IV. CONCLUSION

In order to maintain a normal condition of a machine system, fault prediction and diagnosis systems are necessary. In this paper, we use the time series data of small data sets directly for pattern classification without feature extraction. This method showed a small learning time of 0.01 second and good performance. Normal and abnormal data can be easily separated. Now our research is to add feature extraction methods and apply them to non-separable datasets. The proposed method can be used in other fault diagnosis systems. If the normal and abnormal sound of the drill can be separated, it can also be used for vibration and other acoustic emission data.

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