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[54] BIDIRECTIONAL SPECTRAL-BASED TRANSFORMER FOR REMAINING USEFUL LIFE PREDICTION

基於頻譜的雙方向 TRANSFORMER 模型的剩餘使用壽命預測

[57] The present invention discloses a method for predicting the remaining useful life of an engine based on a bidirectional spectral-based Transformer model (200) comprising: obtaining sensor data from at least one sensor; filtering sensor data; normalizing the sensor data; inputting the normalized data into a bidirectional spectral-based Transformer model (200) by adopting Discrete Cosine Transform (DCT); training the bidirectional spectral-based Transformer model (200) based on a pre-set training data set; and predicting the remaining useful life (108) of the engine based on the trained bidirectional spectral-based Transformer model (200).

本發明公開了一種基於頻譜的雙方向 Transformer 模型 (200) 的發動機剩餘使用壽命預測方法，包括：從至少一個傳感器獲取傳感器數據；過濾傳感器數據；歸一化傳感器數據；採用離散餘弦變換(DCT) 以將歸一化後的數據輸入到基於頻譜的

雙方向 Transformer 模型 (200) 中；基於預先設定的訓練數據集訓練基於頻譜的雙方向 Transformer 模型 (200)；並基於已訓練的雙向基於頻譜的 Transformer 模型 (200) 以預測發動機的剩餘使用壽命 (108)。

