عنوان مقاله:

Application of machine learning algorithms in EEG studies: a scientometric analysis

محل انتشار:

اولین کنگره بین المللی هوش مصنوعی در علوم پزشکی (سال: 1402)

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خلاصه مقاله:

Background and aims: There is a great deal of interest in using machine learning methods forautomatic electroencephalogram (EEG) analysis, particularly in the domain of EEG-based clinicaldiagnostics. ML algorithms are applied in EEG data for pattern analysis, decoding brainactivity, and categorization in order to provide a more accurate interpretation. Knowing whichkey terms are frequently employed and which domains are more prominent in such EEG studiesis required for future research to retrieve more precisely on this subject. We conducted a scientometricanalysis to accomplish this as well as provide objective data that may reflect the relevanceof these studies.Method: In this scientometric study, a comprehensive search was conducted in Scopus using theterms "Machine Learning", "Unsupervised Learning", "Supervised Learning", "Deep Learning","Reinforcement Learning," "Electroencephalography, "and electroencephalogram" up to February۲۰۲۳. VOS viewer, the R ۴-۲-۱ programming language, and the Bibliometric package, tomeasure research networks performance (countries, institutions, and authors) were used.Results: After the screening of the titles and abstracts and the removal of duplicate publications, ۳۷۷۲ studies between ۱۹۸۸ and ۲۰۲۳ were included, which have been published in ۸۴۱ journals.These articles were written by ۱۱۲۱۷ authors. Out of the ۱۵۸ countries in the data with at least ۴documents for each country, ۷۴ countries have appeared in the network; among these countries,China (link strength: ۱۳۹), the United Kingdom (link strength: ۱۱۱), and the United States (linkstrength: ۶۶۱) were the top countries in terms of link strength. In density visualization, keywordssuch as electroencephalogram, feature extraction, classification, epilepsy; brain-computer interface;convolutional neural networks; emotion recognition; seizure prediction; and seizure detectionwere among the hot topics in this field.Conclusion: China, the UK, US are the main Research forces in the brain-inspired intelligencedomain, and always maintain a high degree of research interest. From the analysis of keywordsand hotspots, it is easily drawn that the researchers focus mainly on epilepsy and seizure predictionin recent years. Major countries/regions pay more attention to academic cooperation andexchanges in brain-inspired intelligence. It shows that major countries are aware of the importanceof academic cooperation and exchanges to promote the development

.of brain-inspired intelligence

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