Weekly Work Report 6/28/2024

**This Week:**

* **WMC Data Extraction:**
  + **Initially, I attempted to extract the data independently. However, due to the software’s compatibility limitation (Windows OS only), I sought assistance from Gai to perform the extraction.**
* **Literature Review:**
  + My literature review included the following sources:
    - **MATLAB: I explored relevant materials related to MATLAB.**
    - **EEG Lab Manual: I referred to the EEG Lab Manual for insights.**
    - **EEG Signals Literature: I delved into existing research on EEG signals.**

1. **Filtering**:
   * EEG data often contain noise, including line noise (such as 50 or 60 Hz) and other artifacts.
   * Low-pass filters are commonly used to remove high-frequency noise (above the range of interest) while preserving the relevant EEG signals.
   * By reducing power at frequencies outside the experimental range, we can **minimize noise impact** without affecting the signals of interest.
2. **Re-referencing**:
   1. Re-referencing involves adjusting the reference electrode to **improve signal quality**.
   2. Common reference choices include average reference, linked mastoids, or a specific electrode.
3. **Resampling**:
   1. Resampling adjusts the **sampling rate** of EEG data.
   2. It’s essential to **avoid aliasing** (artifacts caused by undersampling high-frequency signals) by ensuring the sampling rate is sufficient

* **EEG Data Analysis:**

**TagHandMenuPumpTime & TagClickTime VS. EEG Channels**

* + - **TagHandMenuPumpTime – 3s to TagClickTime**
    - **TagHandMenuPumpTime – 13s to TagHandMenuPumpTime**

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**Next Week:**

* Literature Review on EEG Signal Features
* Schedule a Meeting with Wiam and Gai to Discuss EEG Signal Noise Reduction and Feature Extraction
* Continue EEG data preprocessing
* Continue data Extraction for WMC