

Instant Fire Risk Assessment Using Artificial Neural Networks

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Abstract : Major industrial facilities have a high potential for fire risk. In particular, the indices used for the detection of hidden fire are used very effectively in order to prevent the fire from becoming dangerous in the initial stage. These indices provide the opportunity to prevent or intervene early by determining the stage of the fire, the potential for hazard, and the type of the combustion agent with the percentage values of the ambient air components. In this system, artificial neural network will be modeled with the input data determined using the Levenberg-Marquardt algorithm, which is a multi-layer sensor (CAA) (teacher-learning) type, before modeling the modeling methods in the literature. The actual values produced by the indices will be compared with the outputs produced by the network. Using the neural network and the curves to be created from the resulting values, the feasibility of performance determination will be investigated.

Keywords : artificial neural networks, fire, Graham Index, levenberg-marquardt algorithm, oxygen decrease percentage index, risk assessment, Trickett Index

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