Abstract

Thirty percent of epileptic patients encounter intractable seizures, (seizures that do not respond to medication), thus, an accurate seizure detector would help improve their quality of life. Unfortunately, seizure detection is one of the many fields that suffer from imbalanced dataset i. e. the ratio between ictal and inter-ictal records is huge which makes it difficult to build an accurate classifier. This paper attempts to build a classifier that is able to overcome the previously mentioned challenge by dividing the dataset in ensembles and utilizing multiple SVM classifiers. As a result, the detector was able to reach an overall accuracy of 97.3%; thus, opening the field for building strong classifiers from highly imbalanced datasets in the biomedical domain.
Informed Under-Sampling for Enhancing Patient Specific Epileptic Seizure Detection


Interview with Prof. Charles Ribak, Irvine School of Medicine, The University of California


Yan-Qing Zhang, Nitesh V. Chawla and Sven Krasser Yuchun Tang. SVMs Modeling for Highly Imbalanced Classification. JOURNAL OF LATEX CLASS FILES, vol. 1, no. 11, 2002.


Index Terms

Computer Science

Artificial Intelligence

Keywords

Seizure detection  imbalanced dataset  SVM ensemble  approximate entropy