CASE STUDY

SOFTWARE IMPLEMENTATION OF A MACHINE LEARNING ALGORITHM BASED ON RADIAL BASIS FUNCTION FOR MODEL PARAMETER ESTIMATION AND MODEL BASED CONTROL

Machine learning (ML) algorithms based on artificial neural networks (ANN) gain more and more interest both in research and implementation in various identification, classification, recognition and other task related to neurocomputing for engineering and science.

In the present case study a radial basis function neural network (RBF NN) consisting of an input, hidden and output layers should be implemented in Matlab/Simulink Framework, with the multivariate Gaussian function as activation function in the hidden layer. For adaptation of the NN parameters stochastic gradient descent learning algorithm should be implemented.

The implementation of the RFB NN should be tested in simulation with Matlab/SImulink for several cases a of plant identification and control by varying the number of neurons in hidden layer as well as for several plant models in combination with the PID controller.

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