
Abstract

Respiratory disease is still the highest killer after strokes and heart disease, this is due to diagnostic techniques that are still limited to auscultation. Through auscultation it is found that the lungs have different sounds, according to one's health condition. Therefore, research began to classify the types of lung sounds. Various methods have been used for research in this field, including deep learning. Among the many methods that develop under the label of deep learning, it turns out that Autoencoder is only used once in the history of research in classification of pulmonary sound data. Autoencoder (AE) is one of the Deep Neural Network architectures that is capable of reconstructing data. This capability can be used as a feature extraction method so that classifier can classify data better. Therefore, autoencoder is proposed as a feature extraction method in this final project. The ability of Autoencoder as a feature extraction method will be tested by Support Vector Machine (SVM). The feature vector is prepared with continuous wavelet transform (CWT) and three further processing, then it inputted into Autoencoder. From two experiments on Autoencoder's parameter, the AE-SVM classification system achieved an accuracy of 82.38%.

Keywords: lungs sound, continuous wavelet transform, wavelet energy, deep neural network, autoencoder, support vector machine
