

Technology offer IP-037

Algorithm for the detection of status epilepticus and epileptiform abnormalities

New diagnostic method based on an algorithm developed in Matlab that analyzes EEG recordings. The system detects status epilepticus and epileptiform abnormalities through the extraction and classification of brain signal features. This approach is useful for supporting early diagnosis and clinical monitoring of epilepsy

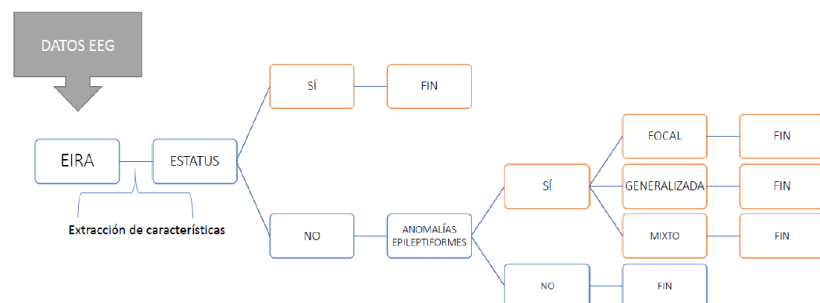


Figure. Algorithm Flowchart

State of development

TRL-4 Laboratory validation

Industrial Property

Copyrights

Record date: 17/3/2023

Objective of the collaboration

License and/or co-development

Contact

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Market needs

Epilepsy is a chronic neurological disorder that affects millions of people worldwide, and early diagnosis remains a clinical challenge. The electroencephalogram (EEG) plays a central role in identifying abnormal brain activity associated with seizures and status epilepticus. Dysregulation of cerebral electrical patterns leads to the occurrence of generalized or focal discharges, which, if not detected in time, can result in serious complications. Although pharmacological therapeutic options exist, their efficacy depends on an accurate and rapid diagnosis, which currently faces limitations. Therefore, there is a clear need for advanced diagnostic methods that enable early and reliable detection of epilepsy.



Technical solution from IMIB

The technology focuses on the automatic detection of abnormal brain electrical patterns from EEG recordings, using an algorithm developed in Matlab that extracts and classifies signal features. In silico tests conducted with EEG data in EDF format have demonstrated the system's ability to identify epileptiform discharges and status epilepticus with high accuracy. Although validation has been performed on computational recordings, the methodology is transferable to in vivo tests in clinical settings to support the diagnosis and monitoring of patients with epilepsy.

Benefits

- Automatic detection of epileptic patterns with higher accuracy than visual analysis.
- Compatible with multiple operating systems for easy clinical integration.
- Reduces variability in EEG interpretation through objective measures.
- Fast, automated analysis that optimizes resources and diagnostic time.