

PSO Optimization with Autoregressive Modeling and Support Vector Machines for Bearing Fault Diagnosis

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Abstract: As an effective tool in pattern recognition and machine learning, support vector machine (SVM) has been adopted abroad. In developing a successful SVM classifier, extracting feature is very important. This paper proposes the application of Autoregressive Modeling to SVM for feature extraction. To improve the classification accuracy for bearing fault prediction, particle swarm optimization (PSO) is employed to simultaneously optimize the SVM kernel function parameter and the penalty parameter. The results have shown feasibility and effectiveness of the proposed approach

Keywords : machine learning, Support vector machine, SVM, Autoregressive Modeling, feature extraction