

SS25: Intelligent Systems and Applications

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Various intelligent systems for industrial applications will be discussed in this session. The main topics of this session include an object recognition of color image by fuzzy inference system, electricity price forecasting by fuzzy clustering and GRBFN of ANN, and self organization used for optimization problems.

The fuzzy inference system is applied for the object recognition of image which is obtained by vision sensor. The proposed method enables to calculate and update the coefficients, which calculate the luminosity components of the image. By using the calculated coefficients for the original image, the brightness of the image can be automatically obtained. Second topic discusses an efficient hybrid intelligent system that consists of fuzzy c-Varieties of fuzzy clustering and GRBFN (Generalized Radial Basis Function Network) of ANN (Artificial Neural Network) for electricity price forecasting. It is interesting that the proposed forecasting model is very effective for reducing the prediction errors, especially, the maximum errors such as spikes in electricity price. Lastly, the session presents the SOP(Self Organization Primate) algorithm which is applied to the optimization problem. The proposed algorithm is inspired by the behavior of the Primate searching for food source. The SOP algorithm has an advantage of lower average iteration convergence rate and higher percentage efficiency in term of working computation.