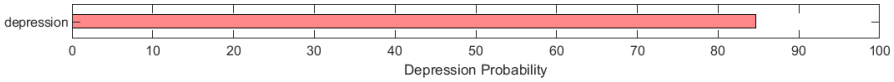
Pathological assessment for mood disorders

Compare to Mood Disorders Database



EEG Compatibility with Depression Diagnosis

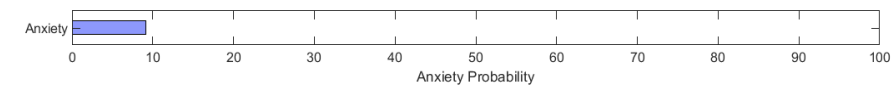
Depression Table	EC	
Feature Name	Threshold	Region
Increased Global rAlpha	0.50	global
Increased global rTheta	1.00	global
Decreased rDelta	-0.50	RF-MF-LT-C-P-O-
Increased rBeta	0.00	NAN
Left FAA	-0.09	Left FAA
Right OAA	0.00	NAN
Decreased Coherence (D, T)	-0.50	Decreased Coherence (D,T)
Increased Coherence (A, B)	1.00	Increased Coherence (A,B)



Depression Probability

EEG Compatibility with Anxiety Diagnosis

Anxiety Table	EC	
Feature Name	Threshold	Region
Decreased rAlpha	0.00	NAN
Increased rBeta	0.00	NAN
Right FAA	0.00	NAN
Left OAA	-0.15	Left OAA
Increased IAF > 10.6	0.00	NAN

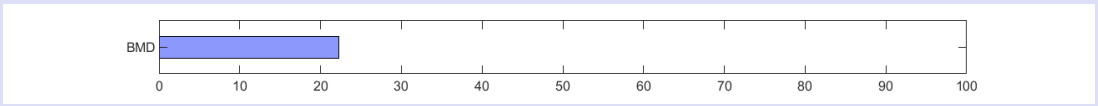


Anxiety Probability

Zahra Ebrahimtousi\Dr Masjedi

EEG Compatibility with Mood Swings Diagnosis *

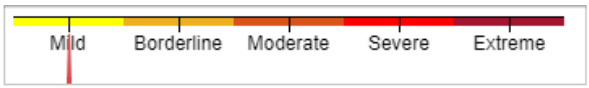
Mood Swings Table	EC	
Feature Name	Threshold	Region
Decreased rAlpha	0.00	NAN
Increased (rDelta+rTheta)	0.50	LT-RT-P-O-
Increased rBeta	0.00	NAN
Decreased Alpha Coherence	0.00	NAN
Right FAA	0.00	NAN



Mood Swings Probability

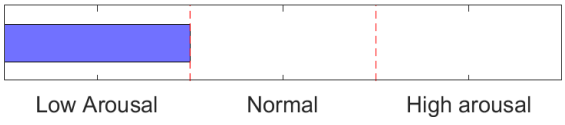
* This index can only be investigated if there are symptoms of mood swings (R/O BMD or R/O mood swings).

Depression Severity



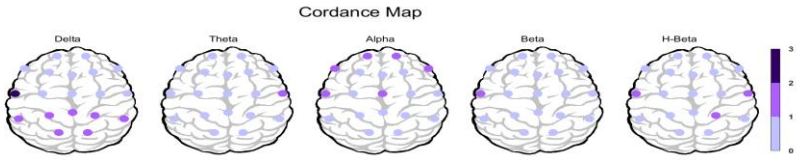
Anxiety Severity

Arousal Level Detection



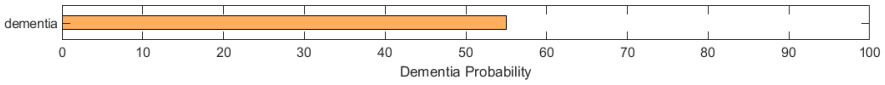
Pathological assessment for Dementia

Compare to Dementia Database



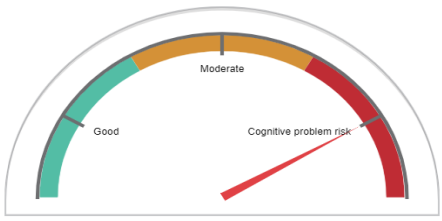
Dementia Probability

Dementia Table	EC	
Feature Name	Threshold	Region
Increased rDelta	0.00	NAN
Increased rTheta	2.00	LF-RF-MF-LT-RT-C-P-O-
Decreased rAlpha	0.00	NAN
Decreased rBeta	-0.50	LF-RF-MF-LT-RT-C-P-O-
Increased T/A Ratio	0.50	LT-P-
Increased D/A Ratio	0.00	NAN
Decreased (D+T+A+B) Coherence	-0.50	Decreased global Coherence

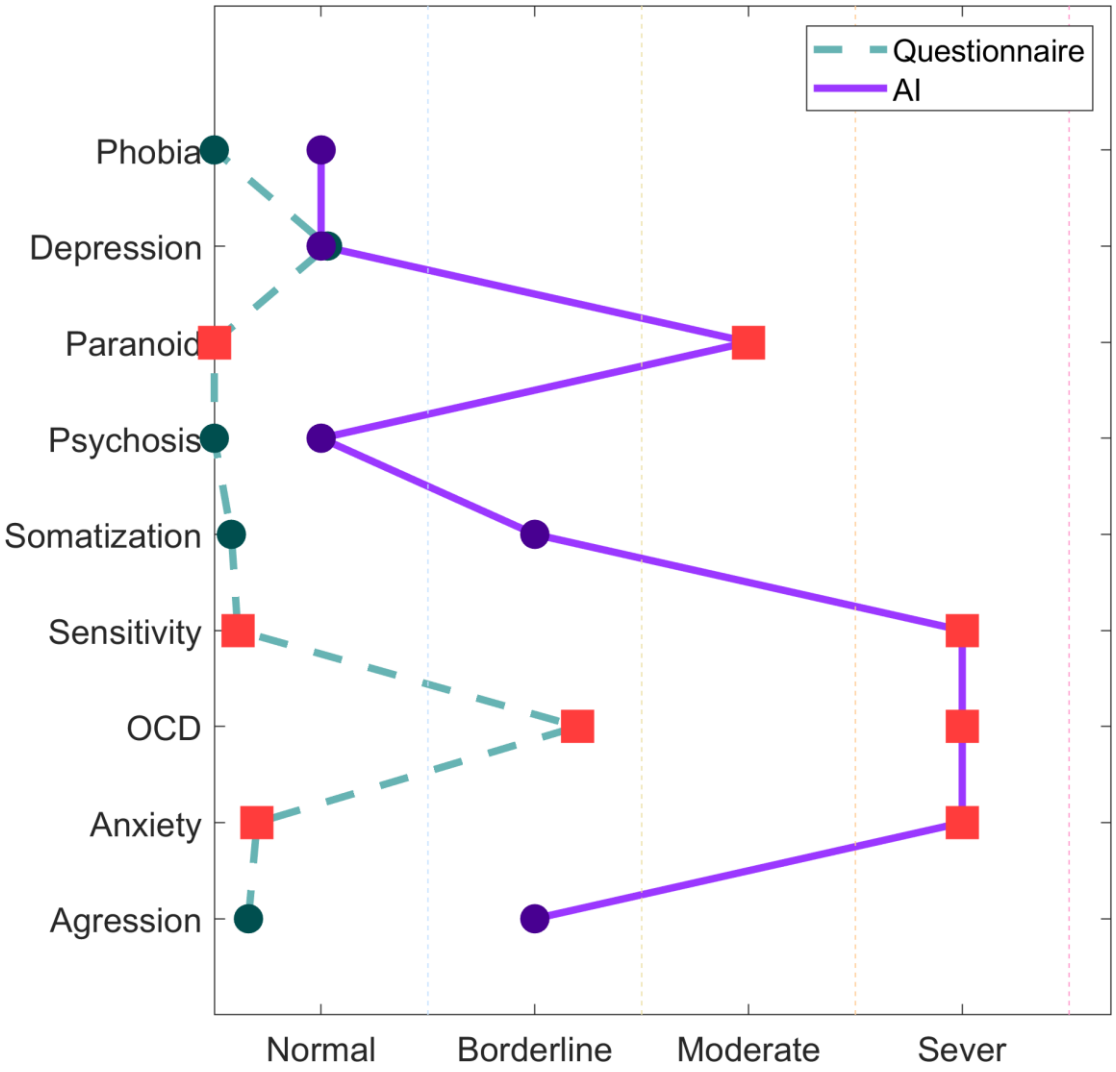


Dementia Probability

Cognitive Impairment Severity



AI-Driven Psychometric Symptoms Assessing



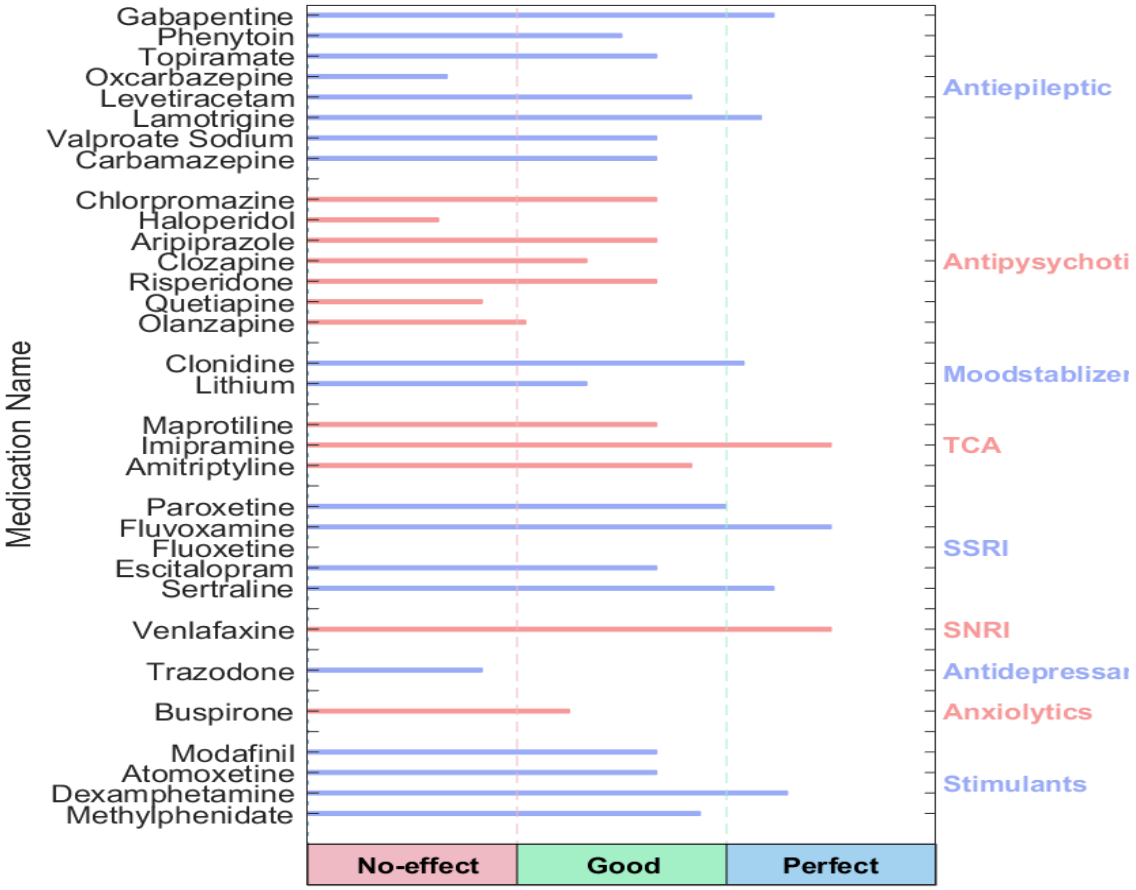
Explanation

The above diagram illustrates the psychometric symptoms based on the SCL90 questionnaire of the subject (green line) and AI (purple line). Combination of non-linear EEG markers have been used to estimate these symptoms using AI. All the AI algorithms used in these analysis have an accuracy more than 97.60%, a sensitivity more than 97.54%, and a specificity more than 97.58%.

⚠ Note

If a red square marker appears in the symptom, it means there is a remarkable difference between the subject's questionnaire score and AI estimate. In the other words, the subject's questionnaire score is in the normal to borderline area, but the AI estimate is in the moderate to extreme area or vice versa.

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 Pharmaco 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.

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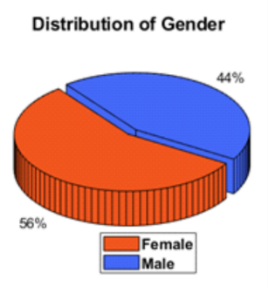
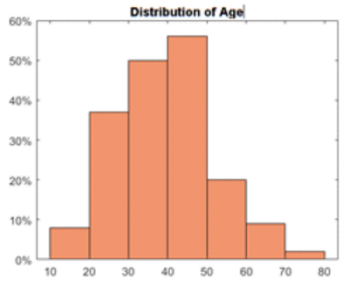
rTMS Response Prediction

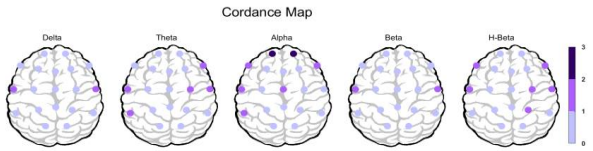
Network Performance

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

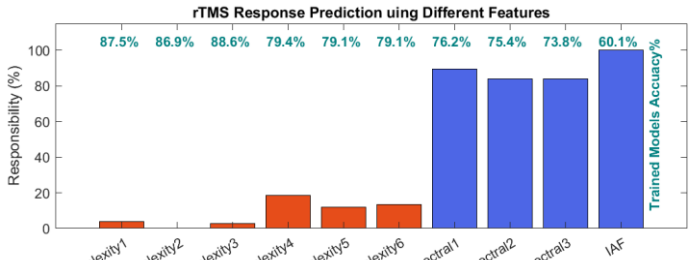
Participants Information



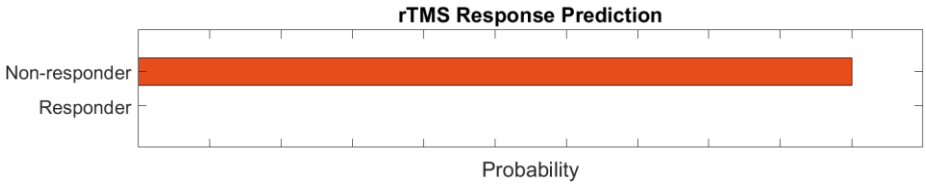




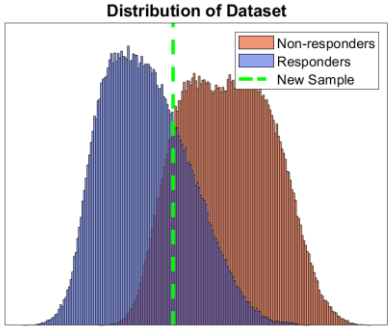
Features Information



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.

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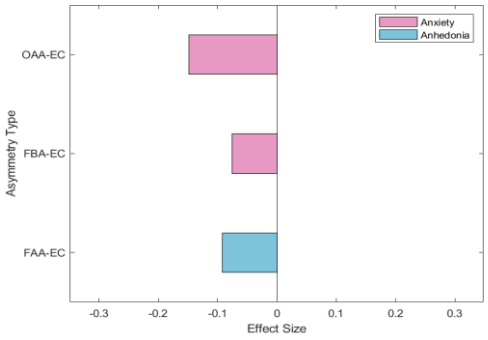
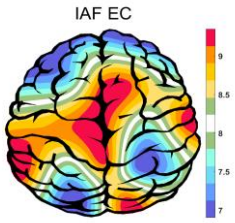
Alpha Asymmetry(AA)

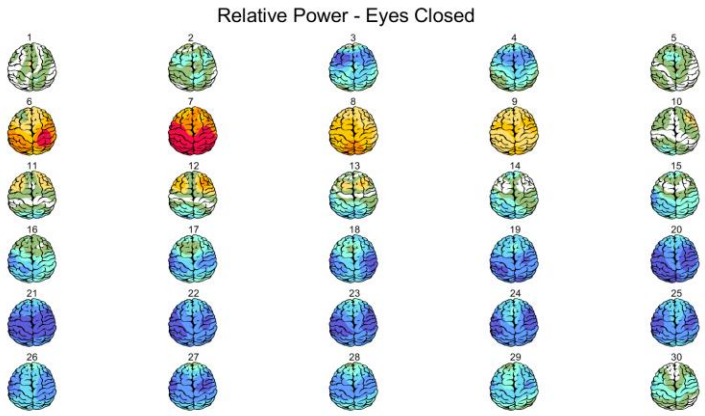


IAF(EC)

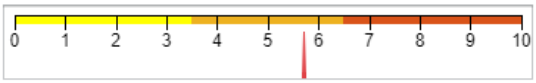


Eye Close IAF= 09.25

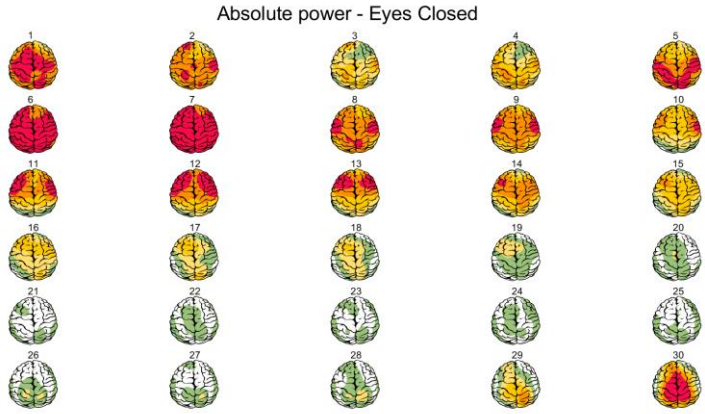
Absolute Power-Eye Closed (EC)



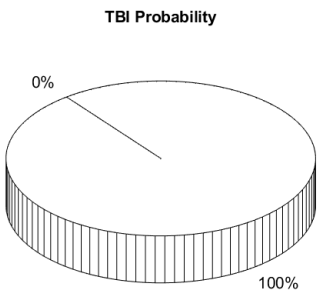
TBI Severity



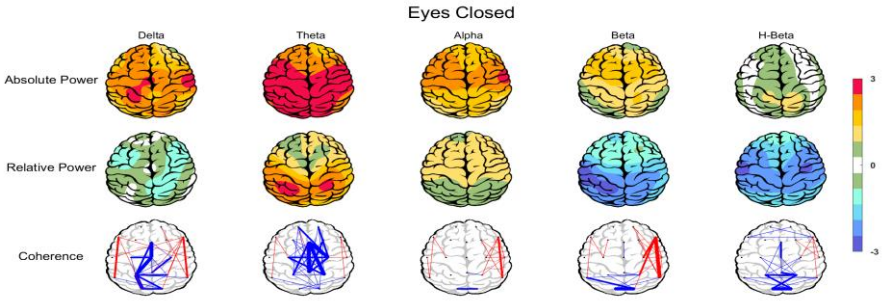
Relative Power-Eye Closed (EC)



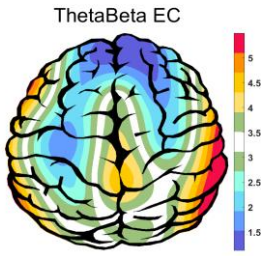
TBI Probability

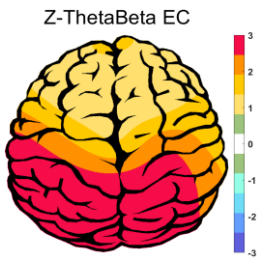


Z Score Summary Information (EC)

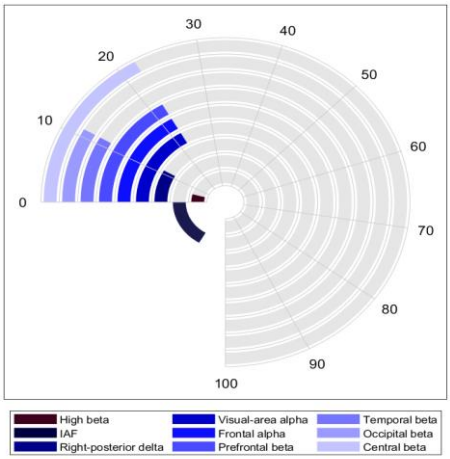


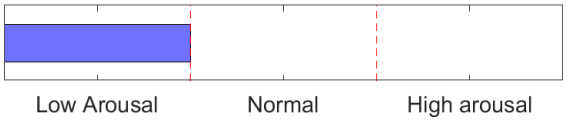
E.C.T/B Ratio (Raw- Z Score)





Arousal Level





EEG Spectra