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	urls	• http://dx.doi.org/10.2172/1366924	abstract	Epilepsy is common neurological diseases, affecting about 0.6-0.8 % of world population. Epileptic patients suffer from chronic unprovoked seizures, which can result in broad spectrum of debilitating medical and social consequences. Since seizures, in general, occur infrequently and are unpredictable, automated seizure detection systems are recommended to screen for seizures during long-term electroencephalogram (EEG) recordings. In addition, systems for early seizure detection can lead to the development of new types of intervention systems that are designed to control or shorten the duration of seizure events. In this article, we investigate the utility of recurrent neural networks (RNNs) in designing seizure detection and early seizure detection systems. We propose a deep learning framework via the use of Gated Recurrent Unit (GRU) RNNs for seizure detection. We use publicly available data in order to evaluate our method and demonstrate very promising evaluation results with overall accuracy close to 100 %. We also systematically investigate the application of our method for early seizure warning systems. Our method can detect about 98% of seizure events within the first 5 seconds of the overall epileptic seizure duration.				
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