عنوان مقاله:

PREDICTION OF CROSS – SECTION TEMPERATURE DURING THE MILLING PROCESS USING ARTIFICIAL NEURAL NETWORKS

محل انتشار:

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خلاصه مقاله:

Information of the machined cross-section temperature during the milling process, is important in milling quality and tools life aspects . In this respect various studies, including experimental, numerical and analytical methods are done , usually in unstable mode . In the present study the milling cross-section temperature is determined by using Artificial Neural Networks (ANN) according to the temperature of certain points of the work piece and the points specificallons and the milling blade diameter . In the present work, at first three-dimensional model of the work piece is provided and then by using the Computational Heat Transfer (CHT) simulations, temperature in different nods of the work piece are specified in steady-state conditions. Results obtained from CHT are used for training and testing the ANN approach. Using reverse engineering and setting the desired x , y , z and the milling blade diameter as input data to the network , the milling surface temperature determined by neural network is presented as output data . the desired points temperature for different milling blade diameters are obtained experimentally and by extrapolation method for the milling surface temperature is obtained and a comparison is performed among the soft programming ANN , CHT results and experimental data and it is observed that ANN soft programming code can be used more efficiently to determine the temperature in a milling process

کلمات کلیدی:

Milling;cross-section Temperature;Artifical Neural Networks