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| Title | A Comprehensive Survey on the Detection, Classification, and Challenges of Neurological Disorders. | | |
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| Abstract |  |
| Neurological disorders (NDs) are becoming more common, posing a concern to pregnant women, parents, healthy infants, and children. Neurological disorders arise in a wide variety of forms, each with its own set of origins, complications, and results. In recent years, the intricacy of brain functionalities has received a better understanding due to neuroimaging modalities, such as magnetic resonance imaging (MRI), magnetoencephalography (MEG), and positron emission tomography (PET), etc. With high-performance computational tools and various machine learning (ML) and deep learning (DL) methods, these modalities have discovered exciting possibilities for identifying and diagnosing neurological disorders. This study follows a computer-aided diagnosis methodology, leading to an overview of pre-processing and feature extraction techniques. The performance of existing ML and DL approaches for detecting NDs is critically reviewed and compared in this article. A comprehensive portion of this study also shows various modalities and disease-specified datasets that detect and records images, signals, and speeches, etc. Limited related works are also summarized on NDs, as this domain has significantly fewer works focused on disease and detection criteria. Some of the standard evaluation metrics are also presented in this study for better result analysis and comparison. This research has also been outlined in a consistent workflow. At the conclusion, a mandatory discussion section has been included to elaborate on open research challenges and directions for future work in this emerging field. | |