



## **PROJECT REPORT**

**Classification of Traumatic Brain Injury Based-on  
EEG Signals Using Random Forest And Naive Bayes**

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## ABSTRACT

*The brain is the organ that controls all the mechanisms in the body. Everything is done by this three-pound organ from the seat of intelligence, the interpreter of senses, the initiator of body movements, to the controller of behavior. Given the importance of this role, it would be disastrous for the body if the brain is impaired or damaged. One of the brain disorders that may occur is Traumatic Brain Injury (TBI). TBI occurs when a sudden external physical attack damages the brain. It is one of the leading causes of disability and mortality in adults, but it can also occur in children. Experts are still developing the proper method to use machine learning to make it easier for neurologists to treat TBI patients. It is expected to use machine learning to contribute to the health sector, especially with technology development and research updates continuing to occur. However, the more complex the method, the more resources are needed. The primary purposes of this research are to determine the classification performance when the data is processed in machine learning using simple statistics and to assess the performance of Random Forest and Naive Bayes algorithms in classifying EEG data of TBI patients. Throughout this research, many nuances of feature engineering, model selection, and optimization were studied to improve the accuracy and robustness of TBI classification.*

*Keyword: EEG, TBI, Random Forest, Naive Bayes*