



PREDICTION OF SEWAGE QUALITY BASED ON FUSION OF BP NETWORKS

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Abstract- Sewage treatment system is a complicated nonlinear system with multi-variables, chemical reaction, biological process and altered loads, hard to describe mathematically. Thus prediction of the effluent quality parameters of sewage treatment plant has being a challenge. In this paper we adopt fusion of two BP networks to predict sewage quality parameters with a popular process Cyclic Activated Sludge System (CASS). We take use of SVM (support vector machine) to classify the input data into two kinds, and train the corresponding BP networks with the two kinds of data. Before using SVM to classify the input data, PCA (principle component analysis) is used to analyze the correlation between sewage quality parameters. Then we predict the value of sewage quality parameters with the fusion results of the two BP networks. Test results of the case study show that fusion of BP networks not only can improve the stability of BP networks but also can improve the prediction accuracy.

Index terms: sewage quality parameters, BP networks, SVM; fusion.