

عنوان مقاله:

Control Chart Patterns Recognition Using Fuzzy Rules and Wavelet Analysis

محل انتشار:

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خلاصه مقاله:

Unnatural patterns in the control charts can be associated with a specific set of assignable causes for process variation. Hence, pattern recognition is very useful in identifying process problem. In this study, we have developed an expert system that we called an expert system for control chart patterns recognition for recognition of the common types of control chart patterns (CCPs). The proposed system includes three main modules: the feature extraction module, the classifier module and the optimization module. In the feature extraction module, the multi-resolution wavelets (MRW) are proposed as the effective features for representation of CCPs. In the classifier module, the adaptive neuro-fuzzy inference system (ANFIS) is investigated. In ANFIS training, the vector of radius has a very important role for its recognition accuracy. Therefore, in the optimization module, cuckoo optimization algorithm is proposed for finding optimum vector of radius. Simulation results show that the proposed system has high recognition accuracy.

کلمات کلیدی:

Adaptive neuro-fuzzy inference system, control chart pattern, cuckoo optimization algorithm, wavelet

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