Neuromarketing

Motivation:

To gauge the effectiveness of commercial viable entity, it becomes really essential to collect feedback about the effectiveness of the same from a group of subjects before introducing it into the competitive market.Traditionally, this has been done via a variety of ways some being Oral feedback and Questionnaires.
Now it is very important to understand that these traditional techniques have some serious shortcomings as follows:

- There is no way to determine the credibility of the response , the person consciously or unconsciously might register a biased response.(Pepsi V/S Coca Cola)
- Only a limited amount of information can be extracted from the subject for responding in a certain fashion.

Our Experiment:

Aim:

To cluster the users based on their EEG data while they analyse the pictures of popular commercial products and determine whether it appeals to them or not and analyse thier brain activity during this decision making process.

Data collection procedure:

The subjects will be divided into 2 groups:

- Control group
- General group

The users from each group will be shown a set of predetermined images in a random fashion and their responses (Appeals/Does not appeal) will be logged. The image set has a **1:3** mix of fake to real products and the users will be given **2 second** window to register their response followed by a **5 sec** break.The set contains a total of **94 images** of popular brand and their duplicate items.

Analytics:

From the above experiment we will obtain 5 categories of responses:

1. Real product liked.
2. Real product disliked.
3. Fake product liked.
4. Fake product disliked.
5. None of the above(Baseline)

Now to begin clustering the response on these 4 areas we will follow the below procedure:

- Selecting the channels (out of 32) which are most appropriate for our study .
- Segmenting the EEG waveform into small segments to encapsulate the brain wave pattern around the response registration process.
- Extracting the features from the EEG signal to categorise responses into the above 4 clusters.
- Formulating a model that will be predicting the user's response towards a product by analysing their EEG waveform.

Initial thoughts:

To cluster the user's response we right now have identified some key features based on the frequency domain analysis of the EEG signals. The EEG signal is composed primarily of these 4 brain waves:

- Delta
- Theta
- Alpha
- Beta

Each small segment that we will analyse will have certain percentage of these waves. So we will try to extract the characteristics of these features on each of the 4 clusters to predict the position of the new response in the suitable group.