Topological properties of flat electroencephalography's state space

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ABSTRACT

Neuroinverse problem are often associated with complex neuronal activity. It involves locating problematic cell which is highly challenging. While epileptic foci localization is possible with the aid of EEG signals, it relies greatly on the ability to extract hidden information or pattern within EEG signals. Flat EEG being an enhancement of EEG is a way of viewing electroencephalograph on the real plane. In the perspective of dynamical systems, Flat EEG is equivalent to epileptic seizure hence, making it a great platform to study epileptic seizure. Throughout the years, various mathematical tools have been applied on Flat EEG to extract hidden information that is hardly noticeable by traditional visual inspection. While these tools have given worthy results, the journey towards understanding seizure process completely is yet to be succeeded. Since the underlying structure of Flat EEG is dynamic and is deemed to contain wealthy information regarding brainstorm, it would certainly be appealing to explore in depth its structures. To better understand the complex seizure process, this paper studies the event of epileptic seizure via Flat EEG in a more general framework by means of topology, particularly, on the state space where the event of Flat EEG lies.

KEYWORD

Neuroinverse problem, EEG signals, Electroencephalograph

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