HEALTH INDEX SELECTION AND RUL PREDICTION BASED ON NPCA AND STOCHASTIC MODELLING

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Utilizing condition monitoring information to predict remaining useful life has been increasing with the growing use of monitoring systems in industries. One part of this process that significantly affects the result is selecting a suitable health index. This paper introduced a methodology based on a nonlinear principal component analysis (NPCA) and a stochastic model. First, NPCA is applied to the features to extract a suitable health index. After that, based on the health index trend, the service life of the signal is divided into multi-stages. Next, a new stochastic model is estimated to predict the health status and RUL. The experimental studies show that the proposed method has a better RUL prediction performance than the linear and exponential regression models.

Keywords: *Condition Monitoring, Health Index, Remaining Useful Life, NPCA, Prediction*

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