Seizure forecasting systems hold promise for improving the quality of life for patients with epilepsy. Despite the fact that epilepsy is infrequent, the epileptic patients suffer from a constant paranoia of a seizure.

Seizure forecasting systems have the potential to help patients with epilepsy lead more normal lives. In order for EEG-based seizure forecasting systems to work effectively, computational algorithms must reliably identify periods of increased probability of seizure occurrence. If these seizure-permissive brain states can be identified, devices designed to warn patients of impending seizures would be possible. Patients could avoid potentially dangerous activities like driving or swimming, and medications could be administered only when needed to prevent impending seizures, reducing overall side effects.

Research has shown that the process of seizure can be divided into 4 phases:

- Interictal: Baseline in-between seizures
- Preictal: Before Seizure
- Ictal: Seizure
- Postictal: After Seizure

The primary challenge in detecting seizures is to discriminate between preictal and interictal states and correctly classify preictal states beforehand with some confidence.

The goal is to accurately detect these preictal stages from the EEG data of patients and dogs of naturally occurring epilepsy.
References:

- https://www.kaggle.com/c/seizure-prediction
- Howbert et al Forecasting seizures in dogs with naturally occurring epilepsy. PLoS One