Emotion Classification Using EEG data

Midsem Presentation

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Submitted to Dr Abhijit Asati

About the dataset

The data was collected from two people (1 male, 1 female) for 3 minutes per state - positive, neutral, negative. We used a Muse EEG headband which recorded the TP9, AF7, AF8 and TP10 EEG placements via dry electrodes. Six minutes of resting neutral data is also recorded, the stimuli used to evoke the emotions are given.

Graphical representation of how the dataset was obtained

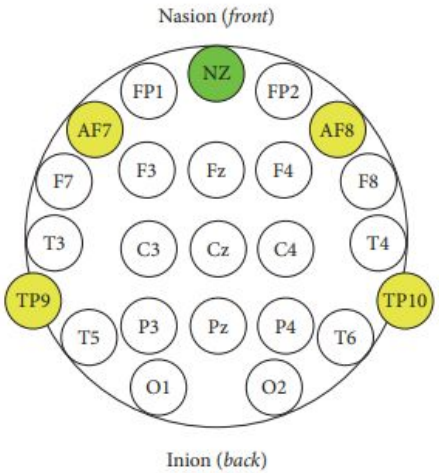
Github Repository for Muse LSL
https://github.com/alexandrebarachant/muse-lsl?tab=readme-ov-file

About Muse LSL

Muse LSL refers to a software system designed to work with Muse EEG headbands to stream and record EEG data using the Lab Streaming Layer (LSL) protocol.

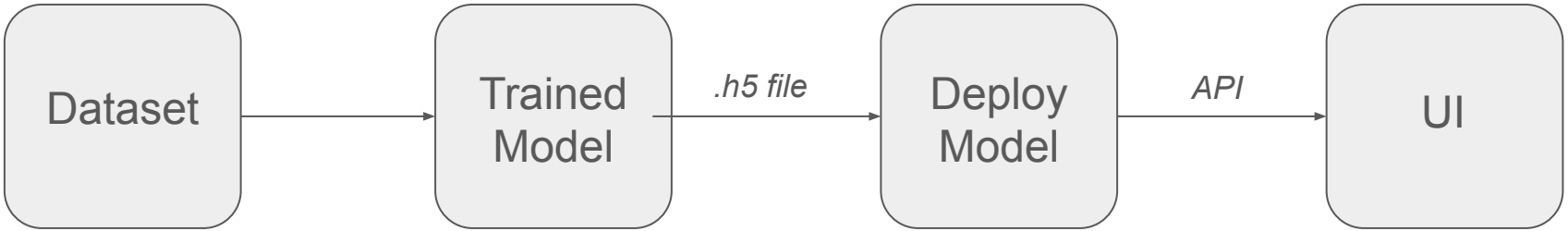
Here's a breakdown of the key components:

Muse EEG headband: A consumer-grade EEG device that measures electrical activity in the brain.
LSL (Lab Streaming Layer): An open-source protocol for transmitting streaming data from various sources, including EEG devices, to applications in real-time.



Stimulus	Valence	Studio	Year
Marley and Me	Neg	Twentieth Century Fox, etc.	2008
Up	Neg	Walt Disney Pictures, etc.	2009
My Girl	Neg	Imagine Entertainment, etc.	1991
La La Land	Pos	Summit Entertainment, etc.	2016
Slow Life	Pos	BioQuest Studios	2014
Funny Dogs	Pos	MashupZone	2015

Thesis Workflow and Steps forward



Summary until now

This study explores EEG (electroencephalogram) data associated with human emotions. It covers data loading, preprocessing, and visualization, including a pie chart showing emotion distribution and time-series analysis of EEG signals. It also analyzes feature significance for emotion prediction and builds and evaluates a neural network model. The code aims to understand the connection between EEG data and emotions, ultimately providing a trained model for emotion prediction.

Thank You