**Comparative Analysis**

This report aims at building an initial survey for the upcoming BCI project. This includes comparing various Feature Extraction, Feature Selection and Classification techniques used by other authors in their papers between 2011 and 2017.

This is report is divided into 3 sections. The first section tabulates various feature extraction techniques followed by the recorded accuracy of the proposed methods. The second section and third sections compare various Feature Selection and Classification techniques respectively.

**Feature Extraction**

Feature Extraction is one of the most crucial methods in Brain Computer Interfaces. It involves incorporating various signal processing methodologies to extract useful information from raw EEG data. The below table lists some of the most useful feature extraction strategies that can be implemented before advancing.

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| --- | --- | --- | --- |
| Paper Name | Authors | Algorithm Used | Accuracy |
| A Wearable EEG Based Drowsiness Detection System with Blink Duration and Alpha Waves Analysis | V. Kartsch , S. Benatti, D. Rossi, L.Benini | Power Spectral Density  Fast Fourier Transform | 85% |
| A Motor Imagery using Wavelet Analysis and Spatial Pattern features extraction |  |  |  |
| A P300-based BCI Classification Algorithm using Median Filtering and Bayesian Feature Extraction |  |  |  |
| Feature Extraction Technique of EEG based on EMD-BP for motor imagery classification |  |  |  |
| Experiments on Using Combined Short Window Bivariate Autoregression for EEG Classification |  |  |  |
| A Novel Effective Feature Selection Algorithm based on S-PCA and Wavelet Transform Features in EEG Signal Classification  Developing a Logistic Regression Model with Cross Correlationfor Motor Imagery Signal Recognition |  |  |  |