

论文与报告

基于 δ 算子的格形故障检测滤波器

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摘要

本文基于 δ 算子构造了Hilbert空间中的信号向量, 推导了系统的输入输出关系, 得出了前向和后向预测误差向量的表达式. 借助格形滤波器理论导出了故障残差序列的递归算法, 从而设计出故障检测滤波器. 将该滤波器与自适应噪声抵消技术相结合, 实现了对被噪声污染信号的故障实时在线检测. 最后, 仿真实验验证了这种故障检测方法的有效性.

关键词 [故障检测](#) [\$\delta\$ 算子](#) [格形滤波器](#)

分类号

Delta Operator-Based Lattice Fault Detection Filter

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Abstract

In this paper, based on Delta Operator, signal vectors of Hilbert space are constructed, an input-output model is derived, and both the forward and backward prediction error vectors are described. With the help of Lattice filters, recursive algorithms for generating time-updated as well as order-updated residual series are formed, so that a fault detection filter is designed. Combined with the approach of .adaptive noise canceling, real time, on-line fault detection is carried out. Finally, simulating experiments show that this fault detection method is effective.

Key words [fault detection](#) [Delta Operator](#) [Lattice filter](#)

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