|  |  |  |
| --- | --- | --- |
| **Paper** | **Features** | **Algorithms** |
| Lin, Y. P., Wang, C. H., Jung, T. P., Wu, T. L., Jeng, S. K., Duann, J. R., & Chen, J. H. (2010). EEG-based emotion recognition in music listening. *IEEE Transactions on Biomedical Engineering*, *57*(7), 1798-1806. | * Power Spectrum Density * Differential Asymmetry * Rational Asymmetry * Feature extracted based on F-Score | * SVM * Multi-layer Perceptron |
| Porbadnigk, A. K., Görnitz, N., Sannelli, C., Binder, A., Braun, M., Kloft, M., & Müller, K. R. (2014, February). When brain and behavior disagree: Tackling systematic label noise in eeg data with machine learning. In *2014 International Winter Workshop on Brain-Computer Interface (BCI)* (pp. 1-4). IEEE. | Not related to our work here. |  |
| Peng, Y., Zhu, J. Y., Zheng, W. L., & Lu, B. L. (2014, August). EEG-based emotion recognition with manifold regularized extreme learning machine. In *2014 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society* (pp. 974-977). IEEE. | * Average alpha, beta, gamma, delta, theta power on each channel(62 channels) | * SVM * GELM * MRELM |
| Aboalayon, K. A., Almuhammadi, W. S., & Faezipour, M. (2015, May). A comparison of different machine learning algorithms using single channel EEG signal for classifying human sleep stages. In *2015 Long Island Systems, Applications and Technology* (pp. 1-6). IEEE. | * Energy * Entropy * Standard Deviation | * SVM * DT * KNN * NN * NB |
| Jalilifard, A., Pizzolato, E. B., & Islam, M. K. (2016, August). Emotion classification using single-channel scalp-EEG recording. In *2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)* (pp. 845-849). IEEE. | Spectral Power of -   * Alpha * Beta * Delta * Gamma * Theta * All(Average of all) | * SVM * KNN   (considered artifactual and artifact free data) |
| Ammar, S., & Senouci, M. (2016, December). Seizure detection with single-channel EEG using Extreme Learning Machine. In *2016 17th International Conference on Sciences and Techniques of Automatic Control and Computer Engineering (STA)* (pp. 776-779). IEEE. | |  |  |  | | --- | --- | --- | | **Features name** | **Description** | | | Mean | The mean value describes the location of the distribution | | NCOV | ratio of variance | | Std | Standard deviation | | skewness | Describes the trend of the probability distribution function of a signal. | | Kurtosis | Describes the trend of the probability distribution function of a signal. | | Mean DSP | The mean value of DSP | | Peak\_PSD | Peak Frequencies | | * NN(ELM)   94.85% in average |
| Jiang, Y., Wu, D., Deng, Z., Qian, P., Wang, J., Wang, G., ... & Wang, S. (2017). Seizure classification from EEG signals using transfer learning, semi-supervised learning and TSK fuzzy system. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, *25*(12), 2270-2284. | * Wavelet Decomposition Features * Short Time Fourier Transform Features | * TSK Fuzzy model compared with SVM, NN, DT, S4VM, LMPROJ etc. |
| Dhivya, S., & Nithya, A. (2018, March). A Review on Machine Learning Algorithm for EEG Signal Analysis. In *2018 Second International Conference on Electronics, Communication and Aerospace Technology (ICECA)* (pp. 54-57). IEEE. | * Alpha * Beta * Gamma   Spectral Power of the bands | * SVM * ANN * K-Means * XGBoost |
| Liao, C. Y., & Chen, R. C. (2018, July). Using Eeg Brainwaves And Deep Learning Method For Learning Status Classification. In *2018 International Conference on Machine Learning and Cybernetics (ICMLC)* (Vol. 2, pp. 527-532). IEEE. | * Alpha * Beta * Gamma * Delta * Theta   Spectral Power of the bands | * Deep Learning Architecture with ReLU activation function. |
| Wu, Y. T., Huang, T. H., Lin, C. Y., Tsai, S. J., & Wang, P. S. (2018, November). Classification of EEG motor imagery using support vector machine and convolutional neural network. In *2018 International Automatic Control Conference (CACS)* (pp. 1-4). IEEE. | Spectral Power of –   * Alpha * Beta * Theta * Gamma * Delta Bands   Ratio of Beta power to Alpha power, ratio of alpha+beta to theta+delta | * SVM * CNN(.613) |
| C.Jaganathan, A.Amudhavalli, T.Janani, M. Dhanalakshmi, Nirmala Madian. Automated algorithm for extracting α, β, δ, θ of a human EEG. In *2015 International Journal of Science, Engineering and Technology Research (IJSETR) (Vol. 4, Issue 4)* | Raw EEG broken down to alpha, beta, theta, gamma, delta. | * BUTTERWORTH FILTER * FFT |