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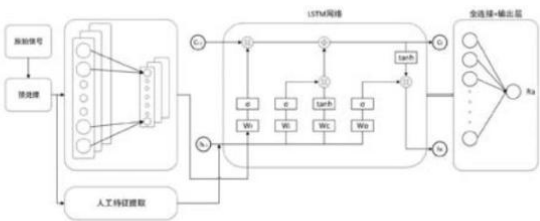
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(54) 发明名称

基于改进型LSTM网络的表面粗糙度预测方法

(57) 摘要

本发明公开了基于改进型LSTM网络的表面粗糙度预测方法,包括如下步骤:S1建立不同切削参数下振动信号与所对应的粗糙度值的大数据集;S2采用步骤S1中的大数据集对CNN网络层进行训练以获得CNN筛选特征集。S3对步骤S1中的大数据进行人工筛选特征获得人工筛选特征集。S4将步骤S2中的CNN筛选特征集和步骤S3中的人工筛选特征集作为输入门的特征数据对LSTM网络层进行训练获得全特征集。S5采用一个FCN网络对全特征集进行训练,以获得振动信号与粗糙度值相对应的预测模型。S6在S5的预测模型中输入待测粗糙度的振动信号以获得表面粗糙度值。本发明中的预测模型在数据预处理后改变原始信号后,不会过滤掉相关度高的特征;提高了零件表面粗糙度预测的准确性。



## **Certification**

### **Certification of application announcement**

**Invent name:** Surface roughness prediction method based on improved LSTM network

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