Weekly Work Report 10/18/2024

**Response to Feedback from Last Week:**

* Use all the negative samples, just for cross validation.
* Plot ROC curve (AUC)

This Week:

* **Impasse** Moment vs **Non-impasse** Moment Classification
* **Impasse** Moment vs **Aha!** Moment Classification

Label setting:

Two types of stuck events in our experimental data:

1. Object.csv
   1. **'BTButtonPressTime'** with Label: **Mark**
      * From bt\_button\_press\_time – 13 to bt\_button\_press\_time - 3

# Extract the relevant timestamps

bt\_button\_press\_time = row[**'BTButtonPressTime'**]

# Filter the df\_eeg DataFrame based on the condition

filtered\_df = df\_eeg[

(**bt\_button\_press\_time - 13**) <= df\_eeg['Timestamp (Formatted)\_Unix']

]

filtered\_df = filtered\_df[

filtered\_df['Timestamp (Formatted)\_Unix'] <= (**bt\_button\_press\_time - 3**)

]

1. Finishlist.csv
   1. **'finishClick'**with Selection: **A**
      * From **bt\_finish\_click\_time – 15** to **bt\_finish\_click\_time - 5**

# Extract the relevant timestamps

bt\_finish\_click\_time = row[**'finishClick'**]

# Filter the df\_eeg DataFrame based on the condition

filtered\_df = df\_eeg[

(**bt\_finish\_click\_time - 15**) <= df\_eeg['Timestamp (Formatted)\_Unix']

]

filtered\_df = filtered\_df[

filtered\_df['Timestamp (Formatted)\_Unix'] <= (**bt\_finish\_click\_time - 5**)

]

Number of samples for each type of Impasse

15mins more negative

If entire 15 mins, Aha!/ Impasse In the entire sequence

A graph of a number of different type of type of data

Description automatically generated with medium confidence

A graph with blue and orange bars

Description automatically generated

Result: Impasse (1) vs Non-impasse (0)

* Final Type:





A graph of a graph

Description automatically generated

A graph of a curve

Description automatically generated

A graph of a graph

Description automatically generated

A graph of a curve

Description automatically generated

* BT Type



* All (**Final** + BT):



Result: **Impasse** (1) vs **Aha** (0)



A graph with a line

Description automatically generated

A graph with a line

Description automatically generated

A graph of a graph

Description automatically generated with medium confidence

A graph with a line

Description automatically generated

Next Week:

* Conduct a literature review on labeling, brain structure, and functionality.
* Finish processing additional signals, including EDA and pupil data.
* Explore results using different models.
* Attention: assumption?
* Response feedback from this week
  + Compare to other methods, NN
  + Entire sequence

Future Task:

* Compare Aha!/Impasse classification using
  + physiology signals
  + EEG
  + physiology signals + EEG

Final Goal:

* Explore the dynamics of **Attention**, **Impasse**, and the **"Aha!"** moment.