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Abstract:
Epilepsy is a neurological condition affecting the brain and nervous system. Major complications and sometimes death also result, if the problem is not diagnosed and treated earlier. Most of existing works on automated Epilepsy detection are based on EEG features alone. Different from these works, this work proposes a multi modal fusion approach with deep learning-based features on each data stream and an ensemble fusion on those results. With multi modal ensemble fusion, the accuracy of Epilepsy diagnosis increases.

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I. Introduction

In layman terms Epilepsy is simply called as Fits. Epilepsy is neurological illness affecting the brain. Neurons in brain use electrical signals for communication. These electrical signal communication forms the basis for various neural activities of living beings. Failure in communication at some point, results in seizure of brain activities. This phenomenon is termed as epileptic seizure or fits. Some of the patients may lose awareness during this time. They may not respond to the bystanders command. After the seizure is over they regain their consciousness level. The results of this seizure are stopping of speech, motor seizure etc. Patient himself /herself is not aware of this pause time. Such a seizure is called as minor epileptic seizure. If this attack becomes worse, it results in losing of consciousness and the whole body starts jerking vigorously. This condition is called major epileptic seizure. Aura is a condition where patients gets feeling of upcoming seizure. This disorder affects a very large number of people worldwide. Due to brain abnormalities, seizures or periods of unusual behavior results. It also results in sensations, and sometimes loss of awareness. It is characterized by recurrent unprovoked seizures. Timely diagnosis and treatment of Epilepsy is important to prevent fatal death and other severe problems due to Epilepsy. Based on various factors like type of seizure, onset age and possible etiology, Epilepsy is categorized to following types.

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