

## 基于蚁群聚类算法的RBF神经网络在压力传感器中的应用

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摘要:

针对压力传感器在应用中存在温度漂移这一缺点, 提出了一种基于蚁群聚类算法的RBF (Radial Basis Function) 神经网络温度补偿方法。利用蚁群算法的并行特征和一种自适应调整挥发系数的方法作为聚类算法来确定RBF神经网络的基函数的位置, 并通过裁减的方法约简隐层的神经元, 以达到简化网络结构的目的。过仿真可以看出, 该算法具有误差小, 精度高等优点, 对压力传感器的温度漂移有比较好的补偿效果。

关键词: RBF神经网络; 蚁群聚类算法; 压力传感器

## The Application of RBF Neural Network Based on Ant Colony Clustering Algorithm to pressure sensor

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**Abstract:**

Aiming at the drawback of temperature drift of the pressure sensor, a temperature compensation method of RBF Neural Networks based on ant colony clustering is proposed. Based on the feature of parallel search optimum of the ant colony algorithm and a dynamic method to adjust the parameter of evaporation coefficient, the center of each function of RBF can be defined by using a new proposed clustering algorithm; in order to simplify the structure of RBF network, we use a pruning method to remove the hidden units. The simulation results showed that the method has the features of small error, high precision and has a good compensation effect for the pressure sensor's temperature drift.

**Keywords:** RBF neural network; ant colony clustering ;pressure sensor

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