Weekly Work Report 6/28/2024

**This Week:**

* **WMC Data Extraction**
  + **I tried to do it by myself, but since the software is only for Windows OS, I asked Gai to extract the data.**
* **Literature Review**
  + **MATLAB, EEG Lab Manual**
  + **EEG signals literature review**

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[1](https://brain.ieee.org/newsletter/2020-issue-2/what-large-scale-analysis-tells-us-about-eeg-pre-processing/).
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