



<b>Thesis Title</b>	Reverse Link Power Prediction for CDMA Systems Using Support Vector Machine
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### ABSTRACT

This paper presents an application of the support vector machine (SVM) in prediction of received signal power in the direct sequence code division multiple access (DS-CDMA) mobile systems. The predictor selects the parameters by using five-fold cross-validation method. The results are evaluated in term of minimum mean square error (MMSE.) The inputs for the predictor are the past values of signal series and the output is the next step ahead value. The SVR-based predictor is compared to the previously proposed linear, nonlinear and hybrid neural network-based predictors, i.e., the adaptive linear (Adaline) predictors, the multilayer perceptrons (MLP) and Adaline cascade with MLP (Hybrid), respectively. A noisy Rayleigh fading channel with 1.8 GHz carrier frequency in an urban environment is simulated as the wireless channel. Two mobile speeds of 5 and 50 km/h are also simulated. The results show that the SVR-based predictor can estimate the power better than the Adaline, MLP and Hybrid predictors by considering the signal-to-noise ratio (SNR) and system capacity.