

ABSTRACT

The embodiments of the invention provide a device (100) for predicting the value of a variable intended to be used by a computer-implemented control system, the variable depending on multiple parameters, the parameters comprising a non-explicit parameter. Advantageously, the prediction device comprises a first neural network-based predictor (101) configured so as to compute an estimate of the non-explicit parameter and a second neural network-based predictor (102) configured so as to compute an estimate of the value of the variable from the estimate of the non-explicit parameter, the two predictors (101, 102) receiving an input dataset, each neural network being associated with a set of weights. The prediction device is configured so as to apply a plurality of iterations of a single learning function to the two predictors (101, 102), the learning function comprising: a forward propagation block for computing, on the basis of the input data of the two predictors (101, 102), the gradient of a minimization function for minimizing a cost function of the first predictor (101); and a backpropagation block (32) for updating the weights of the neural networks of the two predictors by backpropagating the gradients computed by the forward propagation block. The prediction device (100) estimates the value of the variable to be predicted at a future time, after the iterations of the learning function, by applying input data to the neural networks of the two predictors (101, 102) and using the weights updated by the learning function.

Figure for the abstract: Fig. 1