

은닉 마르코프 모델을 이용한 질량 편심이 있는 회전기기의 상태진단

Condition Monitoring Of Rotating Machine With Mass Unbalance Using Hidden Markov Model

고정민 † · 최찬규* · 강토** · 한순우** · 박진호** · 유홍희 †

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Key Words: Hidden Markov Model(HMM; 은닉 마르코프 모델), Fault Diagnosis(결함 진단), Feature Vector(특징벡터), Vector Quantization(벡터 양자화), Mass unbalance(질량 편심), Rotating Machine(회전 기기)

ABSTRACT

In recent years, a pattern recognition method has been widely used by researchers for fault diagnoses of mechanical systems. A pattern recognition method determines the soundness of a mechanical system by detecting variations in the system's vibration characteristics. Hidden Markov model has recently been used as pattern recognition methods in various fields. In this study, a HMM method for the fault diagnosis of a mechanical system is introduced, and a rotating machine with mass unbalance is selected for fault diagnosis. Moreover, a diagnosis procedure to identify the size of a defect is proposed in this study.

1.

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가 (Hidden Markov Model; HMM),
가 (Artificial Neural Network; ANN),
가 (Fuzzy Logic)

가 (7)
Condition Monitoring . Condition Monitoring

가 (1) (2) 1960

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2.

wheel balance

Mass

3. FFT

HMM

HMM

(Feature vector extraction)

(Vector quantization)

(4-5)

FFT

(codebook)

(6)

(Time series)

4.

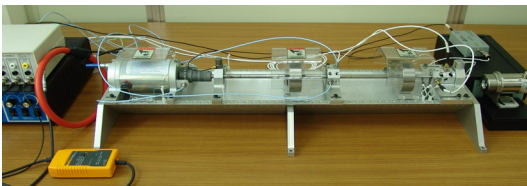


Fig. 1 Rotor kit

5.

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