

In this paper, we present a method for inverse control of multi-input multi-output systems that uses a combination of artificial neural net (ANN) modelling and constrained optimization. Inverse control is the problem of determining the inputs to a process that will drive its outputs to desired targets. The problem reduces to minimizing a positive cost function that measures the differences between the outputs and their target values. The outputs are related to the inputs of the process by an artificial neural net model which is trained with historical input-output data. The proposed method is tested on the breathing process in camless internal combustion engines where the simulation results demonstrate the effectiveness of the algorithm.