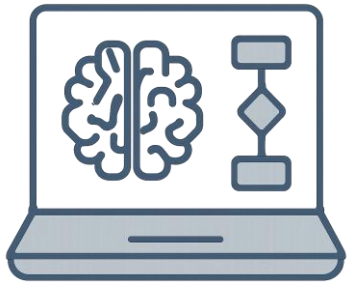
Technology offer IP-016

Algorithm for the detection and automatic classification of epileptic seizures in Emergency

New diagnostic method based on an algorithm for the automatic detection and classification of epileptic seizures in video-EEG monitoring. It uses deterministic rules and ε-symbolic complexity measures to improve the accuracy in identifying focal and generalized seizures. It is useful for improving the diagnosis of epilepsy in emergency settings, where there are currently no adequate tools for fast and precise seizure classification.



State of development

TRL-5 Validation in relevant environment

Objective of the collaboration

License

Industrial Property

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Contact

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Market needs

Epilepsy is a neurological disorder affecting millions of people, with seizures that are difficult to detect and classify in clinical settings, especially in emergency rooms. Video-EEG monitoring is key for diagnosis, but current systems have a limited success rate, with a high number of false alarms and imprecise detection of generalized seizures. Available methods do not allow for proper classification of seizures, making their treatment challenging. There are few effective therapeutic options in this context, creating a high demand for more precise and useful diagnostic technologies for managing epilepsy.

Technical solution from IMIB

The algorithm developed for the detection and classification of epileptic seizures is based on a mixed approach, using neurophysiological deterministic rules and ε-symbolic recurrence-based complexity measures. Tests have shown that the algorithm detects epileptic seizures in video-EEG monitoring with 95% accuracy, significantly outperforming current software success rates (55-80%). Additionally, it has a false alarm rate of 0.21/h, making it a precise and reliable tool for use in emergency settings.

Benefits

- High accuracy (95%) in seizure detection and classification, surpassing current systems (55-80%).
- Able to classify focal and generalized seizures, a feature not available in other software.
- Low false alarm rate (0.21/h), improving diagnostic reliability.
- Optimizes diagnostic time in emergency settings, reducing costs and medical resources.