Comparative Study of Bending Angle in Laser Forming Process Using Artificial Neural Network and Fuzzy Logic System

Authors : M. Hassani, Y. Hassani, N. Ajudanioskooei, N. N. Benvid

Abstract : Laser Forming process as a non-contact thermal forming process is widely used to forming and bending of metallic and non-metallic sheets. In this process, according to laser irradiation along a specific path, sheet is bent. One of the most important output parameters in laser forming is bending angle that depends on process parameters such as physical and mechanical properties of materials, laser power, laser travel speed and the number of scan passes. In this paper, Artificial Neural Network and Fuzzy Logic System were used to predict of bending angle in laser forming process. Inputs to these models were laser travel speed and laser power. The comparison between artificial neural network and fuzzy logic models with experimental results has been shown both of these models have high ability to prediction of bending angles with minimum errors.