

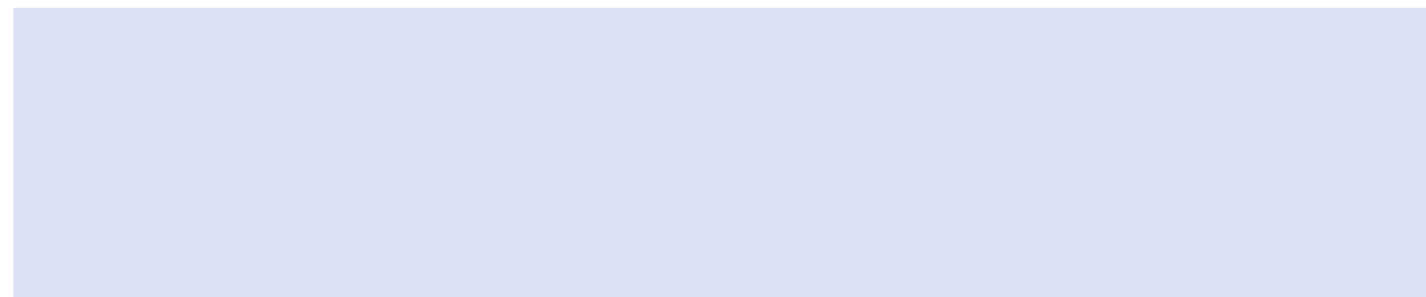


## QEEG Clinical Report

BrainLens V0.4



### Report Description



### Personal & Clinical Data

|                     |                     |                    |              |
|---------------------|---------------------|--------------------|--------------|
| Name                | Abolfazl Motamedian | Date of Recording  | 2025-07-27   |
| Date of Birth - Age | 2007-12-21 - 17.8   | Gender             | Male         |
| Handedness(R/L)     | Right               | Source of Referral | Dr Dinarvand |
| Initial Diagnosis   | Drug Abuse          |                    |              |
| Current Medication  | -                   |                    |              |

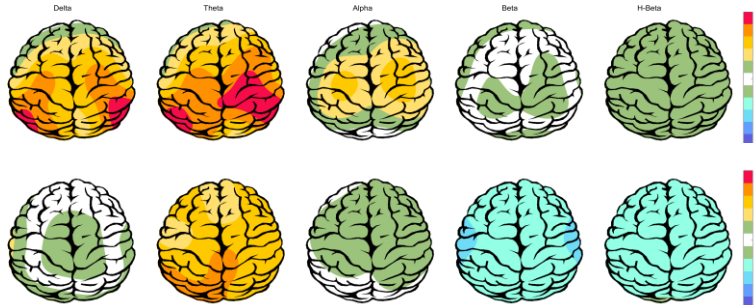
Dr Dinarvand

# Summary Report

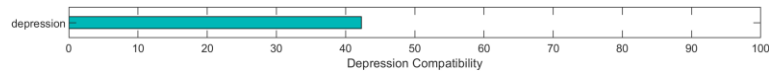
## EEG Quality



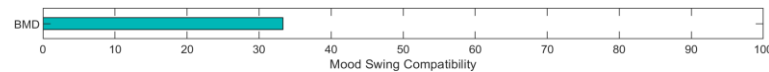
## Z-score Information



## Compatibility with Depression



## Compatibility with Mood Swing



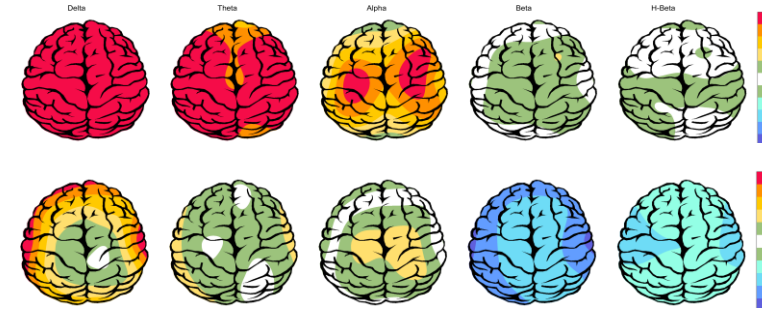
## Arousal Level



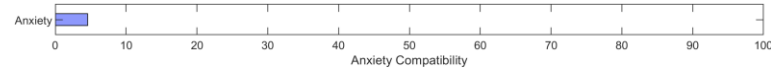
## APF

Posterior APF-EC= 09.62

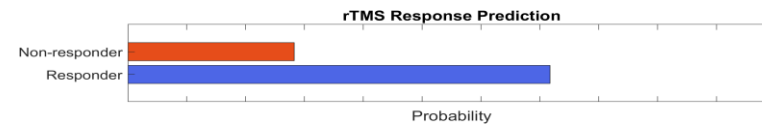
Posterior APF-EO= 09.88



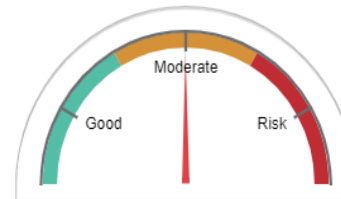
## Compatibility with Anxiety



## TMS Responsibility



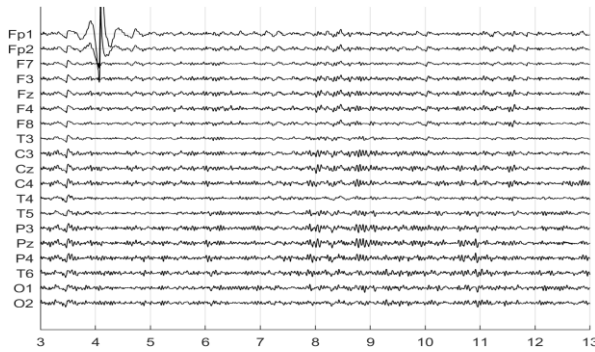
## Cognitive Performance



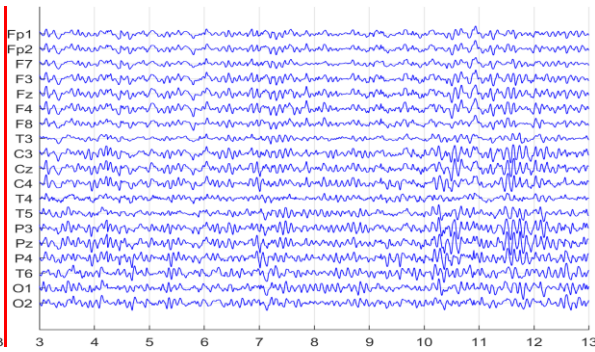
To investigate QEEG-based predicting medication response, please refer to the Report.

## Denoising Information (EC)

Raw EEG



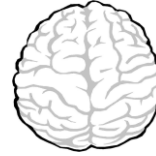
Denoised EEG



Flat Channels



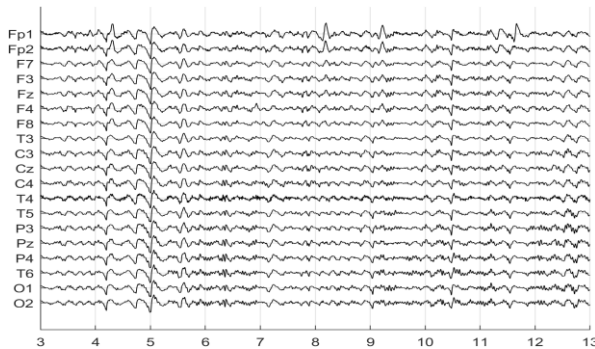
Rejected Channels



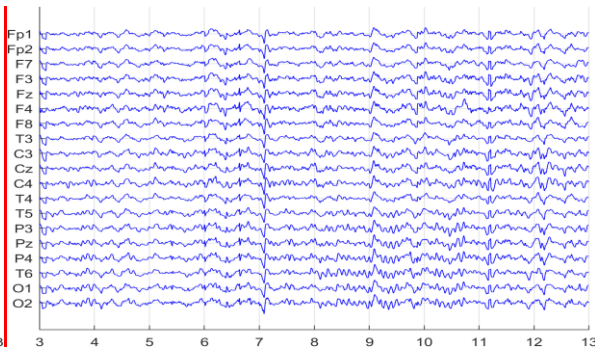
| Number of Eye and Muscle Elements |   |        |   | Low Artifact Percentage        |            |
|-----------------------------------|---|--------|---|--------------------------------|------------|
| Eye                               | 2 | Muscle | 0 |                                |            |
| Total Artifact Percentage         |   |        |   | High Artifact Percentage       |            |
|                                   |   |        |   |                                |            |
| EEG Quality                       |   | good   |   | Total Recording Time Remaining | 234.49 sec |

## Denoising Information (EO)

Raw EEG



Denoised EEG



Flat Channels



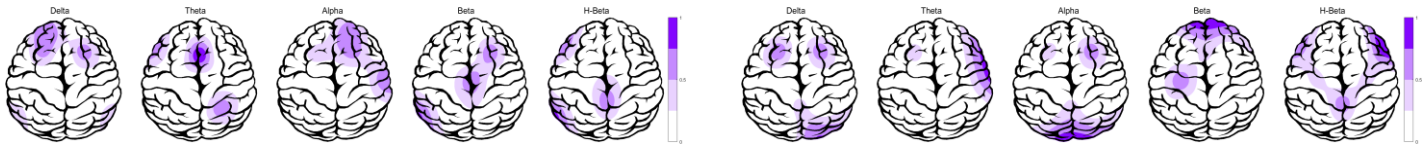
Rejected Channels



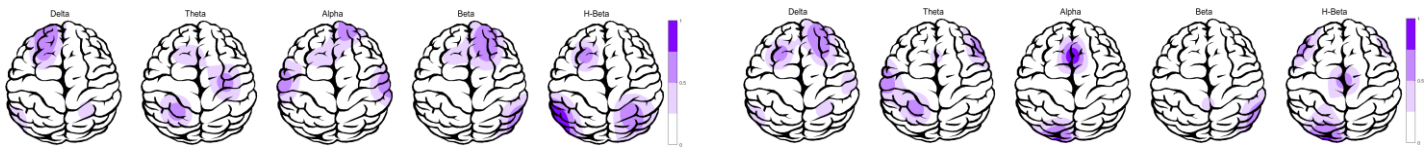
| Number of Eye and Muscle Elements |   |        |   | Low Artifact Percentage        |            |
|-----------------------------------|---|--------|---|--------------------------------|------------|
| Eye                               | 2 | Muscle | 1 |                                |            |
| Total Artifact Percentage         |   |        |   | High Artifact Percentage       |            |
|                                   |   |        |   |                                |            |
| EEG Quality                       |   | good   |   | Total Recording Time Remaining | 243.02 sec |

# Pathological assessment for mood disorders and adult ADHD

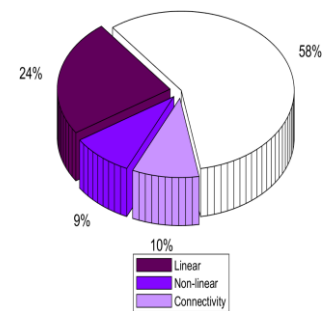
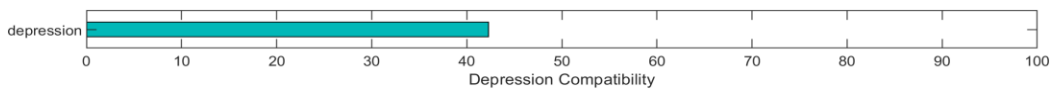
## Compare to Mood Disorders Database



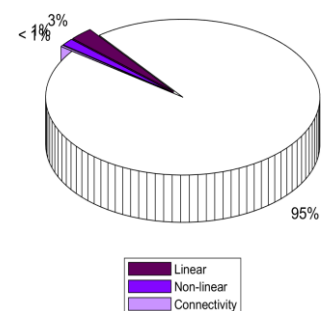
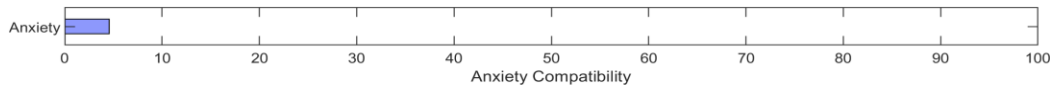
## Compare to Adult ADHD Database



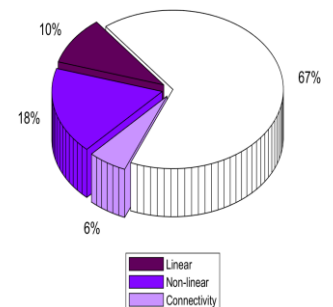
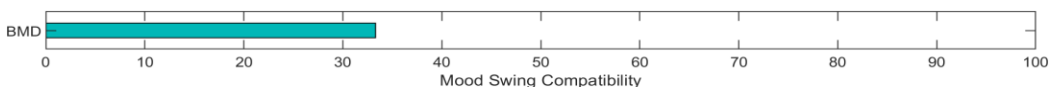
## EEG Compatibility with Depression Diagnosis



## EEG Compatibility with Anxiety Diagnosis

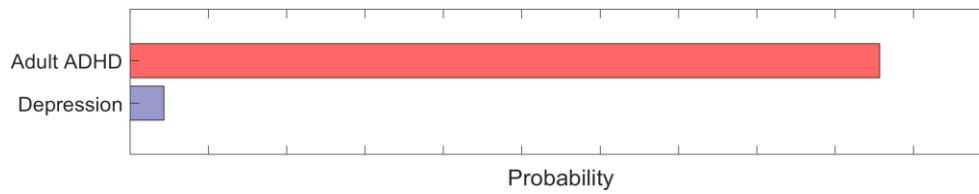


## EEG Compatibility with Mood Swing Diagnosis \*



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

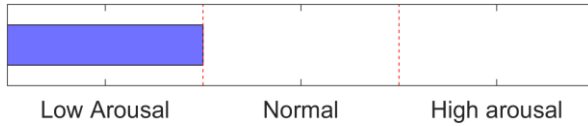
## Depression and Adult ADHD Diagnosis Probabiliy



## Cognitive Functions Asessment

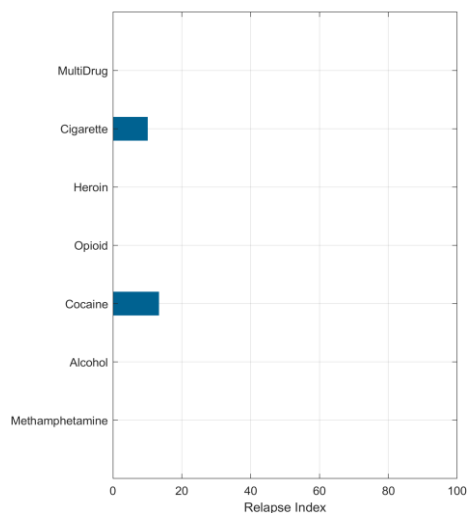


## Arousal Level Detection

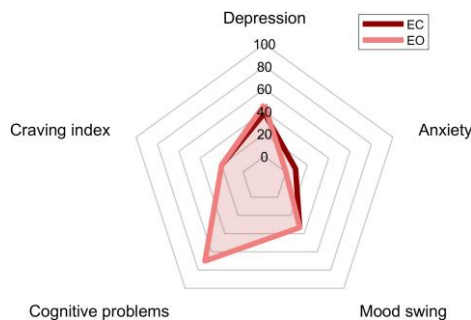


## Pathological Assessment for Substance Abuse

### Relapse Index

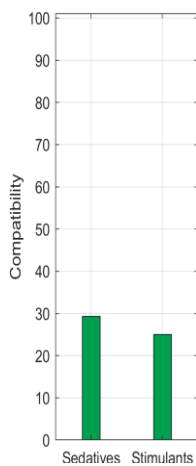
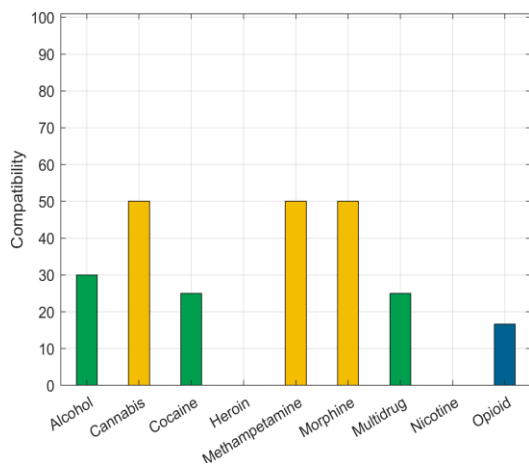


### Comorbid Symptoms



**The Relapse graph** shows the relapse index based on a combination of EEG neuromarkers. If the type of substance your patient uses is included in this chart, you can read its relapse rate. **The condition for using this chart is that the patient consumes each substance specified in the chart.** If your patient does not consume each of the substances specified in the chart, the index shown is not valid.

### Substance Abuse Compatibility



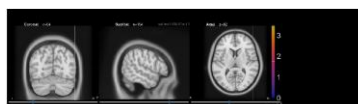
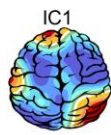
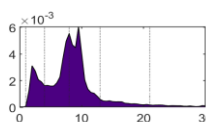
**The Compatibility graph** shows the compatibility of the patient's EEG neuromarkers and the alternations that the specific substance causes in the EEG. In other words, this chart indicates that your patient has how percentage of validated neuromarkers due to the use of specific substances.

Using this chart, you can figure out how substances have affected EEG and if multiple drugs were used, which one has the most dominant effect. **If your patient does not consume each of the substances specified in the chart, the index shown is not valid.**

### Functional Problems Source Detection

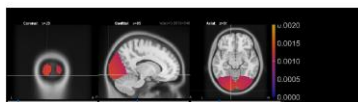
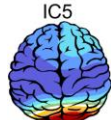
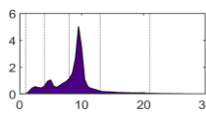
#### Eyes Closed

Freq = 9.5 Hz



Brodmann area 19  
Brodmann area 37  
Middle Occipital Gyrus  
Middle Temporal Gyrus

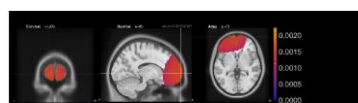
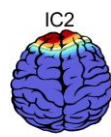
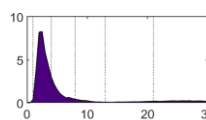
Freq = 9.5 Hz



\*, \* NOT Found \*, \*

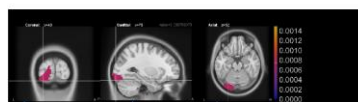
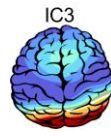
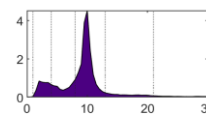
#### Eyes Open

Freq = 2.5 Hz



Brodmann area 10  
Medial Frontal Gyrus  
Superior Frontal Gyrus

Freq = 10 Hz



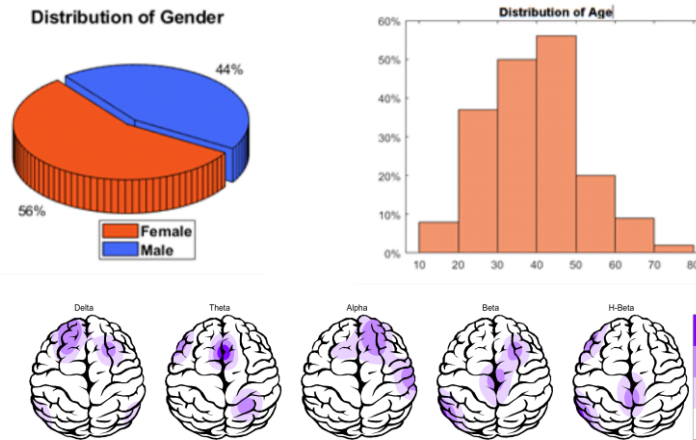
Declive  
Uvula

# rTMS Response Prediction

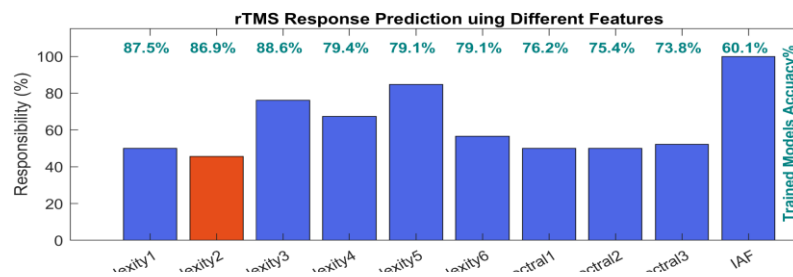
## Network Performance

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

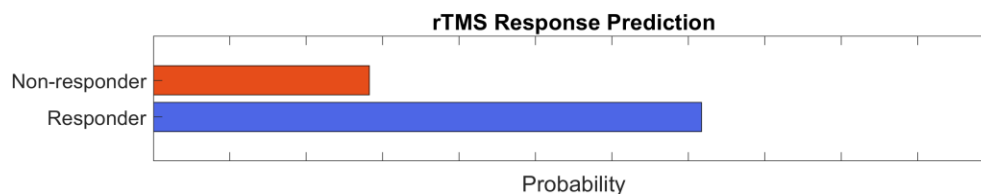
## Participants Information



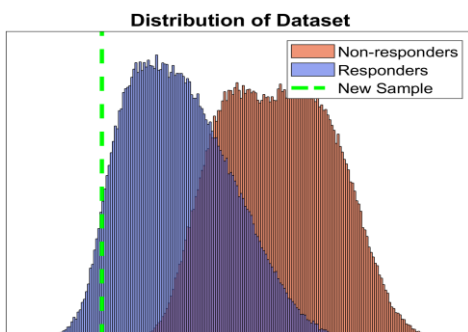
## Features Information



## Responsibility



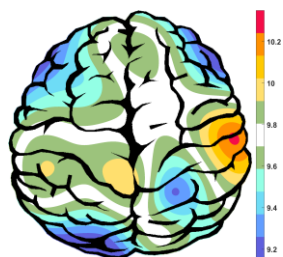
## Data Distribution



## 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.

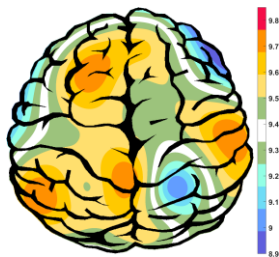
## APF(EO)



Frontal APF= 09.75

Posterior APF= 09.88

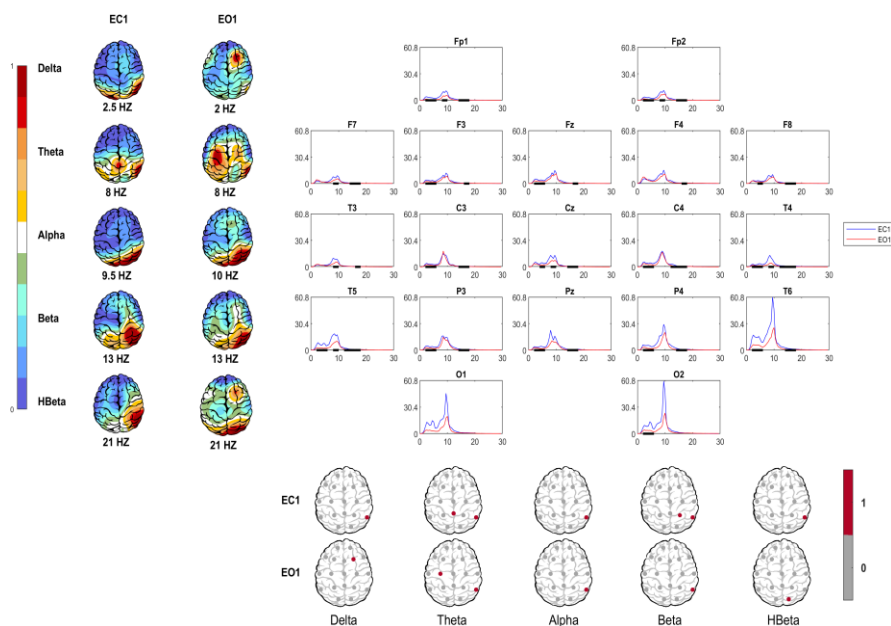
## APF(EC)



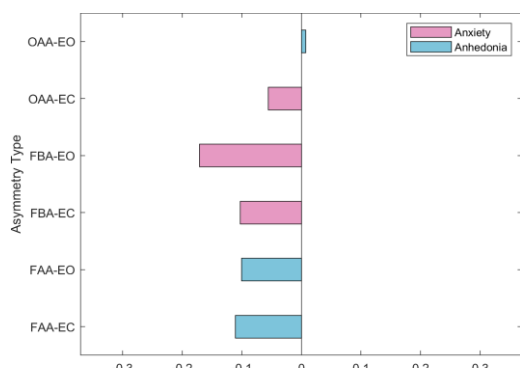
Frontal APF= 09.50

Posterior APF= 09.62

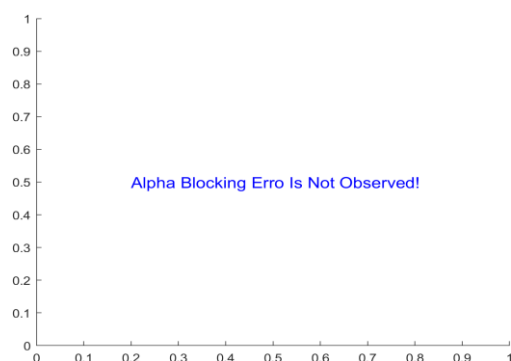
## EEG Spectra



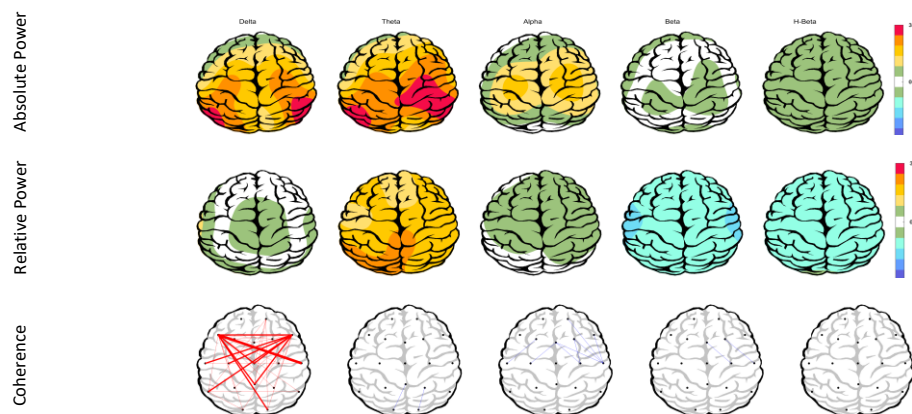
## Alpha Asymmetry(AA)



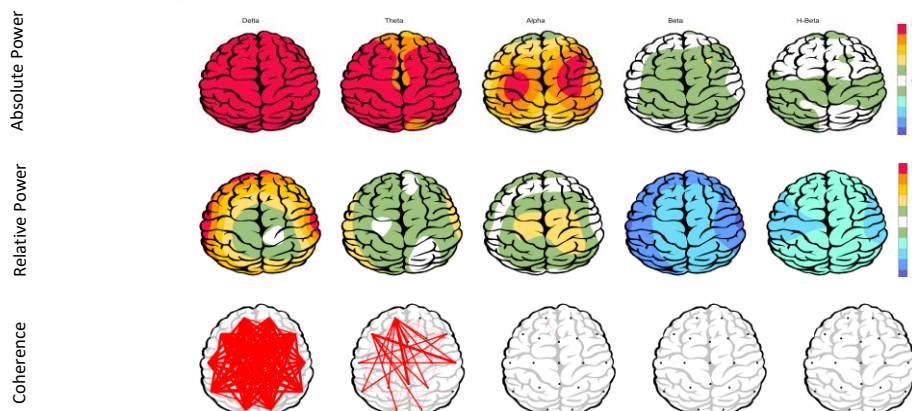
## Alpha Blocking



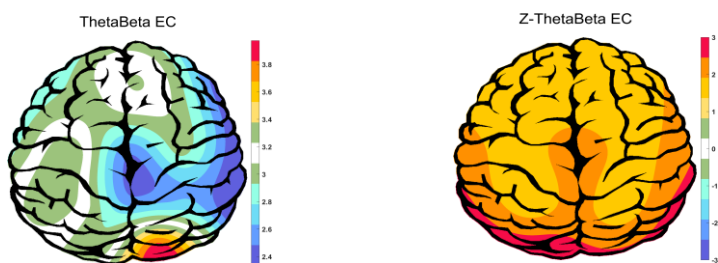
## Z Score Summary Information (EC)



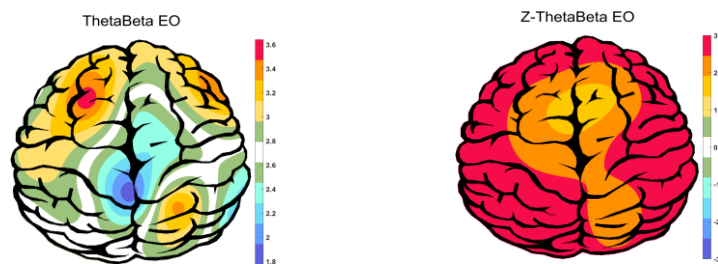
## Z Score Summary Information (EO)



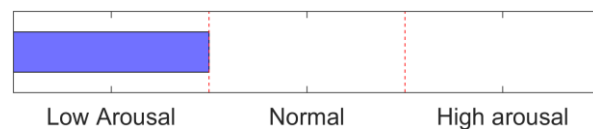
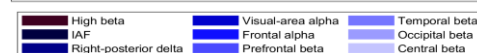
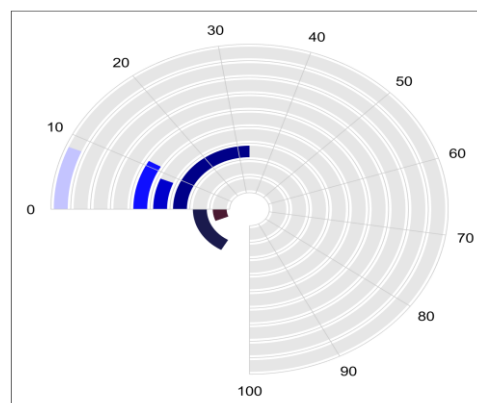
## E.C.T/B Ratio ( Raw- Z Score)



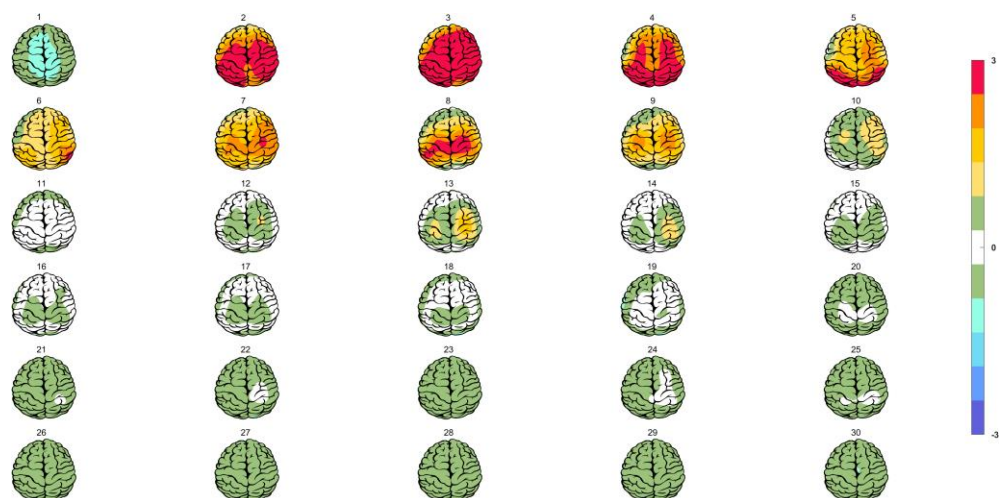
## E.O.T/B Ratio ( Raw- Z Score)



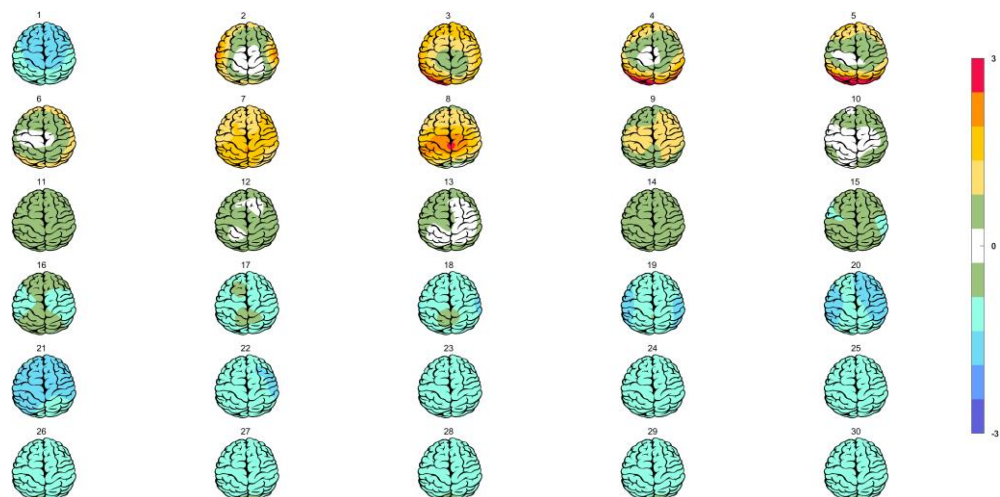
## Arousal Level



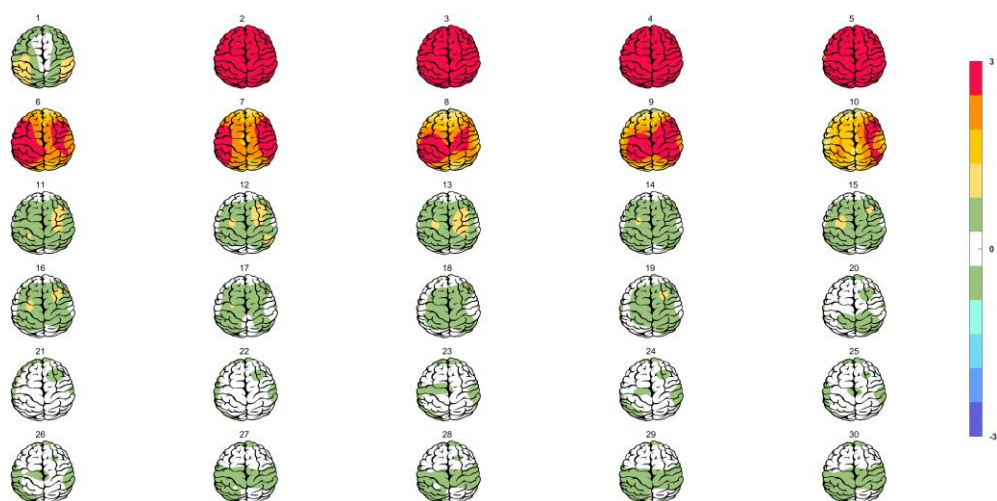
## Absolute Power-Eye Closed (EC)



## Relative Power-Eye Closed (EC)



## Absolute Power-Eye Open (EO)



## Relative Power-Eye Open (EO)

