



QEEG Clinical Report

BrainLens V0.4

Report Description



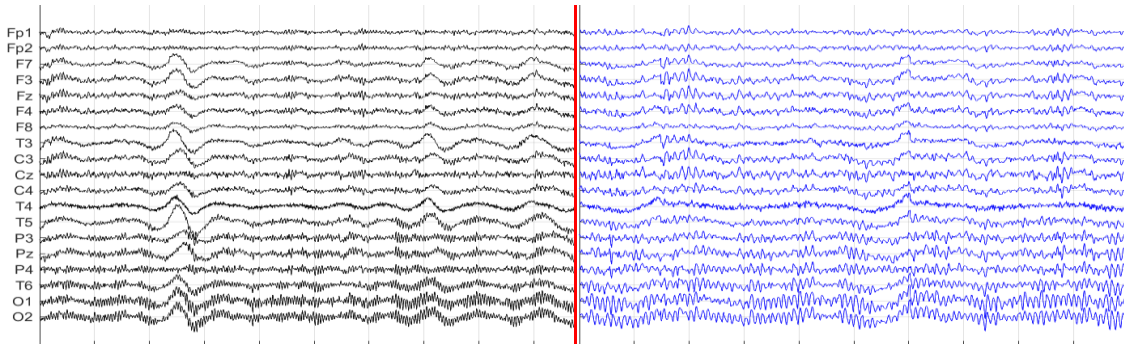
Personal & Clinical Data

Name	Hadi Fereydouni	Date of Recording	21-Jul-2024
Date of Birth - Age	21-Mar-1981 - 43.33	Gender	Male
Handedness(R/L)	Right	Source of Referral	Ms Irannezhad
Initial Diagnosis	Anxiety-Depression		
Current Medication	Depakine-Nortriptyline		

Ms Irannezhad

Denoising Information (EC)

Raw EEG



Denoised EEG

Flat Channels



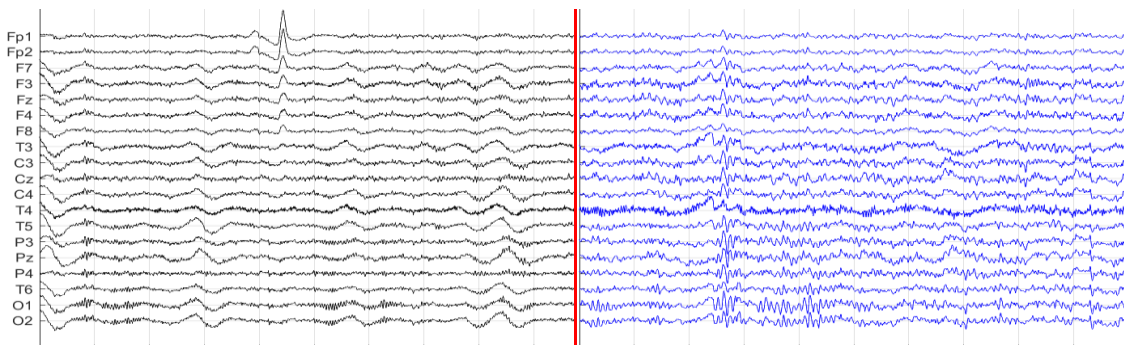
Rejected Channels



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	
				259.12 sec	

Denoising Information (EO)

Raw EEG



Denoised EEG

Flat Channels



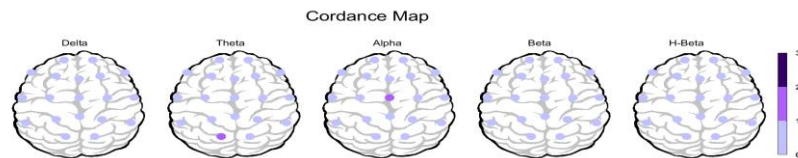
Rejected Channels



Number of Eye and Muscle Elements				Low Artifact Percentage	
Eye	3	Muscle	0		
Total Artifact Percentage				High Artifact Percentage	
EEG Quality		good		Total Recording Time Remaining	
				304.42 sec	

Pathological assessment for mood disorders

Compare to Mood Disorders Database



EEG Compatibility with Depression Diagnosis

Depression Table	EC		EO	
Feature Name	Threshold	Region	Threshold	Region
Increased Global rAlpha	0.50	global	0.00	NAN
Increased global rTheta	0.00	NAN	0.00	NAN
Decreased rDelta	-0.50	RF-MF-C-P-O-	0.00	NAN
Increased rBeta	0.00	NAN	0.00	NAN
Left FAA	0.00	NAN	0.00	NAN
Right OAA	0.06	Right OAA	0.31	Right OAA
Decreased Coherence (D, T)	-0.50	Decreased Coherence	-0.50	Decreased Coherence
Increased Coherence (A, B)	0.00	NAN	1.00	Increased Coherence

depression

0 10 20 30 40 50 60 70 80 90 100

Depression Probability

EEG Compatibility with Anxiety Diagnosis

Anxiety Table	EC		EO	
Feature Name	Threshold	Region	Threshold	Region
Decreased rAlpha	0.00	NAN	0.00	NAN
Increased rBeta	0.00	NAN	0.00	NAN
Right FAA	0.10	Right FAA	0.07	Right FAA
Left OAA	0.00	NAN	0.00	NAN
Increased IAF > 10.6	0.00	NAN	0.00	NAN

Anxiety

0 10 20 30 40 50 60 70 80 90 100

Anxiety Probability

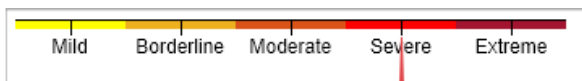
EEG Compatibility with Mood Swings Diagnosis *

Mood Swings Table	EC		EO	
Feature Name	Threshold	Region	Threshold	Region
Decreased rAlpha	0.00	NAN	0.00	NAN
Increased (rDelta+rTheta)	0.00	NAN	0.50	LF
Increased rBeta	0.00	NAN	0.00	NAN
Decreased Alpha Coherence	-1.00	Decreased Alpha	-0.50	Decreased Alpha
Right FAA	0.10	Right FAA	0.07	Right FAA

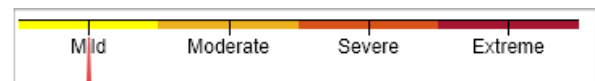
Mood Swings Probability

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

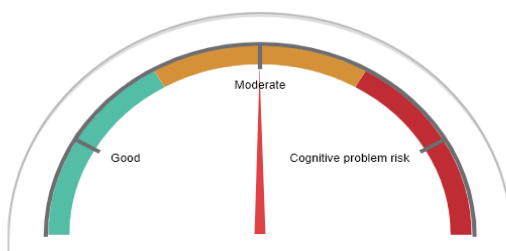
Depression Severity



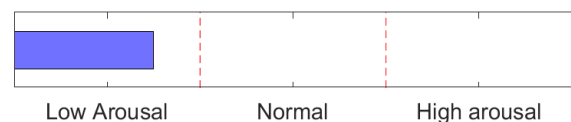
Anxiety Severity



Cognitive Functions



Arousal Level Detection



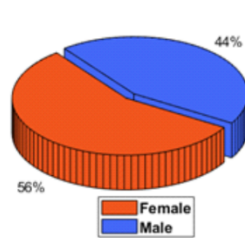
rTMS Response Prediction

Network Performance

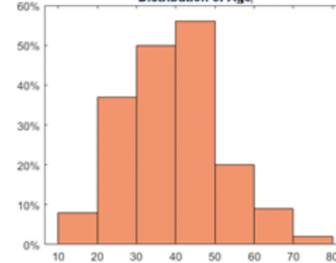
Accuracy: 92.1%
Sensitivity: 89.13%
Specificity: 97.47%

Participants Information

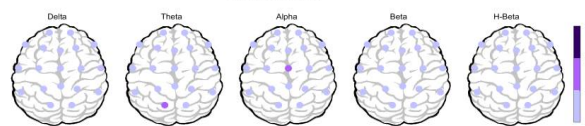
Distribution of Gender



Distribution of Age

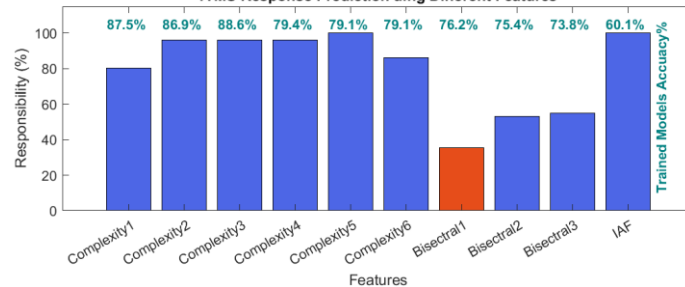


Cordance Map

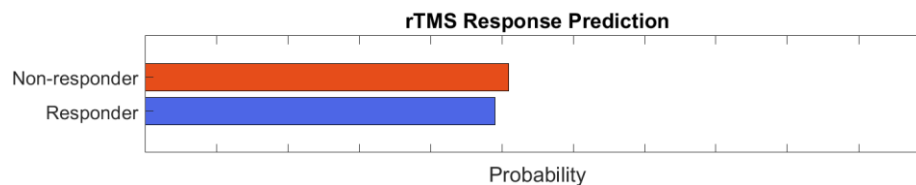


Features Information

rTMS Response Prediction using Different Features

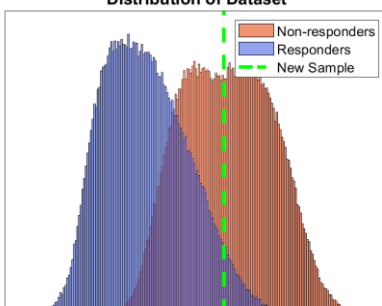


Responsibility



Data Distribution

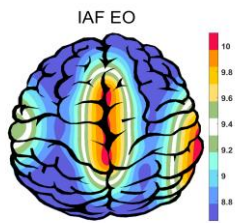
Distribution of Dataset



About Predicting rTMS Response

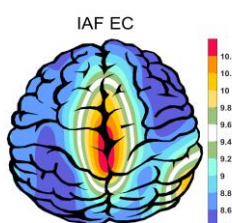
This index was obtained based on machine learning approaches and by examining the QEEG biomarkers of more than 470 cases treated with rTMS. The cases were diagnosed with depression (with and without comorbidity) and all were medication free. By examining more than 40 biomarkers capable of predicting 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.

IAF(EO)



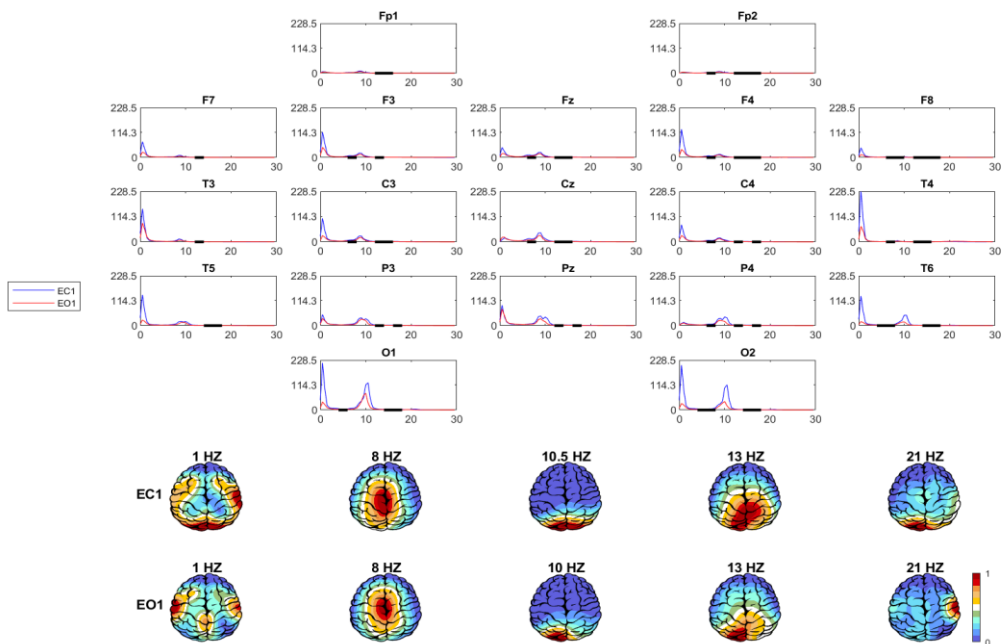
Eye Open IAF= 10.00

IAF(EC)

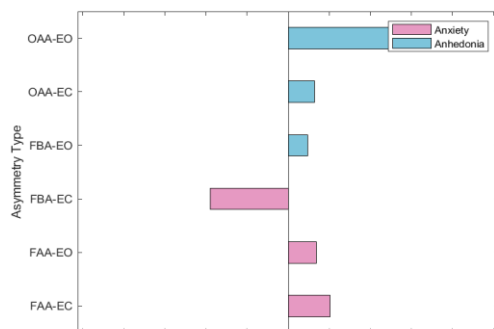


Eye Close IAF= 10.50

EEG Spectra



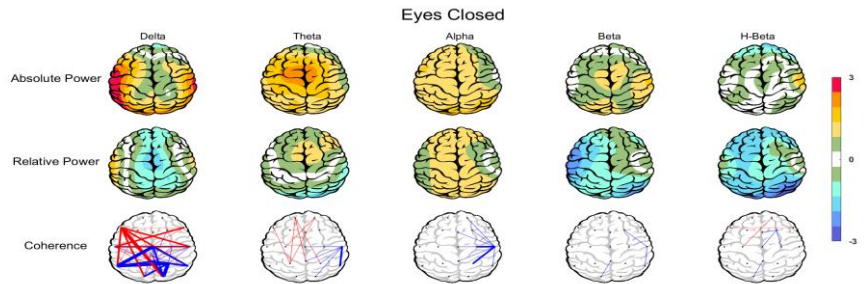
Alpha Asymmetry(AA)



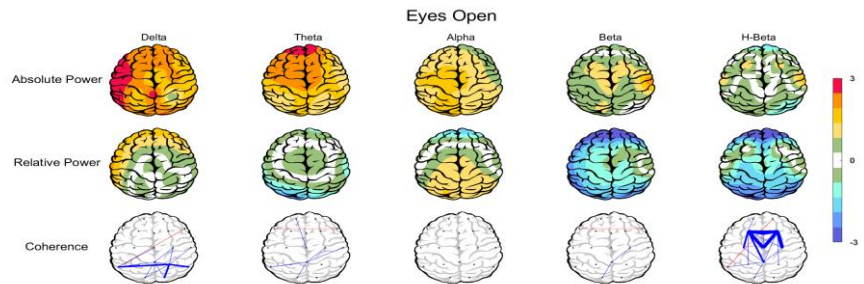
Alpha Blocking



Z Score Summary Information (EC)



Z Score Summary Information (EO)



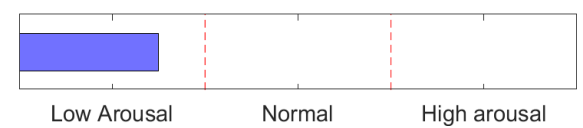
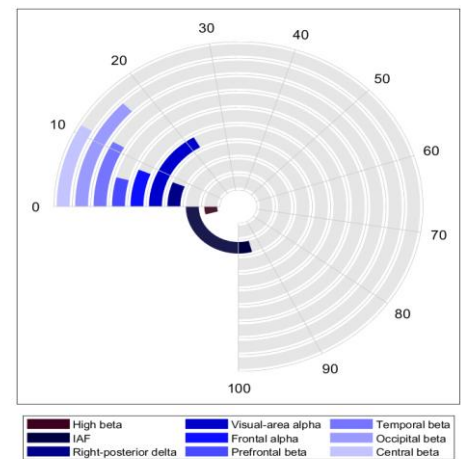
E.C.T/B Ratio (Raw- Z Score)



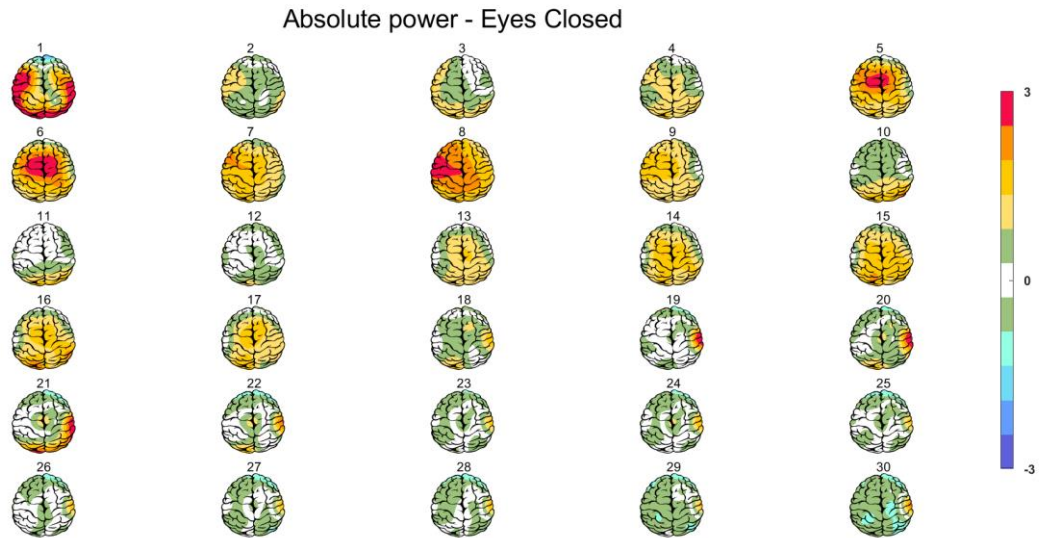
E.O.T/B Ratio (Raw- Z Score)



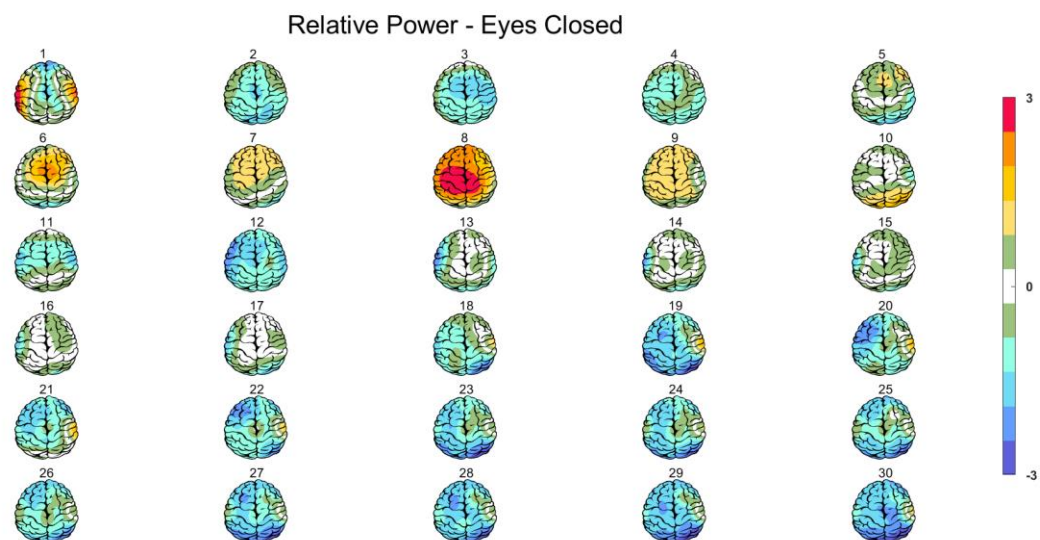
Arousal Level



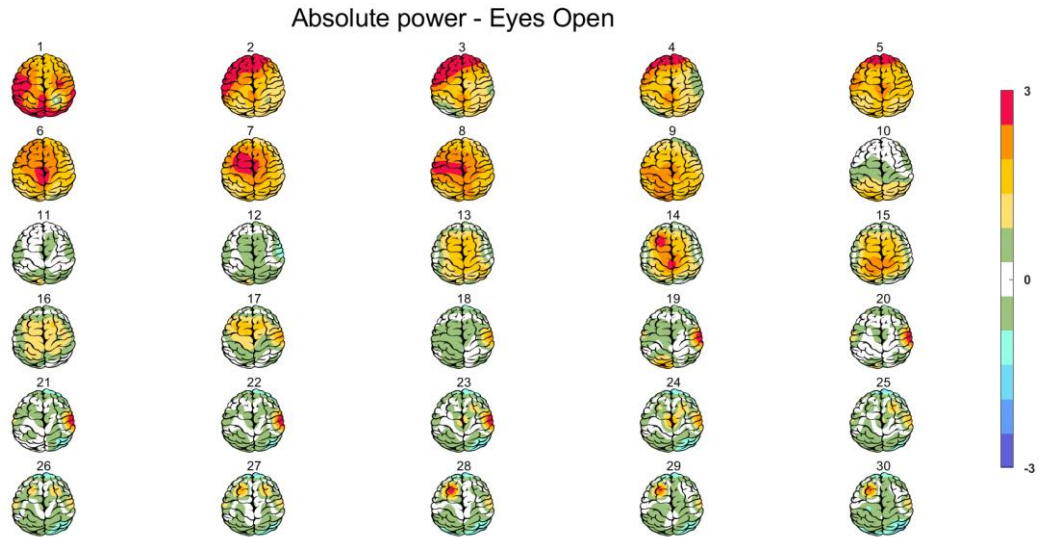
Absolute Power-Eye Closed (EC)



Relative Power-Eye Closed (EC)



Absolute Power-Eye Open (EO)



Relative Power-Eye Open (EO)

