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Detecting epilepsy with entropy

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Epilepsy is a chronic neurological disorder wherein abnormal firing of neurons in the brain leads to seizures. It can abruptly disrupt the health and life of those people it affects. Its diagnosis can limit certain aspects of everyday life particularly if not fully treated. People with the

condition, for instance, are often precluded from driving or operating hazardous machinery to reduce the risk of injury and harm should they have a seizure while doing so. Seizures are commonly associated with loss of consciousness and severe muscle spasms.

A new, non-invasive approach to epilepsy detection is reported in the *International Journal of Biomedical Engineering and Technology* that uses a fuzzy entropy algorithm to examine electroencephalograms (EEG).

This algorithm abstracts all of the features of the EEG trace, these features are then fed to an artificial neural network trained on known epilepsy EEG traces.

The system can very effectively differentiate between brain patterns in the patient during periods of seizure and normal periods.

More information: Arumai Thangam Phareson Gini et al. Epileptic seizure detection in EEG using improved entropy, *International Journal of Biomedical Engineering and Technology* (2020). DOI: 10.1504/IJBET.2020.108990

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