

研 究 主 論 文 抄 録

論文題目 : Diagnosis, Classification and Prognosis of Rotating Machine using  
Artificial Intelligence  
( 知識工学を適用した回転機の設備診断と故障部位の同定 )

熊本大学大学院自然科学研究科 情報電気電子工学専攻 機能創成エネルギー講座  
( 主任指導 檜山 隆 教授 )

論文提出者 : Abd Kadir Bin Mahamad  
( アブドル カディル ビン マハマド )

主論文要旨

The demand for cost efficient, reliable and safe rotating machinery requires accurate fault diagnosis, classification and prognosis systems. Therefore these issues have become of paramount important so that the potential failures of rotating machinery can be managed properly. Various methods have been applied to tackle these issues, but the accuracy of those methods is just satisfactory only. This research, therefore propose appropriate methods for fault diagnosis, classification and prognosis systems. For fault diagnosis and classification, the vibration data was obtained from Western Reserved University. The vibration signal was processed through pre-processing stage, features extraction, features selection before the developed diagnosis and classification model were built. For fault prognosis systems, the acoustic emission and vibration signals were used as input signals. Furthermore, ANN was used as prognosis systems of rotating machinery failure. The simulation results for fault diagnosis, classification and prognosis systems show that proposed methods perform very well and accurate. The proposed model can be used as tools for diagnosing rotating machinery failures.