

ANN Based Estimation of Geometry of Bead-on-Plate in Pulsed Gas Tungsten Arc Welding

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Abstract - Artificial Neural Networks (ANN) has been constructed for estimating the geometrical parameters of bead-on plate obtained through Pulse TIG (Tungsten Inert Gas) welding, also known as Gas Tungsten Arc Welding (GTAW). For this, the dataset have been taken from the experimental work. Welding voltage, welding current, torch travel speed and pulse frequency have been considered to be the input parameters to predict weld bead width, height of reinforcement and depth of penetration. Hidden layers are varied. 6 numbers of nodes in the hidden layer has been found to give the best results in this work. Estimated values of bead width, depth of penetration and height of reinforcement have been found to be quite close to the experimental observation.