Comparison of Different Machine Learning Algorithms for EEG Signal Analysis

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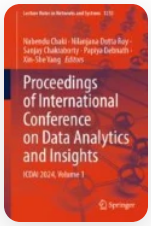

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Tanmay Sinha Roy, Soumen Ghosh & Biswajit Jana

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Abstract

The machine learning (ML) techniques used in the analysis of Electro encephalography (EEG) data are thoroughly compared in this research study. Accurate interpretation of EEG data is hampered by their complex temporal and spatial patterns. The study evaluates the performance of many ML algorithms, including Random Forest (RF), Naive Bayes (NV), KNN, Logistic Regression (LR), and support vector machines (SVM), in tasks including feature extraction, classification, and pattern recognition. Results highlight the nuanced strengths and weaknesses of each algorithm, emphasizing their suitability for specific EEG signal characteristics. The findings contribute essential insights for researchers and practitioners seeking optimal approaches for brain signal interpretation. By discerning algorithmic effectiveness, the study informs the selection process based on the nature of EEG data. Ultimately, this work aims to foster advancements in the integration of machine learning techniques, furthering our understanding of brain function and paving the way for enhanced neuro-scientific research and clinical applications.

Classification for EEG Signals Using Machine Learning Algorithm

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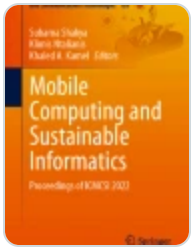

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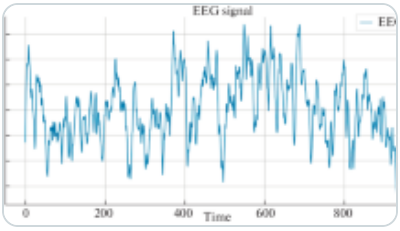

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